

Family Planning Program Effects on  
Reproductive Preferences

(or, Do Family Planning Programs Affect  
Reproductive Preferences?)

by

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## Executive Summary

Have family planning programs helped to decrease the number of children wanted? Or has that preference decline been a result of mortality decline, development, and ideational change, while programs served to (1) convert decreased numbers of children wanted to a demand for contraception and/or (2) provide services and supplies to meet that demand?

Before summarizing answers derived from a review of the research literature, it is useful to state the limitations of that literature. First, the great majority of evaluation studies deal only with what happens after the number of children wanted decreased and the number of couples wanting no more children increased. For understandable reasons most evaluation studies deal with program impact on increasing contraceptive use and the resulting fertility decline. Very few are designed specifically to evaluate program effects on reproductive preferences. As a result many studies which deal with preferences, as an incidental result of other research objectives, have defects for our purposes.

Nevertheless, the studies reviewed, using a variety of methodologies, make it possible to give tentative answers to our central questions and to indicate how such studies can be improved in the years ahead.

A number of the studies conclude that the initial wanted number of children is not reduced by programs. But some also provide important evidence that the programs serve to "crystallize" latent demand, that is, to convert what are often somewhat uncertain and ambiguous desires not to have more children into a definite demand for contraception.

This is an important stage, often neglected, between the initial decrease of numbers wanted and the actual adoption of contraception, often under program auspices.

Important evidence on this point is in the well known Matlab experimental study, which found that the decline in preferences in the "experimental area" was no greater than in the "control area." However, they also found that in the experimental area there was a greater use of contraception and fertility decline. From this they inferred that the experimental program served to convert the decreased preference to a definite demand for contraception, which the program then served.

This inference was supported in Matlab by several qualitative studies (by participant observation and focus groups) providing evidence from the lips of the women themselves. They indicated that, when they began to feel they wanted no more children, they often still felt uncertain and hesitant about taking next steps. The evidence from their reports in focus groups and from the observation of their encounters with family planning workers was that those workers helped them to overcome a series of obstacles from traditional institutions and values. The result was to convert latent into manifest demand, followed in many cases by adoption of contraception.

The Matlab study was somewhat impaired by the fact that the questions about preferred family size were not exactly comparable over time and that there was possible diffusion of preference ideas from control to experimental areas.

The Matlab results were confirmed further by studies in the Extension Area of Bangladesh associated with the Matlab project, designed to test whether the results of the Matlab intensive community-

based program approach could be replicated with only the level of resources available for the Bangladesh general program. The results were almost a complete replication of the Matlab results, but this time with more carefully planned and comparable surveys on preferences (and other aspects of reproductive behavior) over time. The reported result was that with multivariate controls the program had only a slight effect on preferences. Again, the decrease in preferences and the resulting latent demand were converted to an active demand for contraception by an intensive community-based program despite traditional barriers comparable to those in Matlab.

These initial studies have been reported in some detail to make the issues involved as clear as possible. It is also important that Matlab in particular and Bangladesh more generally have been used as models for the possibilities of programs in other countries with little development.

A quite different kind of evidence is in a recent cross-national multivariate study (by Bongaarts) with important but limited data for many developing countries. It found that decline in number of children wanted was correlated only with socioeconomic development and not at all with program effort. However, the study also found that the declining number of children wanted was correlated with an increase in unwanted children and that program effort was correlated with a decline in such unwanted fertility. The plausible inference was that, after development decreased the number of children wanted, the resulting increased number of unwanted children was decreased by program effort. Program effort, it appeared, converted the increasing numbers with unwanted children to a demand for contraception, which it then served. While this series of

inferences is plausible, this study (as in the quantitative studies in Bangladesh) did not provide direct evidence for succeeding steps. It simply had the cross-sectional multivariate results.

A problem with this multivariate study is that the inferences about the causal sequence are based on cross-sectional data, without the time sequences of the Bangladesh studies. Further, there is the problem of inferences to micro-level behavior from a completely macro-level analysis. Nevertheless, the results parallel those of the Bangladesh studies, as far as they go.

The findings up to this point are consistent with the idea that the shift from higher to lower fertility for the individual couple does not necessarily mean a clearcut, unambiguous decision, e.g., to have four rather than six children or definitely to have no more children. In a recently traditional society such shifts are likely to involve uncertainty and ambiguity in view of real or perceived opposition from husbands and significant others. Action to limit fertility additionally requires acceptance of the idea of birth control, itself fraught with ambiguity. An important role of programs is to help women, and sometimes men, to act despite their doubts and uncertainties. It is to convert the latent demand for family limitation to a definite manifest demand for contraception.

Early multivariate intra-country studies in Pakistan and in Bangladesh also indicate no net correlation between program effort and wanting no more children. These are not discussed in any detail, because the indicators of program effort are not very good and because the programs in both countries at the time were too weak or new to have much

effect on anything. They are cited as examples of many other studies put aside as not really relevant.

A study in Thailand by Knodel, et al. is cited as combining both quantitative and qualitative methods effectively. It partly supports the ideas just discussed, but it also introduces important additional ideas.

This study attributes the very rapid fertility decline in Thailand, once the program began, to the creation of latent demand for fewer children and contraception before that by mortality decline and early development. Older focus group respondents who had large families before the program reported in some cases that they had no specific preference ideas before the program because they had no choice. But others remember wanting to stop having children but failing to do so by using ineffective traditional methods.

The latent demand created prior to the program became manifest and was satisfied in many cases by the program. This is not definitively demonstrated, but it is plausible given the evidence.

These ideas for Thailand are also supported by the Potharam pilot study which preceded the national Thai program. In its rural project area with few signs of development, a baseline KAP study found that a large minority of couples wanted no more children. Then, in the actual pilot program 32 percent became users in just 19 months.

This and the Thai study by Knodel, et al. are both illustrative of the fact that in many East Asian countries non-program forces changed preferences before the program. In the Potharam case it is plausible that the program both converted some latent to manifest demand and provided the contraception. The study had no direct data on this point.

The Knodel report made an additional important point. The decline in preferences which preceded the program did not continue in the first program years. But, after a delay the decline began again. Knodel attributes this, at least in part, to a feedback effect. The observation by non-users of the increasing contraceptive use and smaller families of others served to further legitimize and, thereby, increase these new reproductive behaviors for non-users. Similar patterns can be cited for Taiwan, Korea, and Costa Rica. The feedback process is highly plausible, but isn't supported by micro-level studies of individuals demonstrating the feedback process.

The work of Jack Caldwell, et al. (which I have labeled a wholistic multi-method study) uses both qualitative and quantitative methods in the context of an overarching theory of fertility decline. It depends heavily on the qualitative interviews and observation of more than 100 local people during an extended period of residence in a rural area in South India. Caldwell provides strong evidence that fertility preferences declined in the pre-program period as a result of a major social and economic transformation in which the traditional flow of resources from the younger to the older generations was reversed.

However, Caldwell also reports that village residents almost unanimously reported that the program had major effects in explaining the new economic reasons for smaller families and in legitimizing the family planning services (mainly sterilization) it provided. Thus, Caldwell sees the program as also having an effect on the shift to smaller family preferences, basically precipitated by other basic forces. Caldwell, et al. do not explicitly separate out the stages of

change as they appear in the hypotheses we are discussing, but I believe this summary fits the information reported.

As in much work of an anthropological bent, conclusions often depend on trust in the principal investigator. Caldwell clearly deserves such trust, but more citation of specific interviews and observations on specific points would have been helpful. In the end we are relying on the Caldwells' summary of the evidence.

The idea that latent demand was converted to a more explicit demand for contraception is supported also by a very different kind of analysis by Cleland, who compares the histories of Pakistan and Bangladesh. For both, there is evidence of considerable latent demand in 1970 before either had a significant family planning program. At that time and in the following years, there is no evidence that Bangladesh had greater socioeconomic development than Pakistan. It appears that the only distinctive facilitating characteristic was that Bangladesh had a large, effective family planning program while Pakistan did not. A central feature of the Bangladesh program, adapted from Matlab and its Extension Area, was a nationwide network of community-based family planning workers. These probably helped the women to overcome traditional barriers initially preventing latent demand from becoming real demand for contraception, as demonstrated for Matlab. It seems very probable that in Bangladesh, as in Thailand, the feedback effect operated so that the program may have affected many women indirectly. It is unfortunate that, as in the case of Thailand, there is no specific systematic micro-level evidence on this point. In a sense, Cleland's comparison of Bangladesh and Pakistan is a kind of two-country multivariate analysis in a natural experiment.

So far, we have cited work which is relevant and supportive of the idea that preferences are initially affected mainly by non-program forces, but that the programs have a subsequent effect in converting latent to manifest demand, in supplying services, and in plausible feedback effects on non-users.

We turn now to studies which seem to contradict these basic ideas by suggesting that programs do affect preferences.

We begin with studies pertinent to the "ideational hypothesis," which stated epigrammatically is: "Ideas also make a difference." Specific ideas about the desirability of smaller families and/or the means of achieving them may be spread by communication networks, either with or without connections to family planning program inputs and, at least partly, independent of socioeconomic variables.

There are a large number of studies of how program-based mass media programs about family planning ideas affect reproductive behavior. We concentrate on the much smaller number which deal with preferences in multivariate analyses.

We emphasize a study by Westoff and Rodriguez in which, after exemplary multivariate controls, there was a strong negative correlation between the degree of media exposure and reproductive preferences. The problem with this and most other such media studies is that, if they find a relationship between media exposure and preference decline, that may be a result of a selection effect--that is, those with previously reduced preferences may pay special attention to such messages. This can explain some or all of the relationship. This does not mean that the effects are not present, but it will take a longitudinal and, preferably, an experimental design to clearly establish this.

However, in a longitudinal study of Nigeria, Westoff, et al. do provide evidence that program-based mass media exposure does increase contraceptive use. Perhaps they might also have demonstrated a negative effect on preferences if that had been investigated.

On the other hand, longitudinal studies in Tanzania and Zimbabwe which found increases in contraceptive use with mass media exposure did not find any effect on reproductive preferences.

A key part of the ideational hypothesis is that ideas about reproductive behavior diffuse from those with the new behavior and ideas to others with whom they interact. The problem is that we could not find any systematic studies of diffusion involving preferences. Some of the results for diffusion of ideas about contraceptive use and lower fertility are sufficiently impressive to suggest that the effect might operate also for reproductive preferences. Qualitative studies of how interaction in social networks transmits program influence on preferences (and other reproductive attitudes and behavior) is also promising. But the evidence is not yet in hand for preferences.

A preliminary report on a study in Kenya indicates that preferences are widely discussed in social networks and that this may be related to lower preferences. However, the question of causality and the specific role of programs in generating the ideas discussed has not yet been dealt with.

The feedback effect, previously discussed, is really a form of diffusion. It is plausible that such an effect might operate in most countries with respect to preferences and contraceptive use. Unfortunately, it has not yet explicitly demonstrated to be the case, as I think it might be. If it were a substantial widespread phenomenon, it

should have turned up as a net negative correlation of program effort and wanted fertility in the Bongaarts multivariate study cited earlier.

Illustrative of other studies which find program effects on preference that we have reviewed but set aside are two longitudinal studies in Africa. One reports decreases in preferences too large to be credible in a short period. The researchers themselves indicate that the longitudinal design and the setting may have led respondents to learn and give responses that would please respected investigators. In the second study the only preference variable was flawed and, in any case, the intervention and comparison areas had different initial social and economic conditions. These comments should not detract from the significant achievements of these programs in health services and training.

Perhaps the most promising leads to evidence that programs do affect preferences is in several multivariate intra-country studies recently published or in process by Guilkey, et al. Notable features are analytic procedures which appear to handle the causal problem and historical data on the time of program service availability. This gives the analysis a very desirable life-cycle angle of approach. In the published study on Tunisia there were significant net effects on preferences of a program variable on wanting to limit and to space children. However, the effects were relatively small. More studies with varying results for different countries are promised soon. Another multivariate intracountry study for Egypt also found small program effects on preferences.

Finally, a potentially important study in progress by Rutstein is a cross-national analysis of how intra-cohort declines in preferences

are related to changes over a similar time period in program effort net of development and mortality measure changes. The preliminary results indicate consistent net correlations between program effort increase and preference decline.

It is highly probable that in China the rapidity of a historically unprecedented fertility decline was the result, in large part, of a very strong coercive program. It is not known to what extent the program per se changed preferences in the long run, because there were also important social and economic changes which facilitated reduced preferences. It is quite certain that China's one-child policy, effective in the cities, could not overcome the strong preference for two children and one son in the countryside.

The canvass of studies which support explicit program effects on preferences leaves us, at least temporarily, almost empty-handed except for one aspect of the Caldwell study and the plausible but not sufficiently empirically supported feedback studies. The studies under way by Guilkey, et al. are promising. Also, future longitudinal studies of mass media effects and studies of diffusion, including feedback effects, could plausibly find significant effects on preferences, but they have not yet done so.

Among all of these studies in progress, the most promising are the Guilkey, et al. studies, because they are close to fruition, already have demonstrated interesting results, and have data providing a historical dimension of promise.

It should be possible to make much stronger statements about program effects on contraceptive use and consequent fertility decline than we have been able to make about preferences. Many of the studies

that we report and many others that we set aside because they didn't deal with preferences reported significant effects on the two other variables.

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Chapter I - Introduction

A - The Problem

Have family planning programs contributed to the reduction of reproductive preferences and thereby increased the demand for and the practice of family planning? Or have they served to meet the increased demand only after it has been created by other social and economic forces? This monograph summarizes the answers to these questions provided by a review of the scientific literature.

This straightforward statement of the problem with which I began often turned out to miss an essential step intervening between reduced preferences and contraceptive use. Reduced preferences eventually led many to want no more children, resulting in what is called unmet need. But unmet need frequently does not lead to contraceptive use even when contraceptive services are available because of cultural and social barriers. An important program role in some countries was to help women overcome those barriers, thereby converting latent to manifest demand for contraception. This then could lead to contraceptive use when services were available.

Much, but not all, of the evidence reviewed indeed does indicate little program effect on reducing preferences initially. That was a result of socioeconomic development and mortality decline in important studies. However, there is evidence supporting the inference that an important contribution of programs was helping to convert the often ambiguous increased desire to have no more children to a demand for contraception. This was in addition to the well-known program effect in actually providing contraceptive services.

There is also another variant of the problem. In some cases the latent or masked demand for family planning arises not from a decrease in preferences but from this sequence: a decline in mortality results in a sufficiently larger number of children alive to equal or surpass the number of children surviving under former high mortality conditions. Then, by the time they are in their 30's, women find that they have more surviving children than they want or traditional institutions require. Under those conditions unmet need arises without any necessary decrease in the number of children desired. This may account for the fact that in some developing countries (e.g., in Africa) there is a significant number of women who say they want no more children but aren't yet using contraception (unmet need). In some such cases, although large numbers still don't give a numerical answer to questions about desired number of children, they have no problem in indicating whether they do or don't want more children. The program may enter at that stage or in helping the women to take that additional step.

We knew before this review began that family planning programs historically were not essential for decreased demand for children, more practice of contraception, and resulting fertility decline. That is clear from numerous examples of such a sequence of events in countries with either only weak programs or no programs at all. And we also know that there have been a variety of pathways to lower fertility. We have known for some time that the classical demographic transition theory that lower fertility resulted everywhere from a similar broad-based social and economic development is not correct. To be sure, fertility decline has occurred under those classical conditions, but they have also occurred under a variety of other social, economic, and institu-

tional arrangements. The key question, then, is whether some sets of those conditions include a strong family planning program which interacts with other facilitating developmental conditions to change reproductive preferences in some way.

I have interpolated this preview of part of the evidence, because that led me to a restatement of the problem in the guiding model that follows in the next section.

#### B - An Organizing Model

Figure 1 presents an organizing model of the major forces at work which may affect reproductive behavior--specifically reproductive preferences, contraceptive use, and fertility levels and change.

Social and economic factors are generally agreed to be major forces determining reproductive preferences which, in turn, determine the demand for contraception and, through that, contraceptive use, which, in turn, can be a major determinant of fertility levels and decline.

Improvement in the economy, increase in educational aspirations and attainment, greater desired and actual consumption, and greater status of women through labor force participation and in other ways are all part of a larger complex of change, often hypothesized to increase the cost and decrease the value of children. This leads to a decrease in the number of children desired and an increase in proportions wanting no more children. All this is illustrative of forces operating under the socioeconomic rubric.

Part of social and economic development is an expansion of the communication and transportation network, both within countries and

across countries in relation to global networks. These may grow more rapidly than the basic economy in newly developing societies. They are crucial in carrying and diffusing ideas specifically about family size and family planning but, perhaps at least as important, about lifestyles which may affect these.

Cultural factors, often neglected in such models, are shown as a separate factor, which may influence the rapidity and character of socioeconomic development. They may also directly affect reproductive preferences through the nature of their kinship systems, the status of women, and the flow of resources either upward from children to elders or, later, a reversal of these flows (Caldwell, 1982, pp. 115-156). Such cultural factors sometimes may affect both the pace of development and of preferences, as with purdah in Bangladesh and other places.

As an example, consider the case of Thailand. According to Knodel, et al. (1987), three cultural characteristics of Thailand were distinctively conducive to a fertility decline: (1) the dominant religion, Buddhism, does not address reproductive issues directly but stresses individual rather than group responsibility; (2) prior to the decline, Thai nuclear families had been more or less independent of broader kinship control for several generations; and (3) Thai society is characterized by considerable female autonomy, not only on reproductive issues but also in other areas of life. Such cultural factors are not usually considered in models of fertility decline that restrict determinants to socioeconomic variables and family planning efforts. According to the analysis by Knodel and his colleagues (1987, p. 194), cultural factors have resulted in a situation in which modest social differen-

tials reflect "full participation of the least educated and poorest couples in the move toward smaller families."

Mortality decline is shown separately as a determining factor in the model, because the increased survival of children in many societies means that the number of births needed to satisfy traditional fertility values and expectations is less. With lower mortality many couples may feel that they want no more children earlier. This may begin to happen when women are in their 30's and already have more than the women of preceding generations had by that life-cycle stage. Decreased mortality is also shown as potentially having a positive effect on development.

So far we have not mentioned the effects of family planning programs, because there are significant cases of countries in which the socioeconomic, mortality, and cultural variables have produced fertility decline by their effects on reproductive preferences and contraceptive use more or less independently of family planning programs which were absent or very weak.

However, the important question is whether there are also a significant number of cases in which there has been a demonstrable, significant effect of program influence in combination with cultural and socioeconomic factors. It is especially important to know whether there are cases in which program intervention has produced more change in preferences, contraceptive use, and fertility than occurs when it is absent. We also want to know whether programs have mitigated the force of pronatalist cultural factors.

We do not draw an arrow directly from preferences to contraceptive use, because the model is based on the hypothesis that a decrease in preferences or an increase in the proportions wanting no more chil-

dren often has not automatically resulted in an increase in contraceptive use. There is an often necessary intervening step--the creation of contraceptive demand for spacing or limiting. A program or other influences in the society may facilitate the movement from changes in reproductive preference to demand for contraception. Then, there is still another step--the movement from such demand to the actual use of contraception. Each of these intermediate steps may be facilitated and hastened by additional information, legitimation, and appropriate supplies and services. Some economists (e.g., Pritchett, 1994) do not see programs as required for the movement from changed preferences to contraceptive use. But other scholars see the programs as playing a crucial role in these intervening steps in many countries.

An important question posed by the model for our purpose is whether programs, in fact, do facilitate, first, the translation of wanting no more children to a demand for contraception and then, secondly, a translation of this demand into actual use of contraception. There is, of course, also the important prior question as to whether programs have helped directly to reduce preferences and increase the numbers wanting no more children.

The model also illustrates the possibility of important feedback backflows. For example, awareness of the increased contraceptive use and smaller families of others may create a climate of opinion favorable to the idea of having fewer children and help to crystallize ambivalent demand. Knodel, et al. (1981, p. 7) write:

... between 1969 and 1972, while the mean preferred number of children remained constant for rural women, contraceptive usage increased sub-

stantially and marital fertility declined. The Thai experience is roughly similar to that of Taiwan and Korea, where initial increases in contraceptive practice and decreases in fertility took place in the absence of any noticeable concomitant change in desired family size; only after these changes had gained some momentum was an accompanying decline in the preferred number of children observed (Freedman, et al., 1974; Ross and Kap Suk Koh, 1977). In all three countries the stated preferred number of children was substantially below the number of living children women had by the end of their child-bearing years. The experience of these countries as well as Thailand suggests that fertility desires may respond to the spread of family planning practices rather than just vice versa. Perhaps only after the concept of family planning becomes widely known and contraceptive practice reaches a moderate level is it realistic for couples to start adjusting their preferred number of children downward. (Emphasis mine.)

Robinson and Cleland (1992, pp. 112-113) state this same thesis somewhat differently.

... preferences with respect to number, gender, and timing of children, do not arise indepen-

dently of the knowledge, availability, and cost of regulation methods. ... A lowering of the cost of regulation is likely to bring about a reassessment of latent preferences and permit the formulation of more precise and intensely felt goals.

The counter-argument presupposes that preferences emerge in total isolation from the means to achieve them. This is analogous to saying that if a person really wants to travel from Liege to Rome, it does not matter whether a train or plane goes there, since the individual can always walk; the means for attaining the end will directly affect the formation of the "demand" in the first place. Surely this is also true of fertility and family size.

This issue will be discussed again later in the section on diffusion and social interaction. It is presented here to illustrate why backflows in the model may be very important. Change in demand may follow as well as precede increase in contraceptive use.

#### C - What Are Reproductive Preferences?

"Reproductive preferences" refers mainly to how many children women and men want, with secondary attention to preferences as to the sex of the children and how they are spaced. How many children they want is usually measured on the basis of responses to a survey question like this: "How many children would you have if you could start all

over and have just the number you want?" But, in terms of immediate motivation to use contraception, a more pertinent question is, "How many additional children do you want?" A still more immediate motivational question is, "Do you want any more children?" Theoretically, subtracting the number of children alive from the total number wanted should give a similar result.

In some developing countries the question about wanting no more children is apparently more meaningful to respondents than a question about how many they ideally want. For example, in the 1990/91 Pakistan DHS Survey 60 percent gave answers like "up to Allah" when asked about how many children they ideally would want, but only 13 percent gave such indeterminate responses when asked if they wanted more children. The situation was very similar in the 1990 Nigerian DHS--a continent away and a very different culture.

Whether wanting no more children will lead to initiation of contraceptive use depends, of course, on whether contraception is already being used in the country. Those who want no more children and aren't users are generally classified as cases of "unmet need." In addition, couples who want more children but not soon and aren't using contraception are classified as having unmet need for spacing. The sum of unmet need for spacing and limiting is the measure of total unmet need. (Couples who are subfecund are excluded. There are several ways of classifying those pregnant at the time of the survey.) Unmet need for limiting or spacing is now very widely used as the indicator of demand for family planning services.

It would be enlightening if there were studies comparing how all of these various measures were affected by varying kinds and degrees of

program effort with controls for mortality and other relevant social and economic indicators. I have not found a single example of such a complete study. Rather than insisting on such perfection, we will consider studies which deal with the relation of program effort of various kinds to any of the following, alone or in some combination of: desired (ideal) number of children, whether no more children are wanted or wanted only after delay, and measures of unmet need.

Another defining question: Is the number of children wanted under various conditions and whether any more are wanted at all always so definite and clear that couples can be expected to act quickly to achieve their reproductive goals? Or, in some countries are the reproductive preferences of many couples ambiguous and poorly defined? Are many couples, for example, beginning to feel that they are having too many children but have not settled either on definite numbers or on a determination to do something about it soon?

If the reproductive goal and the need for action is already very clear and well defined for the couples, then scholars like Lant Pritchett may be right: family planning programs can do little about demand. They can provide convenient and safe family planning services which will be sought and obtained in other ways if the programs aren't available.

But, if many have ambiguous and poorly defined needs, then a potentially important program function may be to help couples define and articulate their reproductive situations and needs.

#### D - Approaches to Answering the Questions

Ideally, we would like to be able to answer the questions with studies involving prospective experimental designs. To begin with, it

would be desirable to know what happens if a family planning program tried to decrease preferences and increase demand prior to any significant social and economic development or mortality decline. Such extreme-case studies cannot be done because, at a minimum, all developing countries have had at least significant mortality declines and usually some, if minimal, degrees of social and economic development.

The famous Matlab study is a well designed prospective experiment with prior significant mortality decline and, apparently, very little social and economic development at its outset. Before the program began and before fertility declined, there was already a substantial amount of unmet need in Matlab (Koenig, et al., 1987), just as there is to varying degrees in many countries in Africa now. The Navrongo experiment recently begun in Africa, chosen to test the possibility of increasing family planning in a culturally and developmentally difficult situation, also found a significant amount of unmet need with virtually zero use (Debpuur, et al., 1994). It is probably too late to begin an experiment where there is no unmet need and anyway, if it were possible, such an experiment might be a scientific curiosity rather than very relevant for population policy.

We have only a few experiments and pilot programs like Matlab (Koenig, et al., 1987), Taichung (Freedman and Takeshita, 1969), Potharam (Rosenfield, et al., 1973), and Navrongo (Debpuur, et al., 1994), and even fewer in which the analysis has included reproductive preferences/demand. Therefore, we shall have to rely for sophisticated systematic, quantitative analysis on multivariate analyses which utilize survey rather than experimental data. These have been used in a few cases to study how variations in program effort affect preferences/

demand when mortality and other pertinent socioeconomic variables are taken into account.

Some multivariate studies use countries as units of analysis. Others study one or a few specific countries with intracountry subdivisions as units of analysis. Still others use the individual women in specific countries as units of analysis. Most of the multivariate analyses face serious problems of causal sequence. There are a few examples of studies which are able to minimize these problems. Even when the problem is not solved, the studies are useful in indicating whether the program effort and reproductive preference change are significantly related on a net basis in the right direction. Where they aren't related even cross-sectionally, the question of further analysis is usually moot.

Quite a different approach involves comparing two countries which are similar in important respects other than the strength and character of their family planning programs. We will cite in Chapter III a particularly apt comparison of Bangladesh and Pakistan.

Another class of studies concentrates on specific processes or concepts that may link programs to reproductive change. Many of these are related to the broad hypothesis that ideational forces have an independent impact on reproductive change. These include: diffusion, mass media effects, and social interaction, which are overlapping conceptually and sometimes in fact. When these processes are connected to program activity, they are pertinent to our discussion. Even if they have such program connections, they are often also part of much broader societal, ideational influences.

A different approach uses qualitative methods (e.g., focus groups, intensive interviews, participant observation, cultural and historical analysis), sometimes in combination and sometimes along with survey data for the same area. Such an approach makes it possible to study specific limited populations with a broader range of variables and insights than is practically possible for multivariate analysis with large samples. Theoretically, it is possible to do such qualitative work with large, dispersed samples, but that is usually impractical. In the case of the intensive qualitative studies, there is often a question of their general relevance, but efforts are usually made to place them in a larger context. The qualitative methods sometimes are used to help design or interpret or supplement large survey studies.

Unfortunately, we are not in a position to use the literature, either to demonstrate unequivocally the value of any of these specific approaches or their comparative value. That is because high-quality studies on our central problem are sparse. There is much more significant literature dealing with program effects on contraceptive use and fertility decline. Even the more numerous studies on those dependent variables often do not score high on meeting scientific standards.

Nevertheless, we believe we can show that there are significant findings falling into patterns from even the more limited literature on reproductive preferences. These give partial answers to our major questions and are useful in helping to sketch what research can still be done in answering these questions for population and program policy in the decades ahead.

That there are many more studies about program effects on contraceptive use and fertility decline than about reproductive preferences

should not be surprising. First of all, programs are primarily oriented to stimulate increases in contraceptive use and fertility decline. Reducing reproductive preferences is only a means to that end. Secondly, most early programs began precisely because there was already population growth and unmet need resulting from prior mortality declines.

#### E - The Rationale for Studying the Problems Posed

What is the rationale for studying the problems posed in this chapter? Why should these issues be of concern to social scientists and to those concerned with population policy?

On the social science side, justification is easy. Preferences are central to every model of reproductive behavior. Simply put, women use birth control to limit or space their children and that is the main reason (along with later marriage) for modern fertility decline.

The policy side is more complex. In developing countries with high fertility, programs obviously will have little to do unless preferences have developed for fewer or better spaced children, usually as a result of lower mortality and/or social and economic development or, possibly, the influence of the program itself. Then the program role may be simply to provide the services to meet the demand thereby created for contraception.

In most developing countries the situation is not that simple. Even if a change in preferences is under way, the task is often more than providing contraception to those completely convinced they want it. The change in preferences often is indicated by the existence of unmet need--that is, women say they want no more children but aren't using contraception even when it is available. Then, the program potentially

has a more activist role--to convert the apparent latent demand into manifest demand for the contraception the program can provide.

Westoff and Bankole (1995) have established that there is a significant amount of unmet need everywhere that DHS surveys have been done. In sub-Saharan Africa unmet need, while relatively small, would have a significant demographic effect if met. They indicate that to go beyond that requires fostering such development programs as more education for women and improvements in their status. Since such development programs are worthwhile in their own right, there is little argument about their desirability.

A more controversial question is whether, while improved development is sought, programs ought also to use mass media, personal visits, and other non-coercive means to try to decrease family size preferences. This is controversial. The question is whether it is ethical to try to change what couples want in family size rather than to concentrate on helping them to achieve whatever they want. A case can be made that efforts to change preferences aim to improve the health and welfare of the women as well as for demographic objectives that advance the macro-level welfare of the country.

This essay is not about these important policy controversies. It is an attempt to review what we know about program effects on preferences to improve our scientific knowledge of reproductive processes. But it is also based on the faith of the social scientist: Knowing more about program effects will inform the policy debate, make it more effective and rational, and increase the chances of finding common ground.



Chapter II - Historical and Other Limits on  
What the Review of Research Can Establish about the Role  
of Family Planning Programs in Reducing Preferences

First of all, we know that, while programs may have an effect on decline in reproductive preferences, they are not always essential. There are many examples of cases in which preferences and fertility declined (and contraceptive use increased) when there was either no program or a weak one. Examples are: the western world, Japan, Hong Kong,<sup>1</sup> Brazil, and Argentina. While this is a significant pattern of preference decline, it does not mean that there are not others in which programs have played a significant role in reproductive change, possibly including preference change. We have learned that there are many pathways to modern reproductive change. Patterns which include the influence of programs on preferences are certainly a possibility. Some of the literature we review will and some will not illustrate such a pattern.

Secondly, we have learned that in many important Asian countries with early programs reproductive preferences by some measures (especially wanting no more children) changed before programs began (e.g., Freedman, 1995, p. 4). The pattern appears to be this: a substantial amount of unmet need was created by early mortality decline and, possibly, other early development. The mortality decline created the rapid population growth, whose impact on land use and other critical matters interested political leaders and planners in family planning programs as a population policy. At the same time the mortality decline meant that many women in their 30's already had alive the number of children tradi-

<sup>1</sup>Hong Kong had a private program, quite effective for a time, but then overwhelmed by the forces of the market.

tionally wanted in their cultures. Many came to want no more children or at least to have ambivalent feelings--a latent demand which programs might help to articulate. Thus, the rapid population growth produced on the macro-level the political motivation to create programs and on the micro-level the motivation for individual women to respond.

Many of the programs did not initially try very much to increase demand further, because that was considered difficult, unnecessary, and politically risky. They concentrated on spreading the word about the safety, convenience, and legitimacy of the contraceptives they had available to meet pre-existing demand. An important hypothesis is that the programs did work, if unwittingly, both in those early and later phases to crystallize and, thereby, to determine the character of the pre-existing latent demand.

As examples, the pilot, pre-program Potharam study in Thailand (Rosenfield, et al., 1973) in its benchmark survey found that a majority of wives in a rural area where almost none used contraception said they wanted no more children. When offered contraceptives by the program, 32 percent became contraceptive users in the next 19 months. Amin, et al. (1995) report that over 40 percent of Bangladeshi women wanted no more children in 1969 before a significant national program. The main developmental change in Bangladesh at that early date was a preceding mortality decline over many years. By 1965, just one year after the national program was created in Taiwan, 55 percent of Taiwan wives already wanted no more children (Freedman, et al., 1994).

In the Navrongo study in Ghana, begun recently in an area of Ghana in which there has been almost no use of contraception, 25 percent

of the women said they wanted no more children in the opening, benchmark study (Debpuur, et al., 1994).

Early in Costa Rica's fertility transition the proportion wanting no more children was substantial. That was reduced substantially in the rapid fertility decline in Costa Rica with a large increase in contraceptive use, while preferred numbers of children fell rather little. "It thus seems that for many years Costa Rican women wanted moderate-size but had large families" (Rosero-Bixby and Casterline, 1994, p. 440). Fertility fell by 50 percent in only 15 years, while preferences changed little and slowly.

These vignettes illustrate the situation in which preferences had already declined before any significant program effort and there were large proportions with unmet need. In all of these cases programs were principally interested in increasing contraceptive use to meet the pre-existing unmet need and, thereby, to reduce fertility. It is not strange, then, that for many programs evaluation efforts were directed mainly to those final effects. Many fewer evaluated effects on reproductive preferences. Even later in program history most of them have continued to see their primary task as increasing contraceptive use and decreasing fertility and were judged by achievements in those tasks.

A problem for us is that most of the evaluation research has concentrated on program effects on contraceptive use and fertility decline. Most of the research on preferences was done incidentally to those studies or not at all. The early pilot studies in Taiwan, Korea, and Thailand got pre-program measures of proportions wanting no more children but did not monitor the effect of their interventions on this important motivation indicator.

That preference change was not a primary interest in the important Matlab study is indicated by the fact that the pre- and post-measures in its analysis of preference change did not have really comparable preference measures (Koenig, et al., 1987). However, that was done better in the following Extension Area studies (Phillips, et al., 1995).

The WFS and DHS surveys did include preference measures and these data were the essential basis for many of the studies we review in the next chapter. It has been particularly important that DHS studies repeated the questions over time in the same country or following up on WFS studies. This now provides the basis for time series of preferences.

Such series are potentially a source for direct studies of change, such as the one in progress by Rutstein (1995), reviewed in the next chapter.

The survey data at an early point were also the basis first for the idea of the "KAP-Gap" and then of the concept of unmet need. The KAP-Gap and its equivalent, unmet need, are defined operationally as the proportion of fecund women who want no more children but aren't using contraception. There has been a considerable literature about measuring unmet need and its consequences and describing the reasons women give for not using contraception in such a situation. Hermalin (1983) discussed some of the issues in the context of a model of reproductive processes in a National Academy report. He presents a table showing that in 17 WFS studies of developing countries a large proportion of women who said they wanted no more children were not using contraception, although many more were users than among those who wanted more children. More recently Westoff and Bankole (1995) have given new comprehensive

unmet need estimates based on DHS (Demographic and Health Surveys). This important study also presents the reasons women gave retrospectively for this situation and estimated the demographic consequences if programs met all the estimated unmet need. Bongaarts and Bruce (1995) have done an analysis of the reasons, stressing barriers to use, going beyond simple access to contraception, in the social environment of the couples. We will take up this issue of the barriers again in discussing the role of programs in crystallizing latent, ambiguous demand in the chapter that follows. I have introduced it here because I believe that it is an indication of the lack of interest in essential research on preferences--that the kinds of longitudinal and experimental studies required to really understand it are very few.

While the number and quality of studies about program effects on preferences leaves much to be desired, I find that they add up so that some tentative, general conclusions can be drawn. To be sure, the results of different studies in different places or by different methods are sometimes different. This puts a burden on the reader and me to theorize about how the different results arise, perhaps for example from the different contexts or methodologies.

It is likely that later programs and their effects are influenced precisely by the fact that they operate in a different world than earlier programs. They operate with different social, economic, and programmatic histories. They have the preceding programs in their histories. The available contraceptive methods have changed radically. The spectacular thickening of communication and transportation networks has greatly accelerated the global process of "westernization" with rapid diffusion of new ideas.

We may have to accept the fact that, in their radically different environments, later program effects may differ from those of an earlier time. That may help us understand or at least accept some different results of later compared to earlier studies.

Chapter III - Results of Different Approaches  
to the Study of Program Effects on Preferences

A - Experiments

A true experiment involves random assignment of individuals or groups to the varying "treatments" or non-treatments of the experimental design. It usually also involves measurements before and after the various interventions called for by the design.

Not surprisingly, I have found very few "true" experiments on whether a family planning program affects reproductive preferences. A perfect experimental study probably is very different politically and logistically. But, there are a few examples in which areas or groups which seem comparable on critical other variables are assigned to different interventions or to a "control" non-intervention status. Measurements are taken before interventions and at appropriate intervals afterward. There is an assumption of little interaction between the areas or groups involving the subject of the intervention.

The Matlab Study - Bangladesh

The Matlab, Bangladesh experiment--one of the best known in the field of fertility and family planning research--along with its complementary "Extension Area" work, is the only reasonably valid experiment I found dealing with program effects on preferences. The broader study design is described as follows by Koenig, et al. (1987, pp. 117-118) in an article dealing with trends in family size preferences and contraception in Matlab:

In October 1977, the International Centre  
for Diarrhoeal Disease Research, Bangladesh  
(ICDDR,B) introduced a maternal and child health

(MCH) and family planning program in rural Matlab, to test the hypothesis that an appropriate service delivery system can induce and sustain fertility decline in a setting such as rural Bangladesh. The design of this study stipulated that half of the villages in the study area were to receive intensive services, while the other half were provided with the usual government services. This project, termed the Matlab Family Planning Health Services Project (FPHSP), was developed from lessons learned from an earlier, less successful attempt at delivering family planning services. The FPHSP is characterized by an intensive service outreach program by female community health workers (CHWs), a system of extensive back-up by female paramedical and medical staff, a well-defined system of management and supervision, and an emphasis upon the provision of a wide range of contraceptive methods to individual women in the most accessible and convenient manner possible. While initially only family planning and limited MCH services were provided, additional MCH components have been gradually and carefully phased in over time.

Unfortunately, comparisons on preferences for the treatment and comparison areas require several inferences, because the preference mea-

asures are different for 1977 and 1984 and are partially unavailable for the comparison areas. The authors are careful to point out these problems and conclude that "it is apparent that preferences were similar in the two areas in 1984 and declined in the treatment area between 1977 and 1984." While they never say this outright, one could plausibly (but not definitely!) conclude that preferences declined similarly in the two areas.

The authors go on to explain the similarity in preferences between treatment and comparison areas in 1984--seven years after the program began--on the grounds that: (1) there was considerable diffusion and interaction between the two areas as a result of intermarriage and migration and (2) both areas were also influenced by exogenous forces, mainly the program for Bangladesh as a whole.

They present substantial evidence that during the period 1977-1984 contraceptive use increased much more in the treatment than in the comparison area. While beginning with very little use in either area, by 1984 the rates were 37 percent in the treatment area and 16 percent in the comparison area. They go on to argue plausibly that the much higher use in the treatment area came from the ability of the program in that area to make manifest the latent demand in that area. The higher use rate in the treatment area is said to result from intensive community-based "doorstep" availability of services and counseling to overcome cultural barriers, such as difficulty of women in going to clinics and their belief that family limitation was regarded as shameful in the community.

These are potentially important findings. Despite the problematic character of the preference data, one could reasonably (but again

not definitely) infer that the program had a significant effect on contraceptive use despite the apparent similarity in demand. Changing the latent to manifest demand may be in effect changing the character of the demand--a possibility we will deal with more generally later in the section on qualitative studies.

The Extension Project - Bangladesh

An offshoot of the Matlab study (by Phillips, et al., 1995) produces what seems to be a definitive finding that the program effect of using well-trained female workers in an intensive community-based household approach has only small effects in changing demand and much more in crystallizing it.

These conclusions are from a study in an Extension Area set up by the government of Bangladesh to test whether approaches first developed in Matlab can be effective in a completely different district using only the resources available to all areas of Bangladesh. I quote (p. 22):

Odds ratios reported ... show that contact [with CBD workers] has a small but statistically significant impact on change in reproductive preferences. For the 1982-85 period, the mean dose of contact reduces the odds of wanting an additional child by 2 percent. This role of contact increases with time, ... a modest, but significant effect. Although influences other than outreach represent the dominant determinant of change, outreach introduces demand for fer-

tility regulation that would not otherwise occur. That effects are small, however, indicates that outreach effects arise from crystalizing existing demand for contraception rather than from fostering changes in the demand for children. Outreach helps women implement their preferences, but plays a relatively minor role in shaping those preferences. (Emphasis mine.)

In a separate analysis they also show that with respect to preference for sons "... preferences are influenced by outreach, but the impact is weak and unrelated to the sex of the child desired" (p. 23).

They also show that continuing CBD contacts reduce the possibility of discontinuation over time, in this way overcoming the problems of what they call "fragile demand." This they describe as follows (p. 10): "Women seek to regulate their fertility, but are subject to cross-pressures, ambivalence of others and varying worries and concerns about contraception ... programs achieve an impact by mitigating the social, psychological and health costs of contraception."

The extension-area studies involve multivariate analysis of the effects of various kinds and frequency of CBD contacts with controls for a wide range of other possible determinants.

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It may be useful to report also on some of the other experiments. I reviewed in the vain hope that they dealt with reproductive preferences in a useful way.

The Navrongo Study - Ghana

The Navrongo study in Ghana is a promising, well-designed experimental study (Debpuur, et al, 1994; Binka, et al., 1995). In its baseline survey it found that 25 percent of all women and 44 percent of women over 45 wanted no more children. Ideal family size was very high, partly "... reflecting considerable rationalization of past fertility. Thirty percent said they intended to use within a year. In a three-village pilot study of the projected program use of a modern method increased from 2 to 14 percent within a month.

The study proposes to remeasure preferences. That should add an important experimental study with definite results one way or the other.

The Narangwal Study - India

The Narangwal experiment (Taylor, et al., 1983), a very carefully designed study of one area of India, began with broader objectives but finally was concerned mainly with the determinants of contraceptive use. It briefly considered reproductive preferences as a possible determinant, but did not consider the determinants of the preferences within its purview.

The Taichung Study - Taiwan

The Taichung study (Freedman and Takeshita, 1969) involved a fairly complex experimental design in which subareas of the city were randomly assigned to various treatments, including no direct treatment at all. It was concerned with program effects on the adoption of contraception, and there were, indeed, varying effects related to the variations in the intervention, including diffusion from the active treatment to non-treatment areas. The study purposely did not try to change

preferences, because it was regarded as difficult, politically risky, and unnecessary to attain its primary short-run objective. Those of us planning this study did not believe we could affect preferences in such a short-run effort. I have often regretted that the study did not try to measure changes in preference that might have occurred as a result of the massive stimuli of the interventions and the effect of so many women discussing and accepting a new contraceptive.

#### The Danfa Study - Ghana

The Danfa study in Ghana (Ampofo, et al., 1976)<sup>2</sup> had a plausible research design with differential interventions varying in programmatic character and intensity with respect to family planning and health, studied in comparison with a "control," no-special-treatment area. The results for differential increase of contraceptive use by treatment area were plausible and significant. However, in a later report (Belcher, et al., 1978, pp. 75-76) the description of the characteristics of the four areas unfortunately makes it clear that they were significantly different initially in ways that could affect the differential outcomes of the experiment:

There is a striking geographical variation in the source of information used. ... Areas I and II have the best access to health services and reported the greatest use of clinic and family planning sources for information. These

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<sup>2</sup>The Danfa project's basic purpose was to help initiate and study a rural family health demonstration program. Each of the three intervention areas and the comparison area had a population of 12,000-15,000.

areas, with good roads to large urban areas and market towns, reported that townspeople were information sources almost as often as villagers. In Areas III and IV, other villagers were the primary source of information used.

Respondents from Area III, the most isolated region, reported the least use of formal channels for family planning information and the highest use of villagers. Area IV is a higher income area because of better farming conditions and more cash crops than in the other three areas. Previous socioeconomic studies have shown Area IV to have twice as many radios as the other areas, consistent with its higher reported use of news media.

Those involved in the study were clearly aware of these differences and make no claim that their study is a truly experimental study. It might better be described as a demonstration project, with important results in developing health and family planning service and instructional facilities.

The results in family planning are, nevertheless, of interest. The data on ever and current use of modern contraception show for 1972-1977 very significant increases differentially of the kind that might be expected with the different program inputs in Areas I-III. The lack of change in the non-intervention Area IV is encouraging. The study report cites a substantial decline in number of additional children wanted in all areas during the five-year period covered, but additional children

born during the five-year period might account for much of that and that is not discussed. This was clearly not a major focus of the study.

The Danfa Project undoubtedly contributed to substantial improvement in health services, training, and institutions in Ghana. Unfortunately, it doesn't contribute to our knowledge of program effects on preferences.

The Ishan Study - Nigeria

The Ishan study in Nigeria (Farooq and Adeokun, 1976) reports on changes in proportions wanting to limit family size (wanting no more children), although contraceptive use, not preferences, was the primary objective. The data came from annual surveys over a four-year period. Unfortunately, the year-by-year increases in percentages wanting to limit family size are too great to be credible for such a short period:

1969	28 percent
1970	36 "
1971	43 "
1972	57 "

In commenting on the increase from less than 1 to 24 percent in current contraceptive use in the same period, the authors are helpfully candid about the possibility that the respondent reports on contraceptive knowledge and use were describing outcomes that they felt the investigators wanted to hear. If that was the case for reports about contraceptive knowledge and use, it may also be the explanation for the difficult-to-believe increases in percentages wanting to limit family size.

In the case of the Ishan project there was no comparison area.

The search for evidence from experimental studies with evidence on whether programs affect preferences has left us almost empty-handed.

The only studies (Matlab and its Extension Area) which merit close examination for our purpose so far showed little or no effect in direct before-after measures of preference, but even that conclusion is uncertain in Matlab because of possible diffusion between the treatment and comparison areas and exogenous influences.

However, there is a significant outcome in Matlab and its Extension Area: In the intervention areas there was a greater adoption of contraception by those wanting no more children. In view of evidence of ambiguity and uncertainty of such preferences, this can be interpreted as making latent demand manifest. This is an important step toward use in our model and has been interpreted as changing the character of the demand. In a later section we report on qualitative studies in Matlab which strongly support this interpretation.

#### B - Multivariate Cross-Country Studies

Although there are quite a few multivariate cross-country studies of fertility decline, there are only a few dealing with preferences.

An important recent example that does deal with preferences is by Bongaarts (1995). In a multivariate analysis of 48 developing countries he finds that program effort does not have a significant effect on wanted fertility but level of development does, decreasing it. The resulting decline in wanted fertility is interpreted from correlation results as increasing unwanted fertility, which in turn is decreased by program effort.

I interpret this as meaning that the final effect (program decreasing unwanted fertility) is possible because, as unwanted fertility

appears, it does not instantaneously result in adoption of contraception. The program plays a role by converting latent into manifest demand. This sequence is consistent with our model; between reproductive preferences and contraception there is the stage of demand for contraception. The program helps to create that demand.

Bongaarts (1993, p. 24) summarized the results of his analysis from an earlier version of this study as follows:

... Development is the principal determinant of the potential demand for contraception. This demand refers to the desire of women to space or limit their childbearing. Family planning programs exert their effect by raising the degree to which women implement these reproductive preferences. Preference implementation is also a function of the level of development. The potential demand and the degree of its implementation together determine the contraceptive prevalence rate, which in turn is the principal determinant of fertility. ... No significant effect of program effort on potential demand could be demonstrated.

He also states his hypothesis as to the way the program operates to convert the decreased preference produced by development into contraceptive demand, as follows (1993, p. 23):

... the so-called catalytic effect of family planning programs ... refers to contraceptive demand that is generated by the program's infor-

mation, education, and communication (IEC) as well as other activities that encourage and legitimize the practice of family planning. The catalytic effect results in a higher degree of implementation of reproductive preferences, independent of the greater accessibility of methods resulting from program activities.

This formulation is consistent with his analysis with Judith Bruce (1995) of the fact that program effect involves much more than accessibility. Note that he is limiting the role of the programs to converting already decreased demand for children to an increased demand for contraception.

#### C - Multivariate Within-Country Studies

These are multivariate studies of how program effort measures for local areas within a country affect preference levels in those local units.

I begin with a series of studies, some completed and some still in progress, by David Guilkey, Thomas Mroz, and others, which show program effects in Tunisia, Colombia, and Zimbabwe.

An important three-country study (Cochrane and Guilkey, 1995; Guilkey and Jayne, 1995) provides significant evidence that family planning program inputs can affect reproductive preferences and are not only effective in providing services once demand is created by other means. The authors suggest that family planning program effect can usefully precede the creation of demand and need not only follow it. Further, the studies indicate that different aspects of programs may produce such

effects in different countries. However, the size of the effects on preferences is not very large in simulation studies.

An important aspect of this study is that it uses a model which "... incorporates fertility preferences but allows a test of whether they are in fact affected by access to family planning services ...". (Cochrane and Guilkey, 1995, p. 784). The model is also "... unique in incorporating the desire to limit fertility and to space the number of children ...". These are studies which richly deserve the replication now under way.

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Small program effects are shown in a book-length report on Egypt by Stycos, et al. (1988). This book deserves serious attention, because it attempts to evaluate a serious country-wide "experiment" by the Egyptian program to test comparative effects of development and family planning inputs on changes in reproductive preferences, other family planning attitudes, contraceptive use, and fertility.

Starting in 1977 the Egyptian Population and Development Program (PDP) launched an experiment, first in 800 villages, expanded by 1979 to 1,500, and by 1982 to 2,915 (of Egypt's 4,000 villages). The Cornell group did their evaluation on the basis of the 1979 and 1982 Rural Fertility Surveys, concentrating on 1979-1982 changes. The study depends both on variations in the development and family planning aspects of PDP and on the absence of PDP intervention in non-PDP villages.

1. Since villages are not randomly assigned to the PDP program, it is important that Stycos, et al. demonstrate that there were not significant initial differences in socioeconomic and demographic variables as between PDP and non-PDP vil-

lages by the time of this study. (New PDP villages were being added as the study proceeded.)

2. They find that the program significantly reduced reproductive preferences, but report that these effects were quite small.
3. The effects are due mainly to the family planning impact rather than to the development part of the program.
4. The mass media part of the program and the effect of the family planning community-visit program (by raedas, i.e., community outreach workers) are both significant.
5. It is very important to note that the overall effects of the program were small because, while the raeda contacts were influential when they occurred, most people did not report such contacts. When the program is not executed, it has little effect. This is a crucial matter in many situations in addition to this one. Low program effort impact is often due to poor coverage. If the program isn't carried out, it can't have an effect. This is consistent with John Bongaarts' important point in his response (1994) to Lant Pritchett: effective programs had an impact but most programs didn't put forth enough effort to produce an impact. Most of the programs in Pritchett's analysis were ineffective!
6. The fact that the development part of the program wasn't very effective is no doubt in large part a result of the fact that the observation period was very short (one-five

years) and that its objectives were very grandiose. The same can be said about all aspects of the study.

An earlier study (Kelley, et al., 1982) of the same Egyptian situation also showed small effects on desired family size by degree of intensity of the PDP stimulus. However, in this case the PDP effort had only been in existence for an average of 10 months in the villages sampled. It strains credulity, as the authors indicate, that in that short period it could have had the following effects (p. 27):

The Impacts of the PDP: The statistical results show that PDP programs are associated with: (1) increases in prevalence rates of modern contraceptive methods and decreases in discontinuation rates; (2) decreases in child deaths; (3) increases in female workforce participation; and (4) decreases in the desired number of children. We also found that PDP villages have a higher mean children ever born (CEB) than non-PDP villages. However, we cannot infer that PDP programs increase CEB, since it is unlikely that the PDP, operating for an average of only ten months, could have already exerted a direct impact on CEB.

The authors do voice caution on grounds of the short period covered. Nevertheless, it is interesting that their sophisticated, book-length analysis for this shorter period came up with results broadly similar to those of Stykos, et al. for the longer period when similar relationships are considered involving PDP effects. Kelley, et al. do

not try to separate family planning from the broad development aspects of PDP, as Stycos, et al. do.

Most of the Kelley, et al. book is devoted to a sophisticated analysis of the effects of socioeconomic and demographic variables other than the PDP effects.

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An early, fairly sophisticated multivariate intra-country analysis of whether more children were wanted is by Sirageldin, et al. (1976), based on the 1968/69 National Impact Survey for Pakistan. It follows a modified version of the "Chicago School" econometric approach and finds no relation of a program variable (being aware of family planning) to whether more children were wanted. Unfortunately, the crucial independent program variable was very weakly represented (whether aware of family planning). Even with Pakistan's very weak program, a measure of direct program contact might have given different results. However, the problem with any such test in Pakistan at that time was that the program was so poorly implemented that even those hearing about it and "being aware of family planning" would not be getting a significant stimulus.

A similar investigation of Bangladesh by Sirageldin, et al. (1976) also shows no program effects on preferences. However, as in the case of the Pakistan study, these results have little meaning, because the national Bangladesh program was not yet under way and the measure of program effort again was not very good.

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John Cleland (1994) provides quite a different kind of evidence in a comparison of the histories of Pakistan and Bangladesh, both ortho-

dox Muslim countries which had similar, substantial proportions wanting no more children about 1970. In the subsequent years, latent demand remained unrealized in Pakistan, while in Bangladesh the obstacles preventing latent demand from becoming manifest were overcome by an effective program. Contraceptive use rose and both fertility preferences and fertility declined substantially. Cleland argues very plausibly that the only factor that could account for this difference was the very effective family planning program in Bangladesh, while in Pakistan the program was notoriously weak and ineffective. To quote Cleland (pp. 242-244):

... Bangladesh and Pakistan shared the experience of President Ayub's crash family planning programme that collapsed in the late 1960s as an almost complete failure. Since then, population policies have diverged radically. Pakistan, it could be argued, has not yet fully recovered from that first disastrous attempt to moderate the birth rate. Successive governments have paid lip service to the provision of family planning services but have never, until perhaps very recently, committed their funds or their prestige. Moreover, throughout the 1980s, the climate of opinion and public debate became in some ways more hostile to the idea of family planning, with a partial reversion to traditional Islamic values and laws.

In contrast, Bangladesh governments, faced with a highly visible population problem, had little choice but to address it as a top priority. Starting in 1975, a comprehensive family planning service was gradually created. Facilities for contraceptive sterilisation were made available at district level and financial compensation offered to couples seeking this method. A cadre of literate female workers was recruited to counsel women and distribute contraceptive supplies at the doorstep. Incessant publicity about family planning was disseminated through radio and other media. In all those endeavours, governments encountered very little political or religious opposition, unlike Pakistan.

It is also implausible to argue that Pakistani couples want or need larger families than couples in Bangladesh. When both countries were surveyed in the mid-1970s, an almost identical profile of reproductive preferences were revealed. Subsequent surveys in Pakistan have attested to a huge latent demand for fertility regulation. (Emphasis mine.)

The experience of Bangladesh and Pakistan suggests that determined government action can hasten fertility transition, even in societies

where conditions appear unfavourable. Bangladesh is one of the poorest countries in the world, has relatively high mortality, low literacy and very low levels of female employment. Such highly constrained circumstances, it appears, do not act as an absolute barrier to fertility decline. However, they may imply that exceptional efforts have to be made to present modern contraception in an acceptable manner. One of the keys to the success of the Bangladesh programme has been the widespread deployment of female workers who can overcome the severe barriers imposed by purdah, or female seclusion, by offering a doorstep service. (Emphasis mine.)

The initial increase in contraceptive use in Bangladesh was almost certainly a result of program conversion of the latent demand for contraception into manifest demand. The subsequent further decrease in reproductive preferences can be interpreted as, at least in part, the feedback effect from the observation by non-users of the increased use of contraception and the smaller families of others (on which we quote Robinson and Cleland and Knodel, et al. in Chapter I). Over time there probably was also increased direct program effect on preferences through the massive program of the mass media, home visits, and incentives. There also is some evidence of possible influence of further mortality declines, development, and increasing contact with the ideas of the outside world (Cleland, et al., 1994). So far as I know, no one has sorted out this complex of interacting forces producing the further declines in

preferences following the initial declines preceding the program. A considerable feedback effect through observation and diffusion seems highly probable, but unfortunately there is no evidence on its magnitude.

For want of a better classification, I have placed the provocative analysis by Cleland with "Multivariate Studies," because it is indeed a kind of two-country multivariate analysis.<sup>3</sup>

#### D - Ideational Change Processes

The "ideational hypothesis" of fertility decline stated epigrammatically is, "ideas also make a difference." Specific ideas about the desirability of smaller families and/or the means of achieving them may be spread by communication networks, either with or without connections to family planning program inputs. For the hypothesis to have much meaning, it involves the assumption that the spread of ideas is not merely a very short-term, almost automatic, effect of the socioeconomic factors said to produce fertility declines in classic versions of the demographic transition theory. A strong and especially influential version of the ideational hypothesis is that of Cleland and Wilson (1987). I quote it at length because it is relevant to many parts of our report and it has been very influential in our field. After discounting the exclusive, or even major, role of the customary socioeconomic variables, they conclude (pp. 29-30):

<sup>3</sup>Bankole and Westoff (in press) have also compared Bangladesh and Pakistan as part of an excellent systematic review of comparative trends in childbearing attitudes and intentions. Between the late 1970's and early 1990's Pakistan's mean number of children desired remained virtually unchanged, while in Bangladesh there was a 39 percent decline. By then, among Bangladeshi women with three children, 80 percent wanted no more compared with 36 percent in Pakistan.

By this process of elimination, we come to ideas concerning the means of fertility reduction, rather than ideas that provide the motive. This topic has several interrelated aspects: the perceived feasibility of birth control (instrumentality); moral acceptability of the principle of control; and the acceptability of particular methods. The evidence that these factors can influence the timing and nature of fertility transition is overwhelmingly strong, but few commentators would assign central explanatory importance to them. The common and compelling view is that, if the motive is strong, the means for its fulfilment will automatically follow. There is a danger here of underestimating the fundamental nature of the change from reproduction without conscious control to a regime of deliberate regulation of births within marriage. In all cultures, procreation has had strong moral and religious meanings, which may be extremely resistant to change. We suspect that attitudes towards birth control, broadly defined, are of central explanatory importance for the timing of fertility transition; but in the absence of direct evidence to support it, such a view is largely speculative. Nor is the subject amenable to simple empirical investigation.

Cross-cultural measurement of values is a notoriously complex area.

These considerations warn us against drawing too deep and dogmatic a distinction between diffusionist theories and theories of economic modernization or even classical theories of transition, which emphasize the lagged effect of mortality decline. Alien ideas of reproductive control are unlikely to flourish in a static society, even if officially promoted by governments. This explains the modest correlations observed between macro-economic indicators and fertility decline. In this sense we agree with Retherford who sees the diffusion of birth control as part and parcel of the development process.

One implication of assigning a central explanatory role to ideas concerning reproductive control is the prior existence of a latent desire for reductions in fertility. This, in turn, raises a further fundamental question. If human societies, outside Africa, have long been characterized by a latent desire for lower fertility, why has the practice of birth control been largely absent until recently? Perhaps the answer lies in two features of recent history. The first is the unprecedented growth in human

mastery over nature. We see the advent of widespread birth control as an inevitable extension of this mastery. The second and related feature is the mortality decline which has undermined the reproductive imperative and thus facilitated the spread of this new form of behaviour.

Though the link between mortality and fertility is weak at the level of individual countries the near-universal increase in life expectancy has played a crucial role in diffusing birth control knowledge and ideas by creating worldwide concern at rates of population growth, and invoking the response of official birth control programmes. While both historical and contemporary experience shows us that fertility transition can occur without such programmes, there can be little doubt of their effect on the speed of change or even, perhaps, on the timing of the onset of change.

Nor do we claim that the ideational approach which we have been advocating can offer a complete explanation of the fertility transition. ... Indeed, fertility transition may occur in two distinct phases: an initial decline which is largely the outcome of the advent of birth control which eliminates excess fertility;

and a second phase in which a complex and poorly understood set of factors determine the level of controlled fertility. Whatever the complexities of post-transitional fertility, we feel that explanations of the initial decline must give fuller recognition to the role played by ideational forces.

Empirical studies pertinent to ideational hypotheses may be classified as: (1) studies of diffusion; (2) studies of mass media effects; (3) studies of social interaction about reproductive ideas and behavior; (4) studies (or essays) about the growth of communication networks outpacing other aspects of socioeconomic development in some cases.

These approaches may be overlapping. For example, to the direct mass media impact on specific individuals may be added the diffusion from these persons to others who have not themselves heard or seen the mass media message. Or, to either or both processes may be added social interaction about the message in the social networks to which the individuals belong.

#### D-1 - Diffusion

I begin with consideration of diffusion studies. Unfortunately, I have not found any diffusion studies which directly consider empirical evidence about the spread of ideas about reproductive preferences. However, I cite several of the better studies which make inferences about preference effects (or non-effects) that are pertinent to our interests.

A promising hypothesis is that program effects on reproductive behavior are magnified (or diminished) by the process of diffusion.<sup>4</sup> Such diffusion occurs when new ideas are spread by individuals directly touched by the program to others with whom they interact through networks and groups of which they are members. These interactions are distinctly personal in character as distinguished from the impersonal influence of the mass media, the market, and other micro-level organizations. Diffusion in these personal ways may involve social learning which spreads information and social influence which evaluates the ideas and recommended behavior. Social influence operates through such processes as conformity or resistance to the values of others and deference to authority.

When such a new idea as the desirability and legitimacy of smaller families, the use of contraception in general or by specific methods to accomplish this diffuse, those involved often are uncertain or ambivalent and may postpone action. Demand is weak and latent. Diffusion processes may help to reduce the ambiguity or uncertainty and change latent to specific and manifest demand (or may result in a definite negative decision).

The magnification of program influence by diffusion may be quite unplanned, but sometimes increasing support through diffusion is specifically planned by the program.

A wonderful example of the great power of diffusion is reported (Rosenfield, et al., 1973; Fawcett, et al., 1966) for Thailand before a national program. A very early programmatic effort was the opening in

<sup>4</sup>I have drawn here considerably on Montgomery and Casterline (in press) and Montgomery and Casterline (1993).

1965 of an IUD clinic at the well-regarded Chulalongkorn University Hospital. IUD's were provided and inserted free, but there was no publicity outside the hospital. Within a year 12,000 women had come for IUD insertions from 54 of Thailand's 72 provinces--a striking example of word-of-mouth diffusion. This, along with the contemporaneous Potharam rural study (see the section on historical forces), is very strong evidence that in Thailand there was considerable manifest demand in both rural and urban areas. In the case of the Chulalongkorn Hospital in Bangkok, diffusion was entirely about the availability of a new method--the IUD--and its presumed advantages. The demand for contraception was apparently already there.

Montgomery and Casterline (1993) in a study of the Taiwan program were able, by ingenious statistical modeling, to separate direct program effects from indirect effects, which they could then attribute to diffusion by taking into account their knowledge of Taiwan's demographic and programmatic history. They conclude as follows (p. 479):

The limitations of our findings should be kept in mind. We have tested the principal empirical prediction of the diffusion hypothesis: that in aggregate data diffusion will be expressed in the positive autoregressive behaviour of fertility. The presence of such positive feedback, strongly confirmed here, does not in itself prove that diffusion is the source. But given the richness of the data employed, and the nature of the methods used to

analyze the data, we believe that we have eliminated many plausible alternatives.

Finally, we must ask: If diffusion, indeed, exists, what is it that diffuses? Is it information regarding new contraceptive methods? Or is it, perhaps, the demonstrated benefits of smaller families? Our data are silent on these issues, but one can speculate on the basis of what is known about the Taiwanese fertility transition. (My emphasis.) It seems likely that during the first stage of transition--an era of rapid uptake of contraception in the face of static family size desires--information about new forms of fertility control must have been the dominant theme. As the fertility transition matured, and desired family sizes began to decline, the by-now old news regarding contraception must have become increasingly intermixed with messages about the social and economic benefits of smaller families. No doubt a prominent theme in such new messages would concern the benefits of having fewer, but better-educated children. In short, evidence of fertility diffusion is consistent with a number of substantive interpretations. We see no need to tie the concept of diffusion to changes in the costs of

fertility control; it can as easily accommodate changes in the perceived benefits of control.

In short, the conclusions are based on highly plausible inferences, taking into account the history of first, static preferences with rapid increases in contraceptive use and then a period when both preferences and contraceptive use changed.

An important study of Costa Rica by Luis Rosero-Bixby and John Casterline (1994) is said to provide evidence that, independently of changes in socioeconomic development, program input or fertility preferences, diffusion of ideas and information from one area to another was patterned in such a way as to be a major determinant increasing contraceptive use (as estimated from changing fertility levels).

For our purpose the important point is that the major fertility declines occurred in a preference situation they describe as follows (p. 440):

... there is no evidence of a downward shift in family size preferences in the decade prior to the fertility transition, nor is the substantial decline in fertility accompanied by a decline in preferences of corresponding magnitude. The contrast between the modest change in family size preferences and the sharp decline in fertility suggests that motivation theories alone have only a limited explanatory power in Costa Rica during the period of sharpest fertility decline.

It thus seems that for many years Costa Rican women wanted families of moderate size but had large families. Early surveys show 47% of urban respondents (1964) and 78% of rural respondents (1969) expressed a desire to regulate their fertility but did not use contraception. These figures leave no doubt about the existence of a substantial discrepancy between stated fertility desires and behavior during the early years of the Costa Rican fertility transition, especially in rural areas. However, by 1976 the comparable figures were 32% in urban areas and 38% in rural areas, and by 1986, 20% and 27%, respectively. This sharp reduction in the discrepancy between fertility preferences and behavior suggests that factors other than motivation made a major contribution to the Costa Rican transition. Possible factors include an increased availability and acceptability of contraceptives and the interaction diffusion effects postulated in this article.

While it may be correct to say that changes in motivation did not make a major contribution to fertility decline, it appears that the pre-existence of latent demand was necessary for the decline once increased availability of contraception came into play. Then, interaction diffusion was an instrument for amplifying the latent demand as shown in their model. However, it is important to emphasize that they did not

have data on preferences for the local areas which were the units of analysis.

Rosero-Bixby and Casterline correctly emphasize that direct studies of social interaction (about contraception and fertility preferences) would be a highly desirable addition to the necessarily inferential character of this kind of analysis.

This whole study is consistent with our model with respect to the possible role of programs (and other forces) in crystallizing latent demand. However, supporting direct social interaction studies about preferences, contraceptive use, and fertility decisions would be highly desirable.

Such sophisticated diffusion studies which rely on geographical patterning of fertility declines or contraceptive use can be highly suggestive bases for inferences but cannot provide direct evidence for changes in preferences.

Incidentally, the rather long period with substantial unmet need before fertility decline is another illustration counter to the argument of some that unmet need will almost immediately be met by non-program sources, so that programs really can't accelerate fertility decline (Pritchett, 1994).

Diffusion can't be a completely independent explanation of the timing of fertility decline. There has to be something from which to diffuse!

The Taichung, Taiwan study of 1962-1964 (Freedman and Takeshita, 1969) was unique in that diffusion was specifically programmed in several ways as part of the experiment (by varying strengths of program input in areas surrounding areas with none, by holding neighborhood meet-

ings in some areas and not in others, by getting reports on numbers of contraceptive acceptors among friends, relatives, and neighbors). However, the planned diffusion aspect of the Taichung study was oriented almost completely to diffusion of ideas about contraceptive use and not of preferences. Since there was a considerable amount of unmet need at the beginning of the experiment, it was felt that meeting that need was the first priority.

Rogers and Kincaid (1981) in an important work on Korea demonstrated for a sample of 24 Korean villages that variations in contraceptive use could be related to the characteristics of pre-existing "natural" networks to which Korean women belonged and the relation of those pre-existing networks to the network of Mothers' Clubs created by the Korean program to spread the good word about family planning. This excellent pioneering study did not deal with preferences.

Promising work on social interaction effects is suggested in a seminal paper by Bongaarts and Watkins (1995) and in a series of papers by Watkins (1992 and others). They provide interesting examples of diffusion via interaction in natural groups of various kinds. They advance interesting agendas for research and policy.

I have probably gone far enough in discussing the role of diffusion studies in relation to program effects, since the published literature all deals with diffusion of contraceptive use and fertility decline, except in a few cases where there were inferences that preferences might have been affected in some periods. (Watkins' unpublished work, described in III-D-5 below, is an exception.) There is a potential for demonstrating directly effects or non-effects on preferences by methods similar to those used for contraceptive use and fertility de-

cline. The process of diffusion is important enough to justify studies focusing specifically on reproductive preferences, as Watkins is doing.

The research on diffusion often emphasizes the idea that initially many people touched by the program directly or indirectly through diffusion have ambivalent or uncertain views about reproductive behavior. A program function is decreasing uncertainty or ambivalence so that action is more likely--converting latent to manifest demand. This is a recurrent theme in our review.

Diffusion studies are highly promising and immediately relevant for contraceptive use and fertility decline. They have not yet demonstrated anywhere directly that diffusion creates or magnifies program effects on preferences, but that they could do so is highly plausible.

#### D-2 - Studies of Mass Media Effects

A large number of studies have examined the effects of program-directed mass media campaigns on reproductive behavior. Relatively few have examined effects of such mass media programs on reproductive preferences. That these studies have varying results is not unexpected, since the results will vary not only with the quality of the media campaign but also with the social and demographic situation in the country.

To illustrate the possibilities and the essential problems in such studies, I concentrate on one of the best--by Westoff and Rodriguez (1993) on Kenya. Kenya is a good example in having substantial mass media facilities and audiences, significant efforts by the program to use the mass media, and rather large recent changes in reproductive behavior.

The basic data base was the 1988-1989 DHS, which had responses to questions about being exposed to such mass media program messages, as well as comprehensive data on reproductive behavior and a wide range of relevant demographic and socioeconomic characteristics.

The analysis relates a four-point index of exposure to media messages to various indices of reproductive behavior. This is done, first, on a gross unadjusted basis and, then, with appropriate adjustment for a large number of relevant characteristics of the respondent (listed in the footnote to Table 1).

As Table 1 indicates, there were substantial relationships between the "family planning message score" and various reproductive behavior measures, including desire for future births and ideal number of children. The message score was strongly positively related to percentage wanting no more children and less strongly negatively related to ideal number of children after adjustment for other variables. These adjustments were made after an exemplary search for the best statistical models.

The essential problem with the findings in this study, as in all the others I have seen, is the problem of selection. Do these relationships result from selection? Are those who want no more children or want few children or are already using contraception more likely than others to be exposed to and remember the media messages? Is causation from message to behavior or the reverse?

The authors are sensitive to this issue and their discussion of it (pp. 12-13) deserves quotation:

We have repeatedly called attention to the issue of the direction of causation between ex-

posure to mass media and reproductive behavior. All we have been able to establish empirically in this analysis is that there is a strong correlation between reporting having heard or seen messages on family planning and, for example, the use of contraception. We have been able to exclude the possibility that the relationship is due to the joint association with life cycle, residential or socioeconomic variables. The strong association that persists does not prove that these information and motivational efforts have had the intended effects on reproductive behavior, but such a presumption would certainly have been seriously undermined had the expected association been absent. However, we do not have any information on the time sequences of exposure and use ... except for the general information that one of the main radio efforts occurred in the year prior to the survey. But it remains entirely possible that women who had already used contraception might simply be more sensitive to media messages on the subject than women who have not used a method. The anecdotal evidence from clinics and from some evaluation surveys strongly supports the inference that media messages have a significant impact on both

motivation to limit fertility and on information about the availability of supplies. ...

One approach is to classify the sample by characteristics which are functionally related to contraceptive behavior and compare the groups on exposure to the media. For example, married and unmarried women or sexually active or inactive women should be equally exposed to media messages (at the same age). If married or sexually active women (with the appropriate age controls) report such messages more frequently than unmarried or sexually inactive women, one would be concerned about the force of selectivity. Of course, if there are no differences between these groups, we still cannot definitively conclude that selectivity is absent ... For what it is worth, such an analysis failed to reveal any significant or even patterned differences.

The purported net change effect on either current contraceptive use (from 18 to 33 percent) and whether wants no more children (45 to 61 percent) are so large as to strain credulity. But, perhaps it is not so incredible if we remember that these absolute reproductive levels are a result of various influences over an indefinitely long period before the survey. These must be a result not only of the direct media effect but also of the other activity by the program and of social changes and westernization in the country. It is the combination of all these prior influences which may be selectively related to media exposure.

This is probably as good a mass media study as one could find without a longitudinal or experimental aspect. The Westoff-Rodriguez results show such strong relationships that one is tempted to say that selection effects would have to be very strong to produce them. But, of course, they may be! Perhaps it is better to say that such results are strong enough to merit support for work on developing countries and carrying out designs that can be more definitive.

Bankole, Rodriguez, and Westoff (1995) did, indeed, do a longitudinal study in Nigeria in which they were able to reinterview in 1993 a small sample of women who were not contraceptive users in 1990. Some had heard the mass media message in 1990 and some had not. They were all asked in 1993 whether they had subsequently begun contraceptive use. Twenty-eight percent of those who had been exposed to the message were new users compared to 9 percent of those who had not. This is strong experimental evidence for effects on contraceptive use.

It may be churlish to suggest that this excellent endeavor does not completely banish the selection devil. Presumably, some of those who paid attention to the message by 1990 were already becoming disposed to become users but took some time to actually begin use.

In any case, this endeavor at solving the selection problem does not apply to preferences, because the questions on preference weren't asked in the reinterview. It is some indication of why there are few studies bearing on preferences if such distinguished students of that subject as the authors did not include the pertinent question in their reinterview!

Piotrow (1992) had an exemplary before-after feature in a mass media study of males in Zimbabwe. She found effects for other variables

but not for ideal family size. However, an effect is hardly to be expected in a one-year period.

Vaughan, Rogers, and Swalehe (1995) report on an experimental study in which much of Tanzania was exposed to a radio soap opera involving a family planning message but a large control area was not. After one year they report quite a large effect on contraceptive use but none on attitudes about family size. (I have since had a verbal report from Rogers that results are similar after two years.) The reports on contraceptive use are both from interviews and from clinic reports.

A potential selectivity problem even with a longitudinal design is found in a good report by Kincaid, et al. (1995) of the key findings about the "Impact of the Philippine National Communication Campaign, 1993." This campaign was conducted in three phases, using television and radio. "By the end of the nine-month period in which the campaign was conducted, contraceptive prevalence increased 8.9 percentage points ... modern method use increased by 6 percentage points, a remarkable achievement considering that the increase ... without special communication campaigns is expected to be about only 1 percentage point a year."

The problem arises from the fact that 53 percent of the initial sample was lost by the third wave and was, therefore, omitted from the analysis. This surely provides a large opportunity for selectivity, since those who have adopted contraception as a result of this program would be very much less likely to drop out than those who did not!

The authors write: "An attrition level of 52 percent over three waves is not uncommon in panel studies due to the expected difficulties in finding the same respondents at home again, unwillingness to be reinterviewed, residential migration, and so forth." Surely, a 48 percent

final response rate is of doubtful acceptability in panel studies in which selection is an issue.

(I'm not sure I can use this unpublished paper sent to me by Phyllis Piotrow. I wrote to Kincaid raising questions about the study. I guess he didn't like my questions--no response.)

Bankole and Adewuyi (1994) provide evidence that those exposed to mass media programs in Southwest Nigeria are likely to discuss the message with others. They report that this has been shown by many other studies. They go on to show that those discussing the message with others are more likely to be contraceptive users than others. But, it seems to me that the issue of selectivity is even more relevant here. Those adopting contraception in response to (or associated with) exposure to a media message seem likely to discuss it with others. The pesky problem of selectivity is certainly an issue here again.

It is plausible that the cross-section results obtained in the study discussed by Westoff, et al. do show a significant effect. Unfortunately, the kind of longitudinal follow-up which might have greatly increased plausibility was not done. Those few studies in which there was follow-up show no effect on preferences.

#### D-3 - Qualitative Studies

Qualitative methods (such as focus groups, participant observation, in-depth interviews) appear to be most useful when they are related to such more systematic quantitative approaches as surveys and multi-method experimental studies. They have been used with success in connection with the Matlab experiment by Simmons, et al. (1988) and Simmons (1995). Another example is the continuing studies of Thailand

by John Knodel and his Thai colleagues. Their use by John Caldwell and his colleagues in India and Africa involves, additionally, extensive periods of residence in the areas studied and other features which are so comprehensive that I have labelled them as "wholistic multi-method studies" and treat them separately in III-D-4 below.

The qualitative studies of Matlab by Simmons, et al. concern the distinctive role of the family planning workers who worked intensively in specific villages, counselling women not only about family planning but also about issues of health, family relationships, purdah, and other matters which restricted their autonomy with respect to family planning.

We have previously seen that quantitative studies of Matlab had established that the experimental program involving these women did not decrease preferences compared to the control area. However, we saw also that with similar preferences the experimental area had much greater contraceptive practice and fertility decline. This led to the inference that the program was more successful in crystallizing latent demand.

The qualitative studies by Simmons, et al. (1988) and Simmons (1995) make this inference much more plausible by showing that the family planning workers in Matlab did perform this important function by going far beyond simply providing access to contraception. For example, the 1988 study by Simmons, et al. is summarized as follows (p. 29):

Using participant observation data on worker-client exchanges from Bangladesh, this article examines the interface between a government family planning program and the rural women it serves. Case material focuses first on the program function typically identified in the

literature: meeting unmet demand for contraception by providing convenient supply. Functions that have been less recognized are then illustrated: (1) the worker's role in reducing fear of contraceptive technology; (2) her effort to address religious barriers, child mortality risks, and high fertility preferences; and (3) her role in mobilizing male support. The range of functions performed by the female family planning worker in the cases discussed here demonstrates that her role transcends the boundaries of what is conventionally implied by the concept of supply. She acts as an agent of change whose presence helps to shift reproductive decision-making away from passivity, exposing women long secluded by the tradition of purdah to the modern notion of deliberate choice.

(Emphasis mine.)

Thus, the workers went far beyond conventional family planning information and supply services. It could be said that this involves changing the nature of the demand.

In summarizing the role of the worker in introducing women to the calculus of choice, they write (p. 34):

The system of purdah prescribes that women must be sheltered from what is perceived to be a threatening "outside" world. They are expected to remain within the confines of their own com-

pound; mobility beyond this area is to occur only on special occasions and with appropriate company. ... It is in this context that the household visits by female field-workers assume special significance. Women's seclusion implies separation from innovation and change. [The worker's influence introduces the possibility of] choice into a cultural context where child-bearing represents a learned, unquestioned response to the very definition of what it means to be a woman.

... Notable also in these encounters is the fact that it is the worker's message, but not her role, that is frequently rejected. Her role is validated when men allow the women to engage in conversation with the worker and when they themselves participate in the exchange. As long as the worker is allowed to enter the household and talk with her clients, the cultural barriers that segregate women from the outer world have begun to crumble and reproductive norms, long sheltered from influences of change, are exposed to growing cross-pressures.

A second study by Simmons, et al. (1995) is based on a sample of focus group sessions of women in the Matlab area. They illustrate from transcripts of the focus group discussions that the workers: (1) are seen as trusted friends, (2) are said to help them to overcome the fear

of contraception, (3) help them overcome the opposition of family members, (4) provide access to contraception, (5) help them to consider reproductive decisions as "thinkable."

In response to questions about why people want fewer children, the women attribute it to the program and the worker.

Simmons has made it clear that she does not argue that the program does it all. In her unpublished 1995 article, she provides evidence from the focus group interviews that the women perceive and report significant changes in their social and economic position as pertinent to reproductive decisions. Further, the women attribute recent changes in their own views (and those of others) about family size to those socioeconomic changes. But, even here the program is relevant. They indicate that the family planning workers have had a part in these changes too. This is an important picture of interaction between program and nascent social development.

John Knodel and his Thai colleagues (1984, 1987) utilized a systematic focus group study (along with national surveys) to show that latent demand (created by the beginnings of socioeconomic change and mortality decline before the program) made possible a rapid increase in contraceptive use and fertility decline, but this happened only with delay, that is, after the program began.

The crucial data came from older participants in the focus groups who had large families born before the program began. Many of them said that they had not thought of family size as a matter of choice. That idea came to them only much later when they became aware of younger couples using contraception to limit family size. However, even for that earlier period before the program, many other respondents

said they were having more children than they wanted and made unsuccessful attempts at birth control with ineffective methods. Those who were young enough when the program began could then realize their latent demand. As Knodel, et al. write (p. 317):

One important factor underlying the suddenness and rapidity of fertility decline in rural Thailand appears to be the existence of a receptivity or latent demand for effective and acceptable birth control prior to the widespread availability of modern contraception. The frequent references by older participants to attempts to limit and space births through the use of traditional but ineffective means, particularly herbal medicines, is convincing testimony of such a latent demand. Recent anthropological studies have also noted an absence of effective birth control in the past and unsuccessful attempts to control fertility through folk methods.

Knodel, et al. also have an important interpretation of the fact that preferences were shown by surveys to be stable in the initial program period, while contraceptive use was increasing and fertility declined. These were a consequence of the program effect acting to crystallize and meet latent demand created during the pre-program period. Knodel suggests that the subsequent resumption of declining preferences after the stable period was partly a result of a feedback effect. The observation by nonusers of increasing contraceptive use and more small

families served to further legitimize and thereby increase these new reproductive behaviors. These are illustrative of the feedback effects shown in our model.

Knodel sees these indirect feedback program influence and the socioeconomic effects as interacting (1984, p. 318) to further decrease preferences after the initial delay.

Knodel, et al. are not "all or nothing" protagonists of program influence (1984, p. 318):

The two most dynamic components of our explanation for Thailand's fertility transition are the set of fundamental social changes that have been taking place and the effect of the family planning program. Neither can be understood properly in isolation from the other. The socioeconomic changes played an essential role in creating the initial and continued receptivity to limitation of births. The organized efforts to promote and provide contraception have facilitated, and in some localities helped initiate, the widespread use of birth control. In our view, it is the interaction between these two forces, both operating within a cultural setting conducive to reproductive change, that has resulted in the rapid and extensive decline of fertility. Under such circumstances, the conventional debate over the relative importance of family planning programs

versus development in bringing about a fertility reduction seems to pose an inappropriate question.

Knodel is clearly aware of the problems of retrospective reports by the crucial older respondents (p. 318):

Answers to hypothetical questions intended to assess latent demand must be interpreted cautiously. The older generation's perception of how they ... reacted earlier is likely to be influenced both by the socioeconomic change that has occurred since then and by their awareness of the younger generation's widespread use of contraception and acceptance of a small family size norm. Nevertheless, the combination of their present opinions and the frequent mention of past frustrated attempts to limit childbearing suggests the existence of a substantial latent demand for birth control prior to the start of the sustained fertility decline.

Their more general appraisal (p. 318) of their focus group methodology as compared to other techniques is a useful and balanced statement of their advantages and problems:

In view of the qualitative nature of the data and the analysis, considerable subjective judgment is involved in interpreting the discussions. Statements cannot always be taken at face value and often require interpretation

based on the context in which they are made or on information available to the researchers from external sources. Nevertheless, the analyst is considerably closer to what has actually been said and its context than is the case when analyzing survey responses. Distinguishing between spontaneous statements and those made only after probing, or noting the extent to which a particular topic or question generates discussion, can help the analyst in making judgments about the meaning of what is being said in ways that are not possible with the survey approach. Moreover, as in the present project, when the analysts are present at the sessions as observers, moderators, or notetakers, they can have an additional "closeness" to the data that should aid in analysis and interpretation.

The use of focus group sessions is clearly a less ambitious approach to collecting qualitative data than is involved in either a full-fledged anthropological study or the "micro approach" to demographic investigation advocated by Caldwell. However, since conducting focus group sessions does not require long-term residence and extensive participant observation in the communities, a greater number of communities can be included in a given study and thus a

broader coverage attained. Moreover, since transcripts are produced, verification of findings and reanalysis can, in principle, be undertaken by persons other than the original investigators. Such an endeavor is not feasible with the field notes of the anthropologist or the practitioner of the micro approach to the study of demographic behavior.

#### D-4 - Wholistic Multi-Method Case Studies in Depth

John Caldwell, et al. (1988) have provided plausible evidence that, in a district of Mysore, India studied in 1979-1980, the family planning program both affected the creation of smaller family values and adoption of contraception to achieve this goal.

This study was done by an approach that was distinctively Caldwellian in: (1) the use of multiple and varied methods, including extended residence for in-depth interviews and wide-ranging observation in the villages studied; (2) pursuing information about the historic and current social, economic, and institutional forces, including the program, associated with a landmark reversal of the historic, traditional flow of resources from the younger to the older generations. According to their interpretation, this made children less valuable and more expensive and led to lower fertility. Westernization (rather than "modernization" per se) in various ways, including diffusion and increasing education, were said to be critical in this transformation. (3) Assessing the evidence from their own study in relation to their knowledge of the social, economic, and political history associated with

these transformations was in contrast to many of the studies previously reviewed which are generally interpreted mainly in terms of the studies' own data sets.

The methodology of the study included participant observation, in-depth interviews, traditional demographic studies, and surveys focused on issues and problems arising from their in-depth interviews with village residents.

Their own description of what they call the "micro-demographic research approach" is as follows (pp. 46-47):

... The minimum condition agreed upon at the outset was living in the villages and participating in everyday life. ... and we carried out detailed mapping, annual censuses, and vital registration surveys, as well as a series of small, highly focused surveys usually arising from the findings of in-depth interviewing.

... participant observation, even when structured, is highly appropriate ... for certain types of work ... The fundamental instrument is the long probing discussion, often taking hours, ... having an agenda but flexibly following chance leads ... It is necessary to work with persons of every age and often to contrast ... the experience and attitudes of different generations. ... A hundred family interviews of this type over months will inevitably provide any reasonably sensitive inves-

tigator with a depth of knowledge about demographic behavior and change that no administration of a large-scale survey can ever do. ...

This chapter examines the testimony and tests it both with our own survey data and with other data available for the region. All statements and hypotheses are backed by interview reports. If they occasionally give the impression of being unsubstantiated assertions, it is because we have deliberately forsworn the approach of estimating that X percent of the files indicate this, whereas Y percent indicate that. In fact we are near consensus in much that is reported, and increasingly suspect that the distributions achieved by surveys in all but simple quantifiable evidence are artifacts of questions not properly understood and of responses necessarily sufficiently complex in reality to yield an almost random distribution when they have to be assigned to one box or another.

I cannot stress too much that in my judgment the success of the Caldwellian methodology depends on the guidance given to their work by Caldwell's theory of fertility decline (1982) with which they approached the investigation. I believe their findings are broadly consistent with that theory. I will not follow that intriguing path, because our primary question is what the study tells us about possible program effects on preferences.

I summarize their conclusions as follows: (1) the fertility decline in the area fundamentally resulted from an economic transformation in which large families, formerly an asset, became a liability as the traditional flow of resources from young to old was reversed; and (2) the family planning program had a role in helping to explain the economic reasons for having small families and pre-eminently in providing convenient and legitimate means for doing this.

The language of the authors varies in the emphasis they give the program role. I let the authors speak for themselves, but I underline the words which seem to give a varying emphasis to the program:

There is, in fact, near-consensus on two points: first, that family economics have changed from a situation where large numbers of children were no burden, and probably an advantage; and second, that this has been the product of a major transformation of society since the 1940s. Much of the explanation is a "wealth flows" one (p. 53).

There is a fairly widespread apprehension of having too many children. It is not fundamentally a product of the family planning program, although it is clear that many families have articulated that apprehension at an earlier stage than they would otherwise have done because of the public discussion of population (p. 60).

The external debate may range as to whether family planning programs (short of coercion) can either initiate or accelerate fertility decline, but most of our interviewees had fairly clear views on the matter. A family planning program would not have worked before the Second World War and would not work now but for the changes that have occurred in family economics. But changes have occurred in most families. In these circumstances the program's advocacy of family planning and its provision of the means ... almost certainly both initiated a somewhat earlier decline and speeded up that decline. In terms of total births so far averted --although the local people use a different terminology, this is certainly what they are saying--a common conclusion is that the shares attributable to socioeconomic change and to the existence of the program are roughly equal (perhaps just an obvious way of affirming that both have had a substantial impact) (p. 61).

The fundamental element was a basic shift in power, work, and consumption within the family. The family planning program was able to exploit the situation and accelerate fertility decline (p. 67).

In their short section on "The Impact of the Program," the Caldwells write (pp. 78-79):

The family planning program has intruded into a situation where there was little use of the so-called natural methods of fertility control and practically no open-market supply of contraceptives. It still provides nearly all facilities for fertility control.

However, its impact has been much greater than this implies. It has intruded effectively into the decision-making area in two ways.

The first intrusion concerns the reasons for fertility control. ... the employees of the program have voiced a conviction about the economic worthwhileness of fertility control that no one else has. Their conviction does carry weight ...

The second intrusion is in the area of legitimation of the discussion and practice of family planning. Here they have had a sledge-hammer impact. In the large village, a huge, vivid advertisement, covering the largest wall for miles around, pictures a happy man waving a condom about two meters long. In a delicate area involving sexual relations, the program has undoubtedly accelerated by decades the pace of change about what can be discussed.

No one in the study area doubts that the family planning program has vastly speeded up fertility decline. Nearly everyone believes that there has been change in family economics which has allowed the success of the program, but few believe that fertility would have declined decisively for many years without the program. ...

Given this context, we should finally reemphasize several points ... There has been a substantial decline in fertility, in the study area mostly since the mid-1970s. It can be very largely attributed to the family planning program, with the largest single impact being achieved by the Emergency. However, nearly spontaneous demand is now running at a level which will probably hold the birth rate down to that achieved with a high degree of coercion. If fertility is to be reduced further, other unmet needs will have to be catered to.

For our purpose, perhaps the critical point is their initial assertion that the program has played a role in strengthening the rationale of men and women for limiting family size. While the fact that the coercive Emergency period is part of the observations complicates matters, it is important that Caldwell, et al. assert that spontaneous (uncoerced) demand is at a level achieved earlier with the Emergency. Secondly, indicating that the program legitimates discussion and use of

contraception suggests that it is serving to help convert the preferences to a demand for contraception.

I have let the authors largely speak for themselves, because in the end our readiness to accept their conclusions, as in the case of even the best anthropologists, depends on our trust in the authors' assertions of what their data show. I can think of no social demographer I would trust more in this situation.

Having said that, it may be churlish of me to say that I wish they had given us illustrative quotations from their interviews and (despite their explanation as to why they did no counting in this situation) I think it would have been illuminating and interesting to have such counts. Surely, everyone did not agree on everything!

I am, nevertheless, ready to accept the plausibility of their conclusions.

We are still left with the problem that this is a study of one district. One would like similar studies for other selected districts. But, where are the social demographers to do such studies with the knowledge, superb anthropological and demographic skills, and the readiness and qualifications to live in the villages and follow the Caldwellian guidelines?

#### D-5 - Promising Unpublished Studies

I now discuss a number of studies that are unpublished and, sometimes, incomplete. I cite them, first of all, because they are promising and include treatments of program effects on preferences. I also feel a special obligation to cite them, because at least some of them show program effects on preferences.

It should be clear by now that, on the basis of reasonably valid published studies, I have had to conclude that programs usually don't affect preferences but do play a role in converting latent to manifest for contraception after preferences have changed. Since some of the promising unpublished studies suggest different results, it is important to cite them.

The total substantial evidence about our problem is so sparse that I feel compelled to reach out for evidence even if it is unpublished.

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A study still in progress by Shea Rutstein (1995) is potentially quite important. (The draft being cited is marked "do not cite or quote"--a warning I pass on for the few people on the Evaluation Project who will see these comments in my draft.)

The study is a multivariate analysis of the determinants of changes in the desired number of children and in wanting no more children for cohorts of women interviewed in two surveys separated in time. This is done for 28 developing countries with two or three sets of surveys over time. This permits studying how changes in preferences for identical cohorts of women are related to levels and changes of both program and non-program variables.

Either levels or the changes in levels of program effort or both are significantly related to changes in preference in analyses for six different preference variables. This is impressive. However, the differences in specific results for both program and non-program variables in 10 different regressions are not adequately discussed or justified.

Further, the size of effects is not shown. Hopefully, these problems will be dealt with in a final published version.

The basic idea of following the same cohorts over time is very promising and may be used for intracountry analyses as well as for cross-country analysis.

If the results of this study hold up with a full explication in a revised version, it is potentially very important. It is desirable that the author make his explication in the revised version as complete as possible so that it merits critical review when revised and published.

Guilkey and Mroz (1996) have replicated in an improved form the multivariate country-level studies by Guilkey and Cochrane, previously described. This new effort covers Kenya, the Philippines, Zimbabwe, Tanzania, Tunisia, and Bolivia, and the intention is to add, at least, India and Indonesia.

A key feature of these new studies is that they have information on the date on which family planning services were initiated in local areas. This can be translated for each woman into the age at which she was potentially exposed to family planning ideas and services and the length of such exposure. This introduces a life-course perspective never before available in such quantitative studies. Other data, such as infant mortality and some socioeconomic variables, also can be constructed with this life course perspective, but preferences are only available at the time of interview. Nevertheless, the new historical dimension on program effort provides an important new approach.

At a recent meeting (October 10, 1995) the summarized results to date were reported as showing considerable program effects in some

places and less in others. I suggested that this may result from variation in the intensity, quality, and character of services. Guilkey and Mroz apparently will measure the accessibility of a facility and not what it does. This is discussed further in Chapter IV on suggested research.

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Watkins has recently done very pertinent and unique work in Kenya on how social interaction in networks diffuses knowledge and legitimation of the merits of smaller families as well as the use of contraception to achieve this. Very preliminary unpublished reports (Watkins, et al., 1995; Watkins, 1995) give intriguing but still very incomplete results from a program of related qualitative and quantitative studies in the South Nyanza district of Kenya:

1. "The goodness or badness of many or fewer children" is a topic of community-wide debate and there is considerable ambivalence among both men and women. Women are also concerned about the opinions of their parents-in-law and husbands (Watkins, et al., 1995, p. 17).

2. There are as yet mainly qualitative data indicating that ideas about family size and birth control are learned and legitimated for many in interaction in social networks, especially when they include members with experience in other (especially urban) settings.

3. a. In a preliminary multivariate analysis based on interviews with 400 men and 400 women (Watkins, 1995), use of contraception is related significantly to urban experience and being multilingual as network indicators. Further network influence is indicated by number of network partners. She further plausibly interprets knowing

secret contraceptive users as an indication of intense network interaction. A measure of direct program influence (contact with CBD worker) also has a significant relationship to contraceptive use.

- b. The results for determinants of wanting no more children (crucial for our purposes) are less conclusive but still relevant and promising. In this case there is not a direct program effect: "Perhaps not surprisingly program contact is not influential. CBDs would not seem to have much persuasive power" (p. 37). The network connection, as measured by knowing secret users, is significant as is interaction beyond the local community (urban experience). But, in this case, being multilingual is not.

It is good to have these preliminary indications that both contraceptive use and having fewer children are discussed extensively with others in social networks. As she indicates, she has not yet addressed the crucial problem of selection (and thereby causality). Do those already adopting new reproductive behaviors seek out others with whom to discuss it or is there really causation from network discussion to new behavior?

However, even these preliminary reports make it probable that Watkins, et al. are directly addressing processes which can give some aspects of the ideational hypothesis an important type of empirical grounding. It is probable that interaction in social networks is an important basis for diffusion and legitimation of ideas about smaller families and birth control. But, what is the origin of these ideas? A

primary challenge will be to establish the origins and pathways of these ideas in the growing national and international communication networks, in the direct and indirect influences of local programs, and in the changing life situations of the population. Where do the ideas come from and how do they enter the networks? To what extent do they arise out of the personal and community experience of changed conditions from such forces as lower mortality, etc.?

It is much too early to be second-guessing Watkins. We must wait to see how she analyzes and puts in context her rich data sets.

D-6 - China: The Power and the Limitation of  
Strong, Coercive Government Authority

A government family planning program can be effective in stimulating rapid change in reproductive behavior if it has a bureaucratic structure which enables it to reach and mobilize its village population. Working through such a bureaucratic structure and with coercive measures, China was able to precipitate a rapid fertility decline in all major strata of its population--a change of dimensions unprecedented in history. However, even such a substantial apparatus is not all-powerful. China was unable to reach its one-child goal in its majority rural population. That was because the very strong preference for at least one son in the rural areas resulted in resistance to the one-child policy, which even China's powerful and coercive program could not overcome.

Initially, it appeared that China's program would have its way. In summary of what happened, I quote Freedman (1995, p. 8):

In 1970, when the government launched its national birth-control program and the precipi-

tous decline began, 52 percent of all Chinese women and 61 percent of rural women were illiterate. By 1982, just 12 years later, the TFR had fallen by 54 percent--86 percent of the way toward the replacement level (Coale and Chen, 1987); and in the following decade China reached replacement-level fertility.

The case of Sichuan Province is particularly striking. With a population of 100 million, Sichuan was 80 percent rural just before 1970, and 67 percent of the rural women were illiterate ... Nevertheless, between 1967-70 and 1979-82 the TFR fell from 6.5 to slightly more than 2.1 for all women, or 99 percent of the way toward replacement [from 4.0 to 1.2 in urban areas], and from 6.9 to 2.5 for rural women, or 92 percent of the way toward the replacement level ... The declines for illiterate women were as great as those for better-educated women.

Even with these spectacular fertility declines, the power of the program was not uniform across China's vast area and population. Freedman, et al. (1988) have demonstrated large local area variations in reproductive behavior.

In addition to the force of the program, major preceding declines in mortality and increasing education levels for children were contributing factors to the precipitous fertility declines. While there

are no uniform national figures for changing preference levels, it is likely that they were decreasing also. Susan Greenhalgh (1990, p. 18) cites Parish and Whyte (1978) for the idea that "... in the 1970's the modal Chinese peasant probably wanted two sons and a daughter." She cites Whyte and Gu (1987) for the idea that a decade later a modal peasant "... would likely have been content with one child of each sex."

Greenhalgh (1990; 1992) presents a plausible explanation for shifts from "the more children, the better," first to a modal three and then to a modal two. She makes a strong case for the idea that both the period of collectivization and the following period of decollectivization and economic reform progressively weakened the motivation to have more than one son, but still left having that one as essential.

The crucial point is that after reaching TFR levels somewhat above two in rural areas, the peasant population refused to go below that level.

Jiali Li (1994), in a study of the implementation of government policy in Hebei Province, distinguishes the very different situations for two fundamentally different types of families. Those, mainly urban, families registered as chengshi hukou (type 2) were subject to strong government control because they were "... guaranteed employment, an old age pension, food rations, labor insurance, and other benefits such as housing, medical services, maternity leave, children's day care and education, ... benefits provided and directly controlled by the government through the individual's work unit" (p. 4). For the mainly rural group (type 1), registered as nongcun hukou, the government has had far fewer means of controlling their behavior.

Type 2 has much lower fertility and a far higher rate of accepting and conforming to the one-child certificate. Type 1 is more likely to be deviant from the one-child goal. Greenhalgh (1990, pp. 19, 24) writes, "Those whose interests were most directly threatened by the one-child restriction were, of course, the peasants, for whom children were crucial means to economic and social security. Thus, it is not surprising that Chinese peasants devised a great number and variety of strategies to subvert the one-child policy ... from passive to active forms of resistance. ... Then in 1988 the policy allowing all rural couples whose first child was a girl to have a second was extended country-wide (Zeng, 1989). These conditions--especially the only girl policy added in 1988--bear the clear stamp of the peasantry, whose major demand, surveys have consistently shown, was for two children, one of which had to be a son (Whyte and Gu, 1987)."

This section has been intended to provide summary evidence for the hypothesis that in China the initial precipitous fertility fall to the two-child level provided by the program was consistent with emerging preference trends, but when the government tried to push below that level even all its power and coercive measures failed. The rapidity of the initial decline and its penetration even to the mass of the illiterate peasant strata were extraordinary, but so also was its failure when it tried to destroy values based on the vital interests of the peasantry.

This section is quite different from those preceding, which were reviews of specific studies. It is intended to illustrate a different kind of analysis which I can only briefly present here. The extent to which the effect of the powerful program in producing the major initial

fertility decline was helped by the lower preferences latent in changing political and economic forces is controversial. But, the fact that the program could not push the preferences further from an average two to one is indisputable.

The author believes that such coercive programs are morally indefensible and that their effectiveness in changing basic preferences in most countries is highly questionable.

Table 1  
Effects of Exposure to Family Planning Media Messages on  
Selected Indicators of Reproductive Behavior Unadjusted (U)  
and Adjusted (A) for Socioeconomic Controls, Kenya, 1989

Variable indicator	Family planning messages score*					Chi-sq or F	df	
	0	1	2	3	All			
Ever use of contraception								
% ever used any method	U	26.2	43.9	63.5	76.7	44.9	499.1	3
	A	30.3	45.8	58.4	62.9	44.9	147.0	3
% used modern among users	U	53.1	61.2	68.4	81.7	64.3	64.4	3
	A	57.0	64.4	66.1	70.6	64.3	7.3	3
Current use of contraception								
% currently using any method	U	14.3	26.0	39.4	49.7	26.9	284.4	3
	A	18.1	27.8	35.7	33.4	26.9	66.5	3
% using modern among users	U	53.2	62.9	71.8	81.2	66.4	39.4	3
	A	52.6	67.2	67.6	78.5	66.4	13.6	3
Intention to use in future								
% intend to use in future	U	40.4	56.9	65.7	69.5	53.2	150.4	3
	A	44.5	56.4	60.3	63.6	53.2	41.2	3
Desire for future births								
% want no more	U	46.8	49.6	51.6	52.5	49.4	7.3	3
	A	44.9	48.9	52.5	61.5	49.4	14.1	3
% spacers among non- limiters	U	49.7	52.5	65.4	63.5	54.9	36.9	3
	A	54.2	51.1	61.5	62.1	54.9	11.6	3
Ideal number of children								
Mean ideal number	U	5.97	4.98	4.55	3.82	5.11	121.8	3
	A	5.50	4.96	4.98	4.69	5.11	20.4	3

\*The scores are: 0 = no message, 1 = radio only, 2 = radio and print,  
3 = radio, print, and TV.

Adjusted figures are based on linear regression for ideal number of children and nested logit regression models for all other indicators, and have been scaled to reproduce exactly the sample total. The regression models include as controls: age, number of living children, number of wives, region and place of residence, wife's education, husband's occupation, several indicators of household possessions, ethnicity, and religion.

The table is from Westoff and Rodriguez (1993, p. 8).

Chapter IV - Suggestions for Further Research

The preceding essay should make it clear that additional research is needed on past and prospective family planning program effects on reproductive preferences. This is needed both for scientific understanding and to guide population policy.

Herewith, a list of suggested lines for future work:

1. A first major step is to include preference questions and analysis in all appropriate studies of contraceptive use and fertility decline. As our essay has indicated, the numerous studies of those topics often either do not include data on preferences or do not analyze them usefully when they are available. Such additions and analyses will often involve only marginal costs.

To implement such an initiative, it would be necessary for such funding agencies as USAID, the Population Council, the Rockefeller Foundation, the Hewlett Foundation, UNFPA to be given convincing documentation of why such action is desirable. This might then involve their calling to the attention of grantees and in-house workers the potential for new knowledge about program effects on preferences at marginal cost when they are investigating the determinants of contraceptive use and fertility decline.

Consider a few examples. The ongoing major Navrongo project in Ghana is in fact collecting preference data periodically. They should be encouraged to analyze those data regularly as they plan to do with contraceptive use and fertility decline.

New initiatives have been funded to study the role of social interaction in networks on reproductive change through diffusion. Do they give specific attention to reproductive preferences?

A major analysis of program effects in reproductive change in Indonesia (Gertler and Molyneaux, 1994) did not cover changes in preferences, although the Indonesian program often had such specific objectives in its mass media. Could that be added retrospectively to this study or could a new one be commissioned?

2. Research on diffusion of the idea of the smaller family and its advantages/disadvantages is potentially very important, but has hardly been begun. I believe that there is a considerable potential in existing survey data which could provide information for local areas. Those expert in the field should be consulted about the possibility of research taking this direction. The work in progress by Susan Watkins does deal with preference change in social network interaction. While she is very likely to make a solid contribution in dealing with diffusion and legitimation of lower preferences in such networks, the crucial question from our point of view is how the ideas initially enter the network and whether programs have a role in that crucial step.

3. Guilkey, Mroz, and associates have begun to demonstrate the potential for including preference data in sophisticated multivariate analysis. In their work they have gone to great lengths to collect data on the time of beginning of family planning service at specific locations, thus introducing a crucial historical life-cycle element to variables about access to family planning services. The results I have heard expounded seem to indicate that program variables, including those with a time element, have considerable, some, or no effect in different countries. If these results are as significant in completed analyses as they appear in prospect, these and other investigators should be encouraged to expand their work to other countries. It is essential to get a

reasonably large number of countries for cross-country analyses which may be able to establish why program effects vary so much as between countries in the limited number of countries so far investigated.

One probable reason that program effects are so small in such studies now is that the program effort measures are so crude. For example, even the exemplary introduction of a timing-life-cycle aspect to the Guilkey, et al. studies now simply dates the existence of a facility. Its effect, however, will depend on the nature and especially the quality of the service. For example, when were multiple methods (generally regarded as an essential for good quality services) available? When were CBD rather than stationary clinic services available?

This may seem like a tall order. I suggest commissioning a detailed historical study of, e.g., two contrasting countries to study the history of the program and how it was related to reproductive trends as a beginning.

What is needed is some more detailed creative discussion and thinking about this important topic.

4. There is need for some creative experimental research on the causes of unmet need with special reference to preferences. Most research on this topic is confined to asking respondents on surveys, identified as having unmet need, why they don't use contraception if they want no more children. These yield a wide variety of responses, some plausible and others not. Giving such reasons provides an opportunity for rationalization and for completely inconsistent and contradictory responses, e.g., that they want more children (Westoff and Bankole, 1995). Current research by Casterline and others using in-depth interviews, sometimes longitudinal, should help greatly. In my judgment,

however, they all miss an essential point: is the failure to use a result of some personal and social situation of the respondent or because the program services failed to reach the woman properly or at all?

I suggest consideration of a design roughly like this: Soon after a group of unmet need cases are identified on a survey, offer a subsample the best possible service (CBD, multiple methods available, etc). Then follow up those who don't accept as well as those who weren't offered the service with in-depth interviews on why they aren't accepting. The design should minimize the possibility of diffusion between those who are and those who aren't offered the service, unless diffusion is part of the design. The experimental design could be varied by offering different subgroups a different package or mode of service.

5. Whatever effect programs have on preferences or any other aspect of reproductive behavior, the question often has been and surely will be raised in the future: Hasn't/wouldn't the same thing have happened without any program at all?

Brazil is a very good case in point. There is plausible evidence that the mass media soap opera in Brazil with its appealing picture of a desired lifestyle, including the small family portrayed, has had a substantial effect. It has been beyond my time or resources to pursue this line. As a beginning, someone should collect the time-series of measures of preference and analyze its relationship to Brazil's development, differentially in provinces. A comparison with a country as similar as possible but with a program would be desirable.

Chapter V - A Final Summary

It is unfortunate that, after scanning several hundred studies and reading a hundred or so carefully, I could only report on the small number directly relevant to our problem.

A small cluster of several kinds of studies supports the conclusion that programs do not initially affect preferences, but that they do serve to convert often latent and ambiguous demand to a definite demand for contraception in order to have fewer children. This is an important idea, but one would like to have a wider range of studies to define when and where this pattern occurs. An important relevant fact is that in many countries both latent and manifest demand were created by other forces before the program began. This meant that the programs could, and usually did, initially concentrate on making latent demand manifest and providing suitable contraceptive services.

The published evidence suggesting that programs do have an effect is even sparser. One multivariate intra-country study for Egypt and one for Tunisia show small significant effects. More studies of this kind are under way and may strengthen this kind of evidence greatly, but they are not yet in hand. The Caldwells' intensive study of an Indian district indicates that the program helped villagers to understand the value of smaller families as a response to the economic transformation under way. Studies of Thailand and Bangladesh illustrated the feedback hypothesis: non-users of contraception may decide to use contraception to have smaller families if they observe others doing that with program (or non-program) services. There is a very plausible case for this form of diffusion, but like other aspects of diffusion there is no explicit direct micro-level evidence of the process.

It is highly probable that in China the rapidity of a historically unprecedented fertility decline was the result, in large part, of a very strong coercive program. It is not known to what extent the coercive program per se changed preferences in the long run, because there were also important social and economic changes which facilitated reduced preferences. It is quite certain that China's one-child policy, effective in the cities, could not overcome the strong preference for two children and one son in the countryside.

There is promising work in progress along a number of lines that may make it possible to make stronger statements about if, where, and how programs affect preferences. Further down the line, we could know much more if research were carried out along lines hardly touched as yet.

It should be possible to make much stronger statements about program effects on contraceptive use and consequent fertility decline than we have been able to make about preferences. Many of the studies that we report and many others that we set aside because they didn't deal with preferences reported significant effects on the two other variables.

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