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**WORKSHOP ON
REDUCING FERTILITY
THROUGH
BEYOND FAMILY PLANNING MEASURES**

Report on Regional Workshop
Penang, Malaysia

26-29 January, 1976

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INTRODUCTION

1. The IGCC Workshop on Reducing Fertility through Beyond Family Planning Measures was held in Penang, Malaysia, from January 26 – 29, 1976. It was organized by the IGCC (Inter-Governmental Coordinating Committee, Southeast Asia Regional Cooperation in Population and Family Planning) in cooperation with ESCAP (Economic and Social Commission for Asia and the Pacific), the IACPL (International Advisory Committee on Population and Law), ACDA (Asian Center for Development Administration), and through the sponsorship of US AID (United States Agency for International Development).
2. The objectives of this Workshop were to assess the "State of Art" and the stimulation of further research and pilot experimentation on the determinants of family planning and beyond family planning measures which may encourage further reductions in fertility by promoting to parents the attractiveness of a small family. Discussion in the Workshop focussed upon the relationship of beyond family planning measures to the following aspects of development and socio-economic planning which had been identified by the Steering Committee as areas for potential fertility lowering policies: land development, education and employment, housing, social security and health, taxation and other economic incentives.
3. The Workshop was attended by Country Delegates of the IGCC member countries (Indonesia, Malaysia, Nepal, Philippines, Singapore and Thailand) who represented key economic planners, research workers in fertility, government administrators, family planning administrators and family planning program directors in the IGCC Region. There were a total of 19 country delegates, 11 resource persons, 11 observers and 6 IGCC Secretariat Staff who attended the proceedings. The roster of the Workshop is given on pages 134 to 137.
4. The Workshop consisted of nine sessions during which 12 background papers and 6 country papers served as reference documents for discussion. All sessions are listed in the Agenda on page 133 and the documents for discussion are to be found from pages 8 to 132.
5. Dr. L. S. Sodhy, Secretary General of the IGCC, gave the opening remarks and welcomed all the participants. The proceedings were then handed over to the elected Chairman, Dr. Wan Fook Kee. Following this, Professor Ramon Eduarte was elected as Rapporteur. Dr. Robert Muscat presented the very illuminating and thought provoking Introductory Remarks on the rationale underlying the Workshop. The full texts are on pages 6 to 7.
6. The objectives of the Workshop were successfully achieved through lively around-the-table informal discussions during the sessions. The Summary of the Proceedings prepared by the Rapporteur was thoroughly discussed in the last session; proposals submitted, dissected and accordingly accepted; and follow-up activities identified and agreed upon. The summary was then unanimously adopted by the Workshop participants on January 29, 1976. The full text of the Summary is reproduced on pages 3 to 5.

*Note:

Background papers circulated at the workshop not included in this report are:

¹"Beyond Family Planning"—Seminar for Voluntary Associations on Women, Home and Community, by D.C. Jayasuriya, circulated by A. Majeed Khan.

²"Rural Development in Indonesia 1975" by the Department of Home Affairs, Republic of Indonesia.

AIDE-MEMOIRE: WORKSHOP ON REDUCING FERTILITY THROUGH "BEYOND FAMILY PLANNING" MEASURES

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INTRODUCTION: Beyond Family Planning Services

Population policy and programs have typically concentrated on supplying family planning services and information on the theory that this would bring high birth rates down most rapidly. Recently, however, many experts have suggested greater attention might usefully go to problems of motivating more people to practice family planning. If couples are determined to avoid pregnancy, they will often find a way, even in face of severe shortages of modern contraceptives or prohibitions on abortion. If couples positively want another child (particularly when they have few or none), the strongest pleas for family planning will fall on deaf ears. But most couples — at some parity, which differs with circumstances — fall between the extremes. In choosing whether or not to practice family planning, those couples weight the cost, risks, and inconvenience of available contraceptives or abortion against the net cost of undesirability, as they see it, of another child. Their decisions in favour of family planning — and the parity level at which those decisions are made — determine how fast birth rates fall and how much the population expands *ceteris paribus*.

In some cases the provision of more attractive, safe, and effective family planning services may suffice to tip the balance in favour of contraception after only two or three children. Supplying better services is critical, especially for the poor who have never had access to such services. But it is also important to look further at what makes prospective parents want or not want another child.

Better understanding of parents' views will enable family planners to improve the appeal of family planning service programs (through better program design, counseling, and so on). It will also enable policy makers to work

out complementary programs and policies that will enhance the attractiveness to parents of small families and so strengthen the "demand" for family planning services.

In some countries with modern family planning service programs, encouraging though modest decreases in birth rates and fertility have occurred. In such instances observers often conclude that family planning service programs are principally responsible, and doubtless the programs do help. But in many of these countries, birth rates seem to have started down as the nations modernized before family planning service programs were operating on a significant scale. And where birth-rate declines do postdate the introduction of family planning service programs, careful study of available statistics appears to indicate that — apart from an initial use surge attributable to new contraceptive methods — women's education, lower child mortality, economic improvement, and so on account for a significant portion of further birth declines, by encouraging parents in one way or another to prefer smaller families.

In other countries with fairly extensive family planning service programs, birth rates have failed to fall as planners had hoped or as official plans projected. Possible explanations are that too few contraceptive services were provided or pills handed out, and perhaps that officially sanctioned abortion was unavailable; or too few trained personnel were put to work on the problem, or the bureau-cracy moved too slowly, or publicity was insufficient — in short, that the supply of family planning services was still inadequate. Undoubtedly that is so in many cases, but it may not be the whole story. Deficiencies in the supply of services do not rule out deficiencies in demand for those services.

In countries where birth rates are falling only slowly

despite reasonably well-utilized modern family planning service programs, the slow decline may be partly because of the so-called "substitution effect" -- that is, many acceptors of the new services may have already been using some other method of birth control, whether *coitus interruptus*, primitive contraceptives, home-remedy abortion, or modern contraceptives sold privately at higher prices. To the extent that this is so, the net impact of new family planning programs on birth rates will be less than the "acceptance rates" of those programs would suggest. The importance of this substitution effect is hotly debated but too little studied.

Still more disturbing are persistent rumours and occasional reports that not all the family-planning facilities in official programs are fully used, or close to fully used. Some programs that were successful in the beginning seem to have bogged down, possibly because they already served most of those who were highly motivated to limit their families. However that may be, clinics are not always full. True, this may be a problem of organization, or transportation, or staff -- of inadequate supply. But one cannot help raising questions suggesting further possibilities. Are the users of the clinics sufficiently interested in family planning to return? Are they advertising the clinics to their friends; and if so, do these friends also want the clinic services? In other words might lack of demand also help explain the empty waiting rooms?

Whether or not demand is there hinges on many things. Certainly demand for family planning services differs with the type of service -- with knowledge of and access to different types of services, particularly those associated with modernization. But demand for family-planning services of whatever type also depends on how many children parents want because they just like children or feel they need them. We know too little about the number of children parents would want given "optimal" family-planning services. We do have evidence that people in some countries are indeed having more children than they want, but also that in many places they still want more; and certainly most couples want more than the 2.1 children each that would result in population stability. For people in developing countries may individually have sound reasons for wanting large families even though, to their countries as a whole, burgeoning population represents a threat.

More needs to be done to evaluate the growing evidence that weakness in the demand for family planning may be thwarting efforts to bring down birth rates. From available information we do know the parents want different numbers of children as their economic, social and other conditions change. But we need to refine our understanding to determine more precisely what makes

parents want smaller families. This requires careful statistical analysis, not only of demographic variables, but also of economic social, educational psychological, and other forces that may help determine preferred family size. Until recently, family-planning programs were too new to provide the several years' records that statisticians need. But now the time is ripe. The next steps should be to glean from the records the reasons why people tend to have different numbers of children under different conditions, and to use that information to encourage lower fertility.

But what can be done by governments by private interests or by aid donors to encourage smaller families? First of all, research must be supported that will identify precise pressure points with increasing sophistication area by area culture by culture, country by country. When the results become available, strategies can be developed for utilizing the new knowledge. It should then be possible to indicate how social and economic programs in education, in housing, in employment, in income redistribution, and in industrial and agricultural organization -- many of which will be financed on a substantial scale in any case -- could be modified to influence family size preferences as well. If better educated women have fewer children, for example, as seems generally to be the case, school programs can be designed to educate girls as well as boys or to focus on the high female dropout rate. Or if working women have fewer children, as also seems frequently to be the case job-training programs and equal-opportunity laws can be encouraged.

In the meantime, however, we need not sit by and await the results of research. A variety of pilot programs, should be started that may be effective in the short run, and will in any case provide the lessons from experience that are badly needed. Particularly is this true of programs that rely on financial or quasi-financial incentives, the efficacy of which can really be established only by trying them out. Several promising pilot program experiments are already underway. Some provide old-age payments in the style of social security for parents who forego some children. Some provide education bonds for two or three children of parents who forego further fecundity, which enhances the prospects of existing children. Some simply provide disincentives to those who might have large families. Initial response has in many cases been promising. These experiments should be refined, repeated and extended. With scarce resources, we need to develop sound criteria for evaluating alternative incentive proposals (which may include short-run or long-run benefits for users or administrators, etc.) in order to compare such programs to other family-planning options.

SOME DETERMINANTS OF FERTILITY: IMPLICATIONS FOR PUBLIC POLICY

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The most substantial efforts to deal with the problem of rapid population growth have centered on reducing fertility by means of voluntary use of both private and official government family planning programs. These have been successful in many cases; nonetheless, thoughtful men and women have for some years considered what measures beyond family planning may also contribute to the public objective of many countries to reduce fertility and population growth. The search for viable policy strategies has led to examination of the determinants of fertility.

Virtually all the variables determining fertility discussed in this paper* are social indicators; that is, they summarize average or modal characteristics of large populations rather than of individuals. Thus, income distribution, infant mortality, educational level, labor force participation, et cetera, are all expressed as proportions or rates for total populations or segments of populations. As such, these aggregate indicators do not "explain" individual behavior. Rather, they serve the primary function of social indicators, which is to describe the main tendencies of a group or class of individuals. Since public must be directed not at individuals but at groups or classes, these indicators, rough and imprecise as they may be, are perhaps the best beginning toward a guide for social policy.

In this paper we consider the relationship between fertility and a variety of factors over which governments exercise considerable domain.* This evaluation of re-

search on the determinants of fertility is implicitly addressed to the possibility of altering household fertility decisions by altering public policies which impinge on households.

I. NATURE OF THE RELATIONSHIP WITH FERTILITY

The first column in Table I offers the most elementary information about the determinants of fertility, i.e., whether the relationship is direct or inverse. Even at this simplest level, the results of research are still tentative in many cases.

Income and Its Distribution

Although we reviewed 18 studies which discuss the relationship of income to fertility, analysts have been unable to specify empirically the direction of that relationship. Much of the problem lies in the difficulty of defining income properly and in separating out the effects of income change from other variables because of high intercorrelation.

In a report on population policies and economic development released for the 1974 World Population Conference, the staff of the World Bank (1974) argues forcefully that the joint Bank objectives of slower population growth and more equitable distribution of the benefits of development are compatible (Ch. 4). Deriving information on the relative shares of income of different income classes of a country's population can be enur-

*This paper is based on the authors' earlier monograph, *The Policy Relevance of Recent Social Research on Fertility*, ICP/Smithsonian Institution, Washington, D. C. 1974. Where appropriate, reference has been made to subsequent publications and privately circulated research reports.

NOTE: This paper reviews the state of research on fertility determinants. Therefore it does not discuss socio-economic factors like the need for old age support which may affect fertility substantially but which have been the subject of research only rarely.

mously difficult (Cassen 1974); however, indications are that distribution of income is more important in reducing fertility than is average per capita income. The World Bank report, in an analysis of 1960 – 65 data on 64 countries, concluded that "The pattern of income distribution is at least as important as the rate of income growth for the decline in fertility," pointing out that elasticity of the general fertility rate with respect to changes in the share of income received by the poorest 40 percent of households was 1.36, while the elasticity of general fertility rate to increases in average per capita income was little more than half as great, or – 20.

Kocher (1973), using cross-national data, compares countries in terms of an index of income inequality and fertility trends. He concludes that "there appears to be a rather close and consistent relationship between relative income inequality and fertility trends," i.e., that fertility has not been reduced where inequality persists (p. 63 and Table 4.1, pp. 64 – 65). Rich (1973) has concluded, from a simple correlation analysis of the relationship between per capita income of the lowest 60 percent of income earners and births per thousand population in 40 countries, that the increments of income going to that poorest group contribute more to fertility reduction than augmentation of average per capita income as a whole (p. 67).

Socio-Economic Change

The indeterminacy of the relationship of fertility to economic development shown in Table I may derive from the fact that economic development as a variable lumps together changes that have opposite effects on fertility – with positive effects dominating on some occasions and in some circumstances, and with inverse effects dominating in others.

The relationship of three other variables to fertility was found to be either positive or neutral; these were male education, male employment, and rural female employment. Findings about male socioeconomic variables are probably unspecific because it is difficult to separate out the effects of education and employment per se from income.

Although characteristics of males offer little guidance as to the determinants of fertility, characteristics of females – particularly education, income, and occupation – do tend to be correlated with fertility behavior. More studies have been conducted of female education

and employment and their relation to fertility than of any of the other variables considered in Table I.

Value of Children

Age at marriage, costs of children, and infant mortality were considered together under the rubric, "This Value of Children," for the following reason: Household decisions among the poor are made on bases that seem still to be poorly understood by social scientists. These decisions must logically include the formation of unions (families) as well as decisions to bear children. Custom may well dictate age at marriage in a traditional society, but as change begins – as it has throughout the developing world – these customs may also evolve gradually to respond to altered conditions of life. All evidence points to the fact that as age at marriage rises in a society, fertility falls. Moreover, rising age at marriage is associated with improvements in female education and employment. Although governments have been largely unsuccessful in prohibiting early marriage, policies which change conditions of education and employment may have an impact on age at marriage and hence on fertility. This area of interconnected casual links has not been explored with the thoroughness necessary for the development of effective population policies. Type of marriage is indeterminate because the term includes disparate meanings of the word "type"; in one case, it may refer to the legal status of marital unions; in another, to the quality of relationship between husband and wife with respect to communication within the family and decisionmaking.

Research on the implications of changing levels of infant mortality has been quite effective in demonstrating that, in the long run, lower infant mortality will result in lower fertility. The summary of research by Schultz (1975) suggests that after a lag of several years a 10 percent reduction of infant mortality will yield a 6 percent reduction of fertility. Yet that research has not advanced to the additional step of indicating how much resources devoted to health improvements for mothers and children are needed to achieve stated goals of reduced mortality and fertility.

It costs of children (because of compulsory schooling and school fees, for example) are higher, then couples tend to have fewer children. Conversely, where children tend to work in the labor force and produce income, fertility is higher. However, there is little detailed re-

*In a recent effort by one of the authors to estimate the likely impact on population growth of execution of the next five-year plan in Pakistan, it was established that but a small share of programs which can influence population were directed at reduction of fertility. The majority of population-influencing funds were spent on programs in health, environment (potable water) and nutrition. This finding suggests the importance of giving close attention to mortality as well as to fertility.

TABLE I.

SUMMARY OF FINDINGS ON THE CORRELATES OF FERTILITY:
DIRECTION OF RELATIONSHIP, AVERAGES OF ELASTICITIES, AND ADEQUACY OF RESEARCH

INDEPENT VARIABLE	Nature of the relationship with fertility*	Elasticity (computed average from studies cited)	Adequacy of research
Income and its Distribution			
Income	?	-.24 ^a (6) ^b	Fair
Income Distribution	-	-.36 (1)	Poor
Socioeconomic Change			
Economic Development	?	--	Poor
Socioeconomic Status	-	--	Poor
Education and Literacy	-	-.15 (1)	Fair
Female	-	-.25 (9)	Good
Male	+ or 0	--	Fair
Employment			
Male	+ or 0	+.09 ^c (1)	Fair
Female		-.19 ^d (2)	Fair
Rural	-		
Children	+		Poor
Value of Children			
Age At Marriage	-	--	Poor
Type of Marriage	?	--	Poor
Costs of Children and Childbearing	-	--	Fair
Sex Preference	- or 0	--	Poor
Infant Mortality	+	+.33 (3)	Fair
Other Variables			
Urban/rural Differentials	0	-.11 ^e (3)	Fair
Religion	0	--	Poor

NOTES:

* (+) symbol is used if the relationship to fertility is direct, (-) symbol if the relationship to fertility is inverse, (0) symbol if there is no relationship to fertility, and (?) symbol if the relationship to fertility is indeterminate.

^aElasticities for per capita income and income per worker.

^bNumbers in parentheses indicate number of elasticities found.

^cElasticities for male earnings.

^dElasticities for female earnings and female labor force participation.

^eElasticities for percent of population in urban areas.

search to demonstrate exactly how couples respond to variations in the costliness of children. Special situations exist in many of the developing countries in which governments have imposed schooling requirements, limited family benefits for high parity children, and reduced income tax deductions for numbers of children. Although each of these situations offers opportunities for study, we found virtually no studies of these policies-in-action.

Son preference also has a somewhat unclear relationship to fertility. Studies in India indicate that when a couple has achieved a hypothetical goal of two live sons, they tend to have higher fertility thereafter. In contrast, Taiwanese experience shows that couples having achieved the goal of two live sons have lower fertility thereafter. Further study of these relationships would seem to be in order.

On such questions as urban/rural fertility differentials and the role of religion, the results are also unclear. In Latin America, urban fertility is substantially below rural fertility. The differences disappear in Asia and Africa. Further, the impact of urban residence on fertility washes out when other variables (income, education, and occupation) are considered. Religion and, more broadly, culture, play some role in fertility, but since religious belief and custom would not normally fall within the province of government policymakers, it has been given little attention in this report.

II. ELASTICITIES

Some variables have been sufficiently well specified to enable social scientists to estimate the elasticity of response of fertility to changes in those independent variables. (see column 2 in Table 1). Our review uncovered 29 elasticities drawn from 14 studies concerning 8 different independent variables. These are the variables which have been subjected to the most careful social science scrutiny; it has been possible to move from merely indicating the direction of relationship to estimating the degree of responsiveness. However, female education was the only variable for which we found a fairly large number of elasticity estimates. Even in that best of all cases, one cannot be sure that these elasticities would be applicable to all situations. However, the calculation of such elasticities has the highest probability of being directly useful to the formulation of population policy.

From the point of view of the policymaker, determination of elasticities makes it possible to make decisions about what socioeconomic policies are more or less likely to have an impact on fertility. Of course, further steps are also required. Certain policy changes may be more easily adopted than others for political or administrative reasons. Moreover, the costs of certain changes vary and must be taken into account. Though the elasti-

city of female education to fertility may be high, it does not follow that increasing female education is the most efficient manner of reducing fertility. Education is an expensive and long-term solution to population problems, and policy areas with lower elasticities may be more worthwhile because they involve much lower costs and shorter time spans.

We know of no studies which specifically compare the advantages of various policy strategies, taking into account the sensitivity of fertility to certain policy changes and the costs (political as well as financial), of those changes. This combination of elasticity and expenditure considerations, we call "economizing." It is the next logical step in population policy formation.

III. ADEQUACY OF RESEARCH

Finally, in Table 1 we have characterized research on each of 18 variables with respect to whether the adequacy of research is good, fair, or poor. Three criteria were used to prepare an unweighted index of research examined on the determinants of fertility:

- 1) The number of studies cited concerning each variable listed in Table 1;
- 2) The number of elasticities calculated on each variable and presented in Table 1;
- 3) A subjective evaluation of the degree to which each of the 18 variables might be subject to policy manipulation.

Each variable was scored (1, 2, or 3) on each of the three criteria and summed ratings yielded an unweighted ranking. These scores were then grouped as to whether the degree of adequacy was good, fair or poor. This procedure takes into account the quantity of research on each variable, the "quality" (the more elasticity estimates, the higher the quality), and the policy relevance indicated by the degree to which the variable might be altered by policy intervention. The reader will recognize that, although we have made these criteria explicit and verifiable, they are still obviously subjective.

Many socioeconomic variables which seem important with regard to fertility could be better understood and utilized by decisionmakers if more exacting research were carried out. For example, female education has one of the most consistent and strongest relationships to fertility and, therefore, is an area where more sophisticated multivariate analysis is in order. The review also points toward the importance of income distribution, an area in which research today is restricted by the inadequacy of currently available aggregate data. Finally, the extant research suggest the importance of variables whose impact is best measured at the household level; these include age of marriage, infant mortality, and costs

of children. As in the case of income distribution, currently available data from censuses and other national data collections are not adequate to answer questions concerning the decision within individual households to have or not have an additional child. Work on most variables in Table 1 is noted as poor or fair. This is not to underrate the professionalism of the work on correlates of fertility but, rather, to underline its inadequacy in terms of the needs of policymakers.

IV. RECOMMENDATIONS

The overarching problem in population policy is how to turn public objectives into private action. It is at the interface between two decision systems that one must look, Janus-like, toward the public policy decision system and toward the household decision system. It is then the nexus of these two decision systems that brings into play, not the imposition of public will on private behavior, but the creation of consensus between those who exercise a public mandate and those who must be assisted or induced to bring private action into accord with general will.

How is this objective realized? Resources (human, financial, moral, political and administrative) are channeled through programs which have impact on household decisions. The programs might have direct impact in the form of family planning programs that provide assistance to couples to limit their fertility; or as incentive payments and bond schemes which alter the relative advantages and disadvantages of having children. Other programs have indirect impact on fertility — altering the level of education, employment opportunities, and health in the community-at-large in such manner as to reduce the perceived value or desirability of large families.

ALLOCATION OF RESOURCES:

Family Planning and Other Than Family Planning

The policymaker needs to know how much fertility reduction can be achieved for each dollar's expenditure. He needs to know whether programs of incentives, health care, and education can yield roughly the same return as do expenditures in family planning programs. Yet, social research has not to date focused on the questions which the policymaker poses. The calculation of elasticities of fertility with respect to various correlates appears to move social research in the direction of answering the essential questions. It is now important to conduct research on the efficacy of alternative actions: incentive schemes, whether tied to immediate rewards or delayed payments; population education programs; subsidies to private programs; efforts to raise the status of women, improve their educational levels and offer them jobs; and general institutional development of population-related organizations in the developing

countries. A general overview of the cost effectiveness of alternative population activities is essential to understand whether some funds can usefully be shifted to other activities from the current principal use of population funds in family planning programs. Since these other activities (education, health improvements, and incentives) yield additional benefits unrelated to population change, they must be examined as an integral part of overall social and economic development planning.

THE POPULATION IMPACT STATEMENT

Most public-sector resources, whether generated internally or through external development assistance, are expended without regard to their impact on population dynamics. A major hydroelectric project in Paraguay, government assistance to the Green Revolution in the Punjab, a major new nutrition program in Colombia — these projects have population implications that are unwatched and unanalyzed. The importance of these projects would preclude their abandonment even if they stimulate more rapid population growth. However, it might be possible for social scientists to determine that modifications in project design could yield a more favorable (or less unfavorable) impact on fertility and population growth. If adequate research could be carried out, such research would be worthwhile. At the very least, the policymaker should seek to assure himself that the public sector is not robbing Peter to pay Paul or that one branch of government is not creating the basis for a population explosion while another is trying to contain it.

Most government actions produce a number of products or outputs simultaneously. Education may reduce fertility, and at the same time it raises skill levels, increases productivity, and makes better citizens and informed voters. Fertility reduction has to take its place along with other policy goals. The population impact statement could be designed in a way that is analogous to the Environmental Impact Statement* in the United States. Its purpose would be to assist in shaping projects in a manner that is demographically favorable. The environmental protection issue offers one possible model for integrating the goal of fertility reduction into the total picture.

A parallel between the Environmental Impact Statement and the proposed Population Impact Statement can be drawn only in concept; a great deal of quantitative information, not now in existence, would have to be assembled. Suppose, for example, a government is about to undertake a policy of capital-incentive, Green Revolution-development in agriculture. What is the population impact of this strategy? It could lead to a proletarianization of the rural labor force which, in turn, could induce higher fertility than might otherwise prevail. A population impact study might, however, suggest a redesign of

the project to encompass more labor absorption (perhaps involving women's work outside the household) and hence promote reduced fertility. Or it might suggest the need for specific population components of the overall program (family planning and maternal and child health clinics) that could offset the pronatalist aspects of the project.

Population impact statements might be important for the following kinds of projects: rural development, expansion of educational facilities, health and nutritional programs, sanitation and related public works projects, employment-creation efforts in rural and urban areas, changes in tax incentives and disincentives, in-

dustrialization programs as they affect the labor-intensiveness of manufacturing activities. The list could go on. Unfortunately, there is virtually no research by social scientists in this area.

One would err in not seeking those specific government projects that are amenable to design change and have an impact on fertility so that the total effect of public activities is directed toward the goal of fertility reduction. Today's correlates of fertility are the result of yesterday's public policy. Social research on the determinants of fertility — completed, current and future — can help a government decide how to employ resources in the most efficient manner to achieve population/development objectives.

*The U.S. National Environmental Policy Act of 1969 applies to major Federal actions that may significantly affect the environment, including the funding of highways and sewage plants, construction of military bases, and licensing of such private projects as nuclear power plants. Under the terms of this legislation, the responsible government agency is required to draw up a statement detailing the foreseeable effects of the proposed activity on the environment. This Environmental Impact Statement must be taken into consideration by the agency when making its decision on implementing the proposal. A number of projects — the building of an interstate highway in Virginia, the opening of a large commercial park in the California mountains, and construction of the Alaska oil pipeline — have been blocked or delayed because of failure to comply with this requirement. In other cases, projects have been substantially modified as a result of the Environmental Impact Statement.

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SOCIO-ECONOMIC POLICIES TO ENCOURAGE SMALLER FAMILIES

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INTRODUCTION

This conference is based on the belief that more than the supply of family planning services or information affects parents' views on how many children they want. Parents with no source of old-age support but what their children provide, women with no source of satisfaction or status but what they gain as mothers of large families, poor farm couples anxious to increase family income all these may want several children, particularly sons, no matter what safe, effective, or inexpensive contraceptives are made available. After considering their economic, social and health situation, many couples decide more or less firmly the minimum number of children they want — that is, the number they would aim for even if "ideal" family planning services were available. This minimum "desired family size" thus depends basically on socio-economic "determinants of fertility". They demand family planning services either after they have that minimum number of children or when they feel confident they can have them eventually. At some parity, they do weigh the pros and cons of another pregnancy against the pros and cons of existing family planning services. Providing better services plainly helps tip their decisions toward smaller families; people opt for family planning services at much lower parity as services improve. But changing socio-economic conditions to make smaller families more attractive also helps, particularly since it is about the only way to reduce minimum "desired family size".

Dr. McGreevey's paper reviews our current understanding of the socio-economic determinants of fertility. This second paper goes a step further. It draws from our understanding of fertility determinants to suggest types of public policy that can encourage smaller families. The prevailing economic, social, and health conditions that inevitably affect individual couples' family size preferences

are not immutable. They depend considerably on the policies of both public and private sectors; they are changing everywhere under the impact of government actions in agriculture, industry, education, health, etc. Public policy can and does influence the socio-economic conditions that in turn affect individual couples' choices on family size. The link between socio-economic policy and individual couples' behaviour may seem distant, but it is real and demonstrably strong.

Governments thus have two choices. They can ignore the inevitable impact on population of their socio-economic policies, accepting whatever pro-natalist or anti-natalist effects chance to result from this *laissez-faire* approach. Or they can choose deliberately to design socio-economic policy with a view to its impact on population. Many policies can be designed to encourage smaller families without impairing their capacity to serve other primary purposes. For example, policies designed primarily to increase literacy can also have a secondary but significant impact on family size preferences.

One type of policy deserves special mention here: the "incentive" or reward for limiting the number of children. In some economies where labor is particularly plentiful and the marginal product of labor is low, averting a birth may produce a substantial "social dividend" equal to the cost of providing "welfare benefits" to an additional person net of whatever that person might have produced. In these conditions, averting a birth saves scarce resources. Here an incentive to practice family planning merely returns all or part of the social dividend to those responsible for it — to the couple who averted the birth. This procedure seems more equitable than merely urging the couple to practice family planning.

As outlined in the various sections below, many types of incentives may be provided. Their common characteristic is their conditional nature: as distinct from transfers of resources or benefits with no strings attached, the incentive represents a transfer on the condition that recipients agree to practise family planning. In countries where resources are so scarce that strong rationing measures must be used in any case — where many persons will inevitably have to do without a given resource or welfare benefit — allocating resources in such a conditional way may make good sense, for it provides resources to those who, by averting additional births, help save the resources. Incentive programs, particularly in combination with good family planning services, may be a highly cost-effective way to lower fertility; early indications from an Indian Tea Estate program indicate a startling drop in birth rates — by over a third — in only four years.

Five broad policy areas are covered in this paper: education and employment; housing; land development; health and social security; and economic incentives and disincentives (taxation). In each area the presumed link between public policy and individual couples' fertility is specified as a hypothesis. For example, giving women attractive employment opportunities which compete to a degree with childbearing may encourage them to choose smaller families. (This would be reflected in their greater willingness to practise family planning, that is in their demand for family planning services, and/or in their willingness to delay marriage.)

I. EDUCATION AND EMPLOYMENT

The hypothesis here is that providing parents, particularly women, with appealing and economically rewarding alternatives to their traditional roles as parents of large families will have an anti-natalist effect.

A. EMPLOYMENT

Increasing the "opportunity cost of motherhood" should encourage smaller families; that is, if having a large family would require a woman to sacrifice an enjoyable and well-paying job, she may well opt for fewer children in order to be able to accept the job. Thus, it makes sense to increase attractive employment opportunities for women — particularly those that will enhance both her social and economic status and compete with child-bearing and child-rearing. Cottage industry or other home-jobs, which interfere relatively little with child-care, appear less likely to encourage smaller families than jobs that require being away from home. For example, in Egypt Mr. Aziz Bindary is promoting "sewing cooperatives" where women work at a sewing center and sell what they make. The Philippines, of course, has a strong labour law which encourages female employment and requires employers of more

than 300 persons to provide family planning services. In general, increasing employment opportunities for women can be expected to encourage family planning and the delay of marriage.

In nations where unemployment and underemployment are generally high and where men are traditionally regarded as the major bread-winners, promoting employment opportunities for women may be difficult. It bears emphasizing, therefore, that increasing employment opportunities for men will not generally encourage smaller families; indeed, it seems to do just the opposite. As their income rises, the family wants more of almost everything — including children. To discourage children, additional income must come from some job that competes with child-care, since women in most countries are principally responsible for child-care, that means the income must come from a woman's job. In some countries, of course, it may be possible to encourage certain jobs for women that men would be reluctant to accept. Or it may be possible to mitigate political opposition by noting growing world-wide recognition that women deserve an opportunity to participate in development as equals with men, perhaps citing the Plan of Action and Resolutions of the UN's International Women's Year Conference in Mexico City. Or it may be possible to cite the potential fertility effect of women's employment as an argument in favour of women's employment programs.

New employment opportunities in some situations could be offered preferentially to couples with few children or to persons who agree to delay marriage, by either public or private sector employers. Such incentive measures may be rational and publicly justifiable, for reasons relating both to population policy and to other matters.

B. EDUCATION

1. For Parents

Education generally broadens horizons and may equip young men and women to hold better jobs; both results may encourage them to favor smaller families. Of course, it is well known that highly educated people want far fewer children than the uneducated. But how much education is needed before family size preferences change significantly? College? Secondary school? Primary school? Some studies suggest that just a few years' education may sharply reduce the number of children the educated will want when they grow up. Formal or non-formal education can affect family size preferences. If the curriculum of either formal or non-formal education addresses population questions and family planning, particularly as it affects the individual, the potential anti-natalist effect of education can be strengthened. But the basic point is that education budgets, which are substantial, and education policy can also be brought to

bear on population problems.

In so far as education equips students to hold better jobs, it can be particularly effective in encouraging smaller families; conversely, high drop-out rates may aggravate the problems of finding attractive employment opportunities. Many jobs require students to complete a certain level of schooling; thus, the anti-natalist effect of education may increase in steps — with completed levels of schooling (and the "certificates" acquired), not with each year of schooling. This point needs further research. But it stands to reason that parents who fear their children may be unable to complete a desired level of schooling may pull the children out of school, thus exacerbating the drop-out problem, particularly for girls. It may be possible to ease the drop-out problem by offering annually recurring scholarships as an incentive — perhaps in exchange for delayed marriage, as a sort of dowry substitute.

2. For Children

Keeping children in school may do more than encourage them to favor smaller families when they eventually grow up; it may also encourage their parents to want smaller families now. In many countries, some parents keep children out of school so the children can work. Problems of assuring the family's income today can take precedence even over the education that might enable the family to live better in the future. Making education compulsory can nudge parents to favor fewer children; the children cannot contribute to present family income as much as they could when out of school, and instead must be supported by their parents. (In some countries, parents may even be asked to bear some of the costs of compulsory education.) Though such a course exacerbates present economic problems for some families, it can also result in a smaller and better educated next generation.

II. HOUSING

Here the hypothesis (based on USSR experience) is that uncomfortable crowding has an anti-natalist effect; thus parents may opt for smaller families if that would result in more comfortable housing. This hypothesis is not as well established as employment-education hypotheses, but at least one GCC country, Singapore, is acting on it. In Singapore, perhaps 40% of the population lives in public housing. The Singapore government is giving preference in the allocation of housing to smaller families. Another possibility might be to provide credit or materials for housing in a similar way, giving preference to couples with few children or, for that matter, to persons who agree to delay marriage. As a minimum, the same housing should be provided for all families — not bigger houses for bigger families — to preserve an anti-natalist effect.

III. LAND DEVELOPMENT

The hypothesis here is that crowding the land to the point of severe diminishing returns to labor has an anti-natalist effect, while provision of land (especially when it is generally scarce) conditional on family size can be a powerful incentive for smaller families.

A. LAND REFORM

The possibilities here are roughly parallel to those in housing, though the potential impact of measures involving land may be much stronger, particularly when most people are compelled to earn their living on an even scarcer supply of land. When land settlement projects are undertaken, plots can be allocated without regard to the number of children the settler has, or they can be allocated giving preference to people with few children or to people who agree to delay marriage. The size of the plot can be constant regardless of the number of children, or perhaps dependent on factors like farming experience which have little or nothing to do with the number of children people have. To have an anti-natalist effect, the plot size should at least not increase with the number of children, and preference in plot allocation should not go to couples with large families. Another variation might involve giving a substantial holding cooperatively to a group committed to limiting fertility.

B. LAND TENURE

In areas where crowding leads to excessive fragmentation and inefficient land use, it may be necessary to restrict fragmentation, for example by enforcing primogeniture on newly settled land or even on all land. Such measures can have an obvious anti-natalist effect, particularly when most people must look to the land for a living.

One program now operating in Malaysia is particularly interesting. It bears emphasizing that the program was designed not to discourage large families per se, but to assure efficient use of land under increasing population pressure; the potential secondary effect on birth rates is nevertheless important. Under this scheme, young men are given title to land under certain conditions: they must develop it, planting trees and other ways in conformity with proper agricultural technology; they may not marry until they have completed several years' efforts at land development; and they may only transfer their plots intact — that is, they may not subdivide further because the plots are of a minimum size to provide a basic living standard.

IV. HEALTH AND SOCIAL SECURITY

The hypothesis here is based on parents' need to rely on children for old-age support in the absence of any institutional program. When child mortality rates are high,

parents may feel they need many children to assure the survival of what they regard as the minimum number of children to guarantee them old support. Thus, it is argued that family planning services should be provided together with health services, so parents are encouraged to have fewer children on grounds that those they do have will most probably survive.

There are other arguments, of course, for providing health and family planning services together — arguments having to do with administrative efficiency, patient anonymity, and other aspects of family planning delivery systems. In this paper, however, we focus on the “beyond family planning” hypothesis: the need to reduce child mortality in order to reduce birth rates.

The argument is more complicated than it appears on the surface, however. The crucial point is how many live children parents end up with. Available evidence indicates parents are not “over-insuring” — i.e., — having more extra children than needed to assure survival of the minimum number they want. If so, reducing child mortality should indeed slow population growth.

A word may be in order on the type of health and family planning services that could be combined effectively in LDCs where resources are scarce.

Some efforts to improve health in the LDC's have succeeded dramatically, particularly efforts to eradicate endemic diseases or improve personal hygiene. But perhaps three-fourths of the poor in many countries lack access to any but traditional health services and remain without the clean water or rudimentary sanitation essential to reasonable health. For them, life expectancy remains low; morbidity and mortality, particularly among the young, remains very high.

Increased attention is now going to means of modifying the whole system of policies and conditions that may account for the most common threats of health among the poor. An effective package that an LDC could finance with current resources is possible if reliance is placed on inexpensive ways (such as upgrading traditional practitioners) of encouraging the poor to modify food, hygienic and other practices now conducive to ill health. Thus, the active participation of potential beneficiaries emerges as the key-stone of many new approaches to improving health.

Improving health may require coordinating private and public programs in such diverse fields as sanitation and water, nutrition, personal hygiene, and health services proper, as well as family planning. While health programs can be designed to affect many people, if only modestly, at a low per capita cost, the total cost of any such effort must be substantial. When resources are limited, targets for per capita improvement may also have to be limited.

In ten years, assuming current levels of donor and LDC resources continue to be available and assuming LDC policies are sufficiently tough-minded and imaginative, it should be possible to improve health considerably for large portions of the poor majorities of LDCs. In five years, with the same assumption about resource limitations, it may be possible in many areas to only establish the necessary pre-conditions.

More change will occur, of course, particularly in more advanced countries or in pilot areas where programs can often be organized more quickly to achieve health improvements sooner. But broader results may take time.

V. INCENTIVES AND DISINCENTIVES

In the first three areas described above, we have mentioned ways of allocating employment and education opportunities, housing, and land to give preference to small families — in other words, as an incentive for small families.

But a less specific type of incentive may also encourage smaller families. Here the hypothesis is that regardless of what socio-economic considerations influence family size preferences, it is possible to encourage parent to have fewer children by offering a cash or kind incentive contingent on their doing so, or by requiring a disincentive — that, is a tax — if they fail.

A. INCENTIVES

For obvious reasons, positive incentives to encourage smaller families have attracted far more interest than disincentives. Incentives may also be more effective in that they provide income or goods that enable parents to obtain alternative satisfactions to whatever they might have got from another child.

Incentives can work almost whatever may determine family size preferences; at some price — i.e., for a high enough incentive — most parents will forego an additional birth on grounds that its opportunity cost is too high.

But incentives can meet particular needs that may now impel many parents to seek many children. In many societies, of course, parents to seek many children. In many societies, of course, parents must rely on children for old-age support; no institutional form of old-age support or social security exists. In such situations, incentives may substitute for what additional children might have provided — and the incentives may seem a better bet. Then the incentives may act as a particularly strong inducement for smaller families.

Incentives can take many forms. They may be terminal

(related to some form of sterilization); or they may be **recurring** (related to on-going contraception, perhaps with abortion as a back-up method to minimize failures) which may be far more difficult to administer. They may be **immediate**, which raises the problem of possible later regrets when the incentive has been spent; or they may be **delayed**, which enables the government to put off obligating the funds but raises the problem of maintaining real value as prices change. They may be provided in **cash**; or they may be provided in kind, particularly when inflation is severe. They may be given to an **individual**; or they may be given to a **community** as a reward for the behavior of the group as a whole. They may be given **contingent** only on the **number of children born**; or they may be given as **insurance**, say on the life of an eldest son. And they may be provided either by the **government** or by a **private institution**.

As discussed in the following paper, the pro's and con's of such alternatives must be weighed carefully as part of any decision to implement an incentives program. Topics bearing consideration will include:

- a) the socio-economic need the incentive is designed to meet (e.g. old-age support);
- b) fiscal affordability;
- c) administrative feasibility;
- d) cultural appropriateness; and
- e) indirect effects or problems

Some types of incentives that have been investigated or actually tried are discussed below.

1. Individual Incentives for Family Planning

A very promising approach seems to be to provide some sort of recurring incentive which accumulates. Several operating models and proposals merit special mention. In all the incentives are substantial but deferred in time, thereby contributing to their fiscal feasibility.

a. Taiwan Education Bonds Program

The first is the Taiwan "education bond" approach, described more fully in *Studies in Family Planning*, January, 1972 and July, 1973. In Taiwan in the area of the program, family planning was practised by almost half the women. Nevertheless, women continued to want and to have an average of four children; more than half expected their children to support them in their old age. Since educated children would be better able to support aged parents, a program was designed to enable and encourage parents to choose fewer but better educated children rather than many uneducated ones — in short, to trade quality for quantity. The program provides

education funds for the children of parents who agree to limit their families to no more than three children.

The program offers to couples with 0 — 2 children an annual deposit in a savings account for each year that they have no more than two children. If a third child is born, the value of the account is reduced by 50%. If a fourth child is born, the account is cancelled and funds revert to the bank. The account earns interest. After 10 — 14 years the account can be cashed for an amount ranging from about \$268 to about \$385 depending on the term, enough to cover a significant portion of the costs of higher education. The savings account records are retained primarily by the participating women to ease administration. Thus far the program's administrative burden appears manageable, and no major attempts to defraud have been reported.

At the end of the first year of enrollment in 1972, over two-thirds of eligible couples had joined, with almost all continuing past a year. Many of those who failed to enroll indicated they were unaware of the program or wanted more children; relatively few said the program was in itself unappealing. Generally the program appears to be averting a substantial number of births, though an updated evaluation would give a clearer picture.

b. Indian Tea Estate Program

An extremely promising and somewhat similar program operates on the UPASI tea estates in South India. (See *Studies in Family Planning*, July, 1971).

For each female worker capable of having children the estates set up a joint savings account in the name of the company and the woman. The estate pays into the account about five rupees for every month that the woman does not appear pregnant. The account cannot be drawn upon until the woman completes her child-bearing years, but it accumulates interest in the interim. If the woman has more than three children, she forfeits a substantial part of her accumulated account. If she has a fifth child, she forfeits the whole account. (The funds revert to the estates to help defray the costs of caring for the additional children.) The accounts draw interest at about 5%. For a woman who participates for 30 years and has only two children, the savings account is reportedly worth over Rs. 2000 (about \$270), nearly a year's earnings, at retirement.

The discounted cost to the tea estates of a birth is approximately Rs. 1500 (\$200). The discounted cost of paying Rs. 5 per month for 13 years is far less. In other words, if the company paid Rs. 5 per month to a woman for 13 years, and, as a result, she had only one less child than she otherwise would have had, the company would more than break even.

However, when the normal pattern of childbirth and child spacing among tea plantation employees was reviewed, it was found to be more likely that two, three, or even four births would be prevented. Since each birth prevented saves the company Rs. 1,500, the plan pays for itself several times over. Since administrative procedures have been streamlined, the administrative burden is manageable.

Initial results of the tea estate program are so favourable as to suggest a major breakthrough in designing programs to lower fertility. Over 90% of eligible women on the three estates with the incentive program have elected to join; it appears that in the four years of the program's operation, birth rates on those three estates have declined by over a third, from the mid-thirties to around twenty per thousand population. Birth rate declines on estates where no incentives were offered have been far less impressive. (A thorough review and evaluation of this promising program is now underway, under the guidance of Dr. Ronald Ridker.)

The UPASI estates continue to support this program; also under consideration is a plan for a similar program covering some half million workers on tea estates in Assam. Moreover, the Indian government is considering the implications of this project in its own population program planning.

c. Philippines Programs

In the Philippines, all large scale employers are required to provide family planning services and are encouraged to provide incentives as well.

d. Malaysia Proposal

Another possible social security program might resemble the one Drs. Ronald Ridker and Robert Muscat designed with illustrative data from Malaysia (see *Studies in Family Planning*, January, 1973).

The scheme would offer each married woman above a certain age an incentive to visit a health clinic with her children for a periodic health check-up, during which the children could receive immunizations and general MCH care would be provided to minimize future health problems. The incentive would be provided, however, only if the woman were found not to be pregnant. Apart from a small immediate payment, perhaps the bulk of this incentive would be deferred, payable to the woman and her husband upon retirement. The size of the retirement or pension fund would vary inversely with the number of surviving children they have, being largest for zero or one child, smaller for three, and becoming zero for four or more children. Administratively, the program posed no substantial problem because record keeping in Malaysia, particularly at health centers, is generally very good.

The authors calculated the national benefits and costs per woman under a wide range of assumptions and found the present discounted value of a birth prevented to be significantly greater than the present discounted value of the costs involved. Thus, the program basically transfers some of the social gain of a birth averted to the woman responsible.

They also examined the likely impact on government budget flows and found it not to be overwhelming especially for deferred payments. Since the assumptions were generally very conservative, they conclude such a scheme is certainly feasible and affordable.

e. Insurance on Son's Life

In Pakistan, the State Life Insurance Company has been considering a pilot program to insure the life of the son of couples who practise family planning. The pilot program would be limited to couples under thirty who have no more than three children, including at least one son over two years old; having a fourth child might require forfeiting the policy. Such a program would hopefully discourage parents from having "extra" children to insure that some son survives.

f. Marriage Delay Incentive

Historical experience, particularly in the IGCC area as well as in Europe and America, suggests that raising the age of marriage has been a major factor in reducing average family size. People marrying at older ages tend to have already developed interests that compete with child-bearing and rearing. Moreover, the physical strain of bearing and caring for many young children may be more unappealing to older couples. And, even if older couples decide to aim for five or six children, they may find themselves unable to produce that many as age advances. Women in some countries may not as yet have much opportunity to develop careers or interests to compete with motherhood. But the evidence suggests strongly that delaying marriage by say five years, until a woman had reached well into her twenties, would have a meaningful program impact on fertility.

An incentive could be designed to promote delayed marriage. To appeal to the young women who must join the program, and to their parents who must continue to support them if their marriages were delayed, the incentive could be designed to serve as part of their dowry. To appeal further to the parents, the incentive might also include support payments for the daughters. The incentive might take the form of a monetary payment or, as a hedge against inflation, it might be a payment in kind, such as a year's supply of rice or cloth. Another possibility might be to give special access to training or other programs to young women who agree to delay marriage on grounds that with a tight budget situation, some rationing of these programs will be

almost inevitable, and an anti-natalist rationing program would help to discourage population growth.

g. Child-Spacing Incentive

Another approach might be to provide an incentive to reward young couples for delaying a first child or spacing subsequent births more widely than they might otherwise have done (say an interval of five years). Experience suggests that ultimate family size will be lower when early births are spaced widely, either because couples finally decide they want fewer children as they have more time to develop competing interests, or because physical fertility declines with age, or both. Thus an incentive could be designed to strengthen their motivation for fewer children. It could take the form of monetary payment or a payment in kind, again perhaps rice or cloth.

Administering such an incentive program would involve keeping close account of the number of births occurring, possibly a difficult task. Perhaps this could be done by requiring mothers to visit local health centers periodically, as discussed under the social security program for Malaysia, thus promoting better health for both parents and children which may in itself encourage parents to reduce their desired family size.

h. Vasectomy Bond

An untried but particularly promising approach is the "vasectomy bond." Anyone who agreed to undergo vasectomy (or any other sterilization method) would be provided with a bond, cashable perhaps only as the acceptor reached old age. Such a program would be particularly easy to administer.

2. Community Incentives

A somewhat different approach might be to involve a community as a whole in an incentive program. As discussed above this approach may make sense particularly when resources are so scarce that severe rationing will be required in any case. When people must "queue up" for benefits and resources, and only a few in the front of the line will actually get some, rules determining the place in line could be based partly on family planning performance, since averting births eases the demand for the scarce resources. For example, health or agricultural services might be provided as an incentive for a community whose average birth rate were kept low. This model would encourage peer pressure in favor of small families. Another variant might involve "pooling" land — holding it communally — under an arrangement through which each individual would be guaranteed a share of the land's output (an inflation-proof reward) for as long as he or she lived, both during and after the productive years, so long as he limited the number of his children. This model may be inappropriate to a country with a

strong tradition of private ownership, but it should not be dismissed when agricultural cooperatives remain a possibility.

3. Immediate Incentives

As distinct from incentives we have focussed on, which are intended to compensate for what children might provide to parents, smaller immediate incentives have also been used to stimulate family planning acceptability. India has tried several "vasectomy fairs" or "camps" where various small incentives, both cash and kind, were offered to vasectomy acceptors. (See *Studies in Family Planning*, August, 1972.) At the "fairs", vasectomies were offered along with well-baby programs and general entertainment in a festive atmosphere. The "camps" were much simpler, offering only family planning services-cum-incentives.

The fairs and camps both attracted very large numbers of acceptors, especially as compared to other family planning efforts. (In one, a full 5% of fertile-age couples of the district were sterilized in only a few weeks — several times the annual target.) Since the acceptors' average age was only slightly over thirty and their average number of children was under four, the program probably had a significant impact on birth rates.

The incentives undoubtedly account for part of the program's success. But excellent administration — early publicity, coordination of events, efficient operation — also accounts for much. Though such short-term programs may be generally easier to administer than on-going ones, it bears emphasizing that the administrative task is both demanding and critical.

The longer term results of these programs are perhaps slightly less encouraging. For example, a handful of tetanus cases, all avoidable, damaged the program's reputation. Moreover, while the vast majority of vasectomy acceptors remains satisfied, a few had second thoughts, further damaging the program reputation. This latter problem might have been lessened or eliminated had the incentives been designed with greater attention to compensating parents for what additional children might have provided, as we have recommended. The resulting incentives would have been higher, of course, entailing greater program costs. But they would have helped meet an acceptor's legitimate economic needs, and thus perhaps be seen as fairer in some basic sense. Private Indian employers, notably Tata industries, have also provided incentives (of perhaps a few weeks' wages) to encourage sterilization. Pakistan and Korea have also experimented with small immediate incentives for family planning acceptors.

B. DISINCENTIVES: TAXATION

For economies where living standards or, more particularly, incomes are sufficiently high to permit broad-based taxation, it may be possible essentially to tax parents who have large families. The rationale is simple. The governments of such countries must spend more per family (for maternity benefits, health care, education or whatever) when there are several children; taxing on the basis of the number of children requires those who choose to have the children to pay the cost of supporting them. The trick, of course, is to require the parents to pay without penalizing existing innocent children. Probably it is safe to say that no taxation system based on the number of children can totally immunize the children from the penalties it exacts from their parents. Some measures can help, however. For example, the State can graduate the tax with income as well as with the number of children, and can excuse low-income parents. Or the State can fund education or health programs. But to the extent the State does these things, it eases the difficulties parents

will face in having large families — it dilutes the anti-natalist impact of a tax based on the number of children. The trade-off is unavoidable. Thus the state must balance the benefits for society to be gained from such a tax against the possible special costs to the children of parents obliged to pay, and determine a compromise depending on how it views those competing interests.

Like incentives, disincentives can be designed in many forms. The Government of Singapore has perhaps gone the furthest in designing fiscal policy with an anti-natalist effect. In 1972, to encourage a two-child family, determined to limit maternity leave to the first two confinements and income tax relief to the first three children, on grounds that people who choose to have additional children should not expect society to pay for them; it also graduates the accouchements fees as family size grows, but waives fees if on parent agrees to be sterilized. It also provides some relief for poor parents.