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The Effects of Family Planning Programs on Fertility in the Developing World

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MEASURING FAMILY PLANNING PROGRAM EFFORT IN DEVELOPING COUNTRIES, 1972 AND 1982

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Abstract

This paper addresses the following questions:

- What are the key elements in population policies and programs?
- What changes have occurred in population policies and programs, including the strength of program effort, from 1972 to 1982?

Using a new scale with thirty items to measure family planning program effort, the presentation is based on an analysis of over 300 questionnaires received from ninety-three countries. Attention is given to measurement problems and change in program effort 1972-82 (including findings by country and regional differences).

After about a quarter of a century of intensifying work in the family planning field in developing countries, this study shows that a great deal of family planning program effort exists in a small number of countries; moderate effort occurs in a larger number of countries; and weak or very little effort is found in an even greater number of countries, including many in the Middle East, North Africa and sub-Saharan Africa. Concerning change over time, between 1972 and 1982 there was a modest increase in program effort in more than half of the nearly 100 countries studied and a substantial increase in program effort in more than a third. In sub-Saharan Africa, about half of the countries had no change in program effort during this decade, but the other half did. Thus, modest beginnings vis-a-vis family planning programs have occurred in this region; however, it takes a while to "crank up," so that by 1982 only four countries in sub-Saharan Africa had reached even the weak program effort category and none the moderate category, while only Mauritius was in the strong category where it had been in 1972.

In a related study, we examined the impact of family planning programs and of socioeconomic factors on fertility decline in the period 1965-80 and on contraceptive prevalence 1977-82. We find that the level of "modernization," as reflected in seven socioeconomic factors, has a substantial relationship to fertility decline in 1965-80. That was to be expected based on sociodemographic theory. However, we also find that on balance, family planning programs have a significant, independent effect over and above the effect of socioeconomic factors. Good program effort adds substantially to the amount of fertility decline or contraceptive prevalence accounted for. On the other hand, weak and very weak programs have little discernible impact on fertility decline.

To conclude, we believe that this and our related studies demonstrate the ingredients of a good family planning program and the utility of a family planning program as one element in the armamentarium of development programs.

Acknowledgements

This paper reports some of the findings from a study initiated by the authors in 1983.

The study has been carried out with primary support from The Rockefeller Foundation, including a grant to Robert J. Lapham for research on the measurement of family planning program effort. Additional support necessary for the study was received from three other sources—the Agency for International Development, The World Bank, and The William and Flora Hewlett Foundation. This support is gratefully acknowledged.

We also received assistance from personnel in the Agency for International Development, The World Bank, The United Nations Fund for Population Activities, The International Planned Parenthood Federation, and several other institutions. For example, these individuals helped with the identification of persons knowledgeable about family planning programs in each of about 100 developing nations. In addition to expressing thanks for this support and assistance, we want to note with particular appreciation some 400 population specialists around the world who took the time and effort to respond to the questionnaire designed for this study.

Appreciation is also extended to several other individuals. Carol Mensah at The Rockefeller Foundation and Lisa Mages at the National Academy of Sciences organized the mailing and receipt of questionnaires; in addition, Ms. Mensah assisted with computer tabulations prepared at the Foundation and Ms. Mages helped with other aspects of the study including coding. Susan Lapham, now at the Bureau of the Census, prepared computer programs for the scoring process and several tables. The typing of text and complicated tables has been efficiently handled by Lucy Santiago, at the Academy. Finally, appreciation is expressed to the Population Council for the use of their computer and to Robert Sendek for advice on how to make it produce desired calculations and graphs.

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Introduction

Background and Purpose

In 1972, Lapham and Mauldin suggested that fifteen key items could be used to characterize population policies and programs, and presented data on these items for twenty developing countries (LDCs). In 1976, these same items were used by Freedman and Berelson in a study that included twenty-three additional countries, while in 1978, they were used by Mauldin and Berelson for an analysis of fertility decline in 1965-75 in ninety-four countries.

In the summer of 1983, Lapham and Mauldin decided to revise this list of key items, and to gather information on them as of 1982. The purpose of this paper is to report on the result of that investigation.

In the present paper, we address the following questions:

- What changes have occurred in population policies and programs, including the strength of program effort, from 1972 to 1982?
- What are the key elements in population policies and programs?

Methodology

For our study, we expanded the number of key items to thirty (Figure 1), based on consultation with a number of knowledgeable persons, and pretested a new questionnaire among about thirty respondents. We also consulted with a large number of personnel within such organizations as the United Nations Fund for Population Activities (UNFPA), the World Bank, the Agency for International Development (AID), The Population

Best Available Document

Figure 1 Summary Description of the 30 Items Included in the 1983 Family Planning Program Effort Scale

Scale Item	Description
A. POLICY AND STAGE-SETTING ACTIVITIES	
1.* Government's official policy or position concerning fertility/family planning and rates of population growth	Existence and type of official policy: to reduce the population growth rate; or to support family planning activities for other than demographic reasons; or to allow private and/or commercial family planning activities in the absence of government-sponsored activity; or to discourage family planning services.
2.* Favorable statements by leaders	Whether or not the head of the government speaks publicly and favorably about family planning at least once or twice a year, and whether or not other high officials do so also.
3. Level of family planning program leadership	Level of the post (person appointed) to direct the national government family planning program, and whether or not the program director reports to the highest level of government.
4. Age at marriage policy	Minimum legal age at marriage for females at least 18 (higher scores for minimum legal ages of 19 and 20+), and the extent of effort to enforce any changes in the law since 1960 regarding legal age at marriage for females. (The score for the latter component is allowed only if the new legal minimum is at least 18.)
5.* Import laws and legal regulations regarding contraceptives	Extent to which import laws and legal regulations facilitate the importation of contraceptive supplies that are not manufactured locally, and/or the extent to which contraceptives are manufactured within the country.
6. Advertising of contraceptives in the mass media allowed	Whether or not the advertising of contraceptives in the mass media is allowed with no restrictions; whether there are weak restrictions; whether there are social restrictions; or whether there are strong restrictions.
7. Other ministries/government agencies involved	Aside from the ministry or government agency that has primary responsibility for delivering family planning supplies and services, the extent to which other ministries and government agencies assist with family planning and/or other population activities. This involvement or assistance may be provided through the public sector, or through private-sector family planning programs or population activities, and is classified as follows: assistance with the delivery of family planning supplies and services; assistance in the form of services particular to that ministry; assistance with family planning information and education in specific ways; membership on a council for family planning that meets at least twice annually; moral support and small miscellaneous assistance; none.
8.* In-country budget for program	Percent of the total family planning/population budget available from in-country sources. A top score is given if in-country sources provide 85% or more of the budget; no score is given if these sources provide less than 50% of the budget.
B. SERVICE AND SERVICE-RELATED ACTIVITIES	
9. Involvement of private-sector agencies and groups	Extent to which private-sector agencies and groups assist with family planning and/or other population activities. These groups include family planning associations, special service groups (e.g., for sterilization services), religious associations, and so on. The involvement or assistance with family planning and population activities may include the following: delivery of family planning supplies and services; training; family planning information and education; membership in a family planning interagency group that meets at least twice annually; moral support; or other types of assistance.
10. Civil bureaucracy used	Use of the civil bureaucracy of the government to ensure that program directives are carried out, and the extent to which the senior government administrator at the following levels feels responsible for the success of the program: central government level; provincial or state levels; district/governorate/regency/etc. levels; county levels.
11. Community-based distribution--CBD	Proportion of the country covered by CBD programs for the distribution of contraceptives in areas not easily served by clinics or other service points. Public and/or private CBD systems are included. The essential feature of CBD is that the contraceptive supplies are available upon request within the village, local community, or local residence neighborhood. CBD programs are assumed to be primarily rural; however, a partial extra score is allowed for urban-area CBD programs.
12. Social marketing	Proportion of the country covered by a social marketing program, that is, subsidized contraceptive sales in the commercial sector. The essential feature of social marketing is that contraceptives are sold at low cost, i.e., a (heavily) subsidized price, through channels easily available to rural and/or urban residents, such as local shops, pharmacies, or specially created local sales outlets. Some forms of social marketing are called "commercial retail sales" programs (CRS). Social marketing programs are assumed to be primarily urban programs; however, an extra score is allowed for rural-area programs.

Figure 1 (page 2)

Scale Item	Description
13.* Postpartum programs	Extent of coverage of new mothers by postpartum programs, which may be hospital- or field-based. Most programs are of the former type. For hospital-based programs, the score is constructed from the proportion of deliveries in hospitals and maternity centers for which the new mothers are provided a family planning information and education service (by trained female workers), and the proportion of all deliveries in the country that take place in hospitals and maternity centers (often a small proportion). For field-based postpartum programs, the score is constructed from the proportion of women that are delivered of their babies at home, and that are offered a family planning information and education service by trained field workers.
14.* Home-visiting workers	Proportion of the population covered by a group of workers whose primary task is to visit women in their homes (at least in the rural areas) to talk about family planning and child care. Account is taken of the population that must be covered by each field worker; the score for the proportion of the country covered by field workers is deflated if the average population covered by each home-visiting worker is more than 15,000.
15. Administrative structure	Whether or not there is an adequate administrative structure and staff at three levels (national, provincial, and county). "Adequate" means that the administrative structure is sufficient to ensure that plans developed for each level are carried out; that the administrative structure is capable of recognizing and solving problems that cause low performance; and that the administrative structure is able and willing to use existing resources and/or to call upon higher administrative levels in obtaining resources needed to carry out plans for the delivery of family planning supplies and services.
16.* Training programs	Whether or not there is an adequate training program for each category of staff in the family planning program: administrative staff; physicians; nurses; paraprofessionals; village-level distributors; field workers/motivators; staff in other ministries and organizations; other types. "Adequate" means that the training provides personnel with the knowledge, information, and skills necessary to carry out their jobs effectively, and that facilities exist to carry out the training. The score is determined by the extent to which the training program, for each category of staff, is very good, moderately good, mediocre or poor, or nonexistent.
17. Personnel carry out assigned tasks	Extent to which each category of family planning program staff carries out assigned tasks (task implementation): administrative staff; physicians; nurses; paraprofessionals; village-level distributors; field workers/motivators; staff in other ministries and organizations; other types. The score is determined on the basis of the extent to which each category of staff carries out assigned tasks very well, moderately well, or poorly.
18.* Logistics and transport	Extent to which the logistics and transportation systems are sufficient to keep stocks of contraceptive supplies and related equipment available at all service points at all times, at the following levels: central; provincial; county. The score is based on the availability of supplies and equipment: all or almost all of the time; about half to three-quarters of the time; sometimes; or seldom or never.
19. Supervision	Whether or not there is an adequate system of supervision at all levels. "Adequate" means that: (a) supervisors exist at all levels of program operations in sufficient numbers to make possible supervisory visits at least once a month at service-delivery levels (and quarterly at higher administrative levels); (b) that supervisors in fact make such supervisory visits--to the work sites of the persons supervised; (c) that, during these supervisory visits, encouragement, advice, and support are provided to supervised workers, in addition to any necessary checking of operations and records that assist in the evaluation of worker performance; and (d) that supervisors carry through on providing/obtaining supplies and services identified as needed during their visits (or at least make serious attempts to obtain these needed supplies and services).
20.* Mass media for information, education, and communications (IE&C)	Frequency of mass media messages that provide family planning information, including where family planning services are available, and how much of the country is covered by various types of mass media: newspapers; magazines; radio; TV; mobile IE&C units (films, etc.); billboards and other outdoor media (buses, etc.); traditional types (puppet shows, folk dances, local theatre, etc.); other types. The frequency classifications include: at least once a month; sometimes (about once every three to six months); infrequently (about once a year or less often); never.
21. Incentives/disincentives	Use of monetary or other incentives for the adoption of family planning. The incentives may be provided to: clients; recruiters; service personnel, including CBD personnel; communities. The disincentives may refer to individuals or to communities, and include regulations or constraints designed to encourage family planning and/or small family size.

Figure 1 (page 3)

Scale Item	Description
C. RECORD KEEPING AND EVALUATION	
22.* Record keeping	Whether or not there are record keeping systems for family planning clients at the clinic level, plus a system for the collection and periodic reporting of summary statistics at regional and national levels (that is, numbers of acceptors, supplies distributed, numbers of workers, and so on), and whether or not there is feedback to each reporting unit from regional- or national-level units. The scoring takes into account the existence of good systems, as well as their implementation. Feedback refers to the reporting back to lower-level units, on a regular basis, with progress measured against some standard, such as acceptance or prevalence targets or trends.
23.* Evaluation	Whether or not some or all of the following exist (some score given for each): regular estimation of prevalence levels and trends (annually or quarterly) using program statistics and estimated continuation rates; measurement every two to four years of family planning prevalence levels and trends using data collection methods that are independent from program statistics (such as contraceptive prevalence studies); implementation of operations research studies designed to help program management understand the program, its problems, and potential improvements; professional staff in an evaluation unit who prepare technically correct periodic reports on the program, what it has achieved, etc.; professional staff who interpret and summarize, for program management, national and regional population data collected through censuses, vital registration systems, and surveys (these staff may be directly associated with the program or in other institutions); good coordination, working relationships, and timely sharing of information between the evaluation unit and other units in family planning programs. Some score is also given for the existence of universities or research institutes in the country that carry out demographic research, family planning research, or population research of other kinds.
24. Management use of evaluation findings	Extent to which the program managers (decision makers) use the research and evaluation findings to improve the program in ways suggested by those findings.
D. AVAILABILITY AND ACCESSIBILITY OF FERTILITY CONTROL METHODS	
25.** Male sterilization	Whether or not medically adequate voluntary sterilization services for males are legally and openly available, and the percentage of the population that has ready and easy access to such services.
26.** Female sterilization	Whether or not medically adequate voluntary sterilization services for females are legally and openly available, and the percentage of the population that has ready and easy access to such services.
27.*** Pills (Injectables)	Percentage of the couples of reproductive age who have ready and easy access to pills, through programs other than CBD and social marketing programs. "Ready and easy access" means that the recipient spends no more than an average of two hours per month to obtain contraceptive supplies and services. Easy access also implies that the cost of contraceptive supplies is not burdensome, i.e., a one-month supply of contraceptives should cost less than 1% of a month's wages to meet this criterion. (If the availability of injectables is higher than that of pills, the data on injectables were used to score this item.)
28.*** Condoms (and other conventionals)	Percentage of the couples of reproductive age who have ready and easy access to condoms, through programs other than CBD and social marketing programs. "Ready and easy access" is the same as defined above. (If the availability of other conventionals is greater than that of condoms, the data on other conventionals were used to score this item.)
29.*** IUDs	Percentage of the couples of reproductive age who have ready and easy access to IUDs, through programs other than CBD and social marketing programs. "Ready and easy access" is defined as in item 27.
30.* Abortion	Proportion of the population that has ready and easy access to abortion services, whether or not abortions are legal, but excluding in the scoring the availability of abortions carried out only under poor conditions.

*Included in the 1972 program effort scale, although with less detail for some questions.

**Included in the 1972 program effort scale, as a combined question on the availability of male and female sterilization services.

***Included in the 1972 program effort scale, as two questions: (a) on ready and easy access to pills, IUDs, and condoms, throughout the country in both the public and private sectors; (b) whether or not the Ministry of Health carries out a vigorous effort to provide family planning services throughout the country.

Council, The Pathfinder Fund, Battelle Memorial Institute, The Futures Group, The Research Triangle Institute (RTI), the International Planned Parenthood Federation (IPPF) in London, the IPPF Western Hemisphere, and Westinghouse Public Applied Systems, to develop a mailing list of persons knowledgeable about population policies and programs in specific countries. The questionnaire was translated from English into French and Spanish, and mailings were begun in late July 1983 to a sample of approximately 630 respondents, including personnel from agencies such as UNFPA, the World Bank, World Health Organization (WHO), and AID; program personnel; and other knowledgeable people both within and outside specific countries. We have had two follow-up mailings, and have received replies from more than 425 of our sample, a response rate of 67 percent. This paper is based on an analysis of the first 307 questionnaires received from ninety-three countries as of early December 1983.

Measures of family planning program effort include several items based on the judgments of knowledgeable actors (in family planning programs) and observers, rather than on the reported results of counting and sorting operations. With this data set, two broad sources of error must be considered: first, the validity of the actor or observer judgments, for example, about the quality of training programs, or of logistic systems; and second, the validity of the authors' interpretations of inconsistent respondent judgments on a given country's program.

Almost anyone acquainted with family planning programs in more than a handful of countries "knows" that some programs are "better" than others. Nonetheless, assigning objective criteria to distinguish between

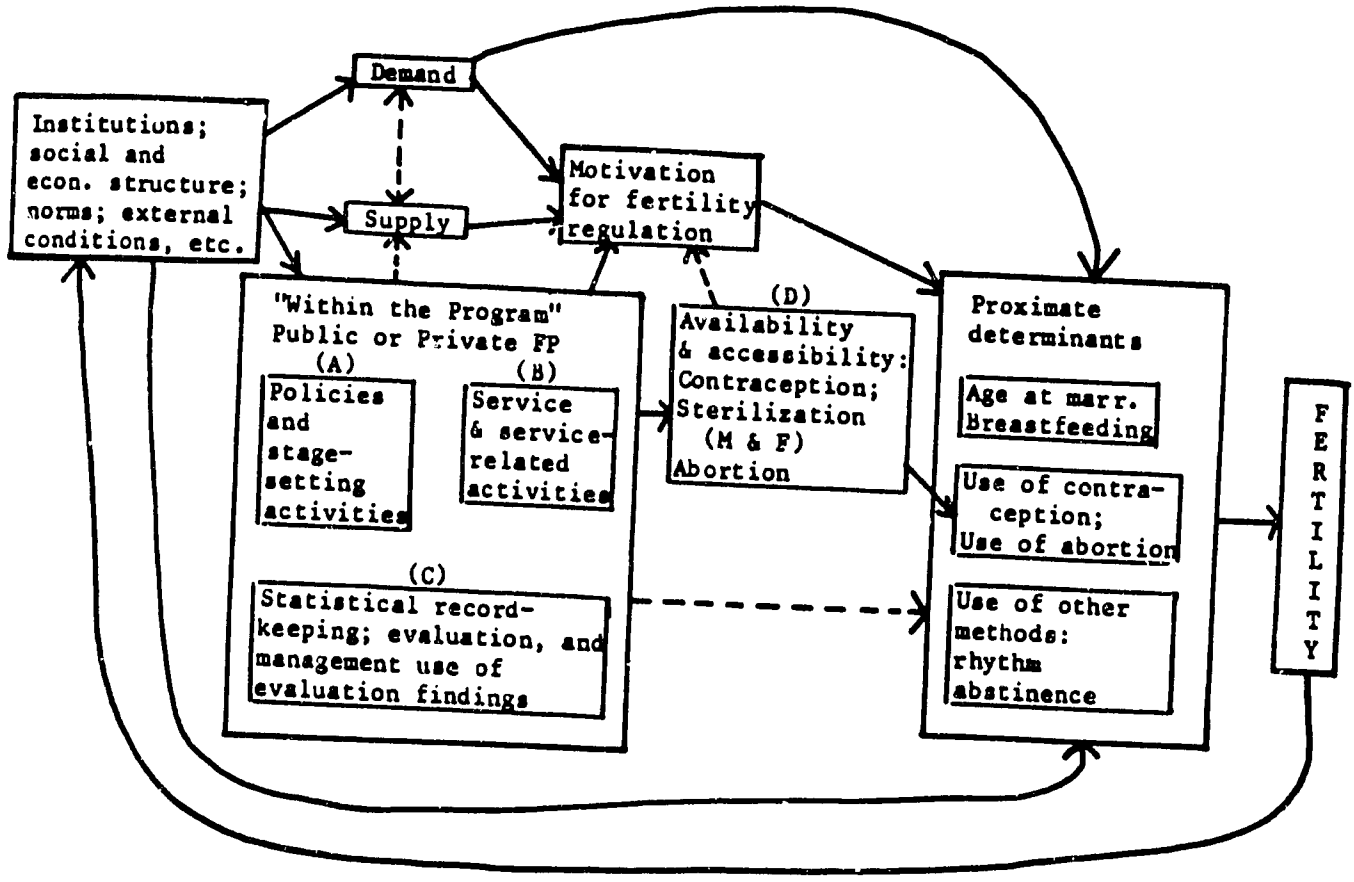
good and poor programs is no small task, and one not often attempted by researchers. In this paper, a new measure of program effort is presented, which we believe is improved over our 1972 measure. However, it is not without problems. For example, the new scale includes attention to private sector activities, but further modification of this measure might improve the measurement of such activities. In addition, at the conceptual level, a number of the scale items depend heavily on judgments, rather than on observable and thereby verifiable facts.[1] However, these judgments have been made by persons knowledgeable about the program on which they reported.

A Framework for Understanding Program Effort

Family planning programs are carried out within a variety of social and economic contexts, and their effects coincide with those of other influences on contraceptive use and fertility; it is therefore important to conceptualize the ways in which family planning programs might affect prevalence and fertility. Figure 2 represents schematically a conceptual framework that draws on earlier work by Freedman (1961-62), Easterlin (1978), and the Panel on Fertility Determinants, National Academy of Sciences (1983), with greater attention to the detailed processes "inside the program," and recognition of the proximate determinants of fertility.

Within our framework, program effort is characterized according to four components. First, there are two broad groups of program activities: policy and stage-setting activities (those steps a government, and/or to some degree private organizations, might undertake to affect the organization and implementation of a program); and service and service-related activities (steps taken to make it easier for people

Figure 2 A Framework for Understanding Program Effort in the Conditions of Fertility Decline



to obtain and use a variety of family planning methods). Closely linked to service delivery is record keeping and evaluation. Taken together, these three groups of activities "inside the program" make possible the availability and accessibility of fertility-control supplies and services (contraceptives, male and female sterilization, and, where culturally acceptable, abortion services). The responses to questionnaires used for this study were organized according to these components, which are described in detail in our full report.

Changes in Program Effort 1972-82

The major differences between the 1972 and 1982 measures of program effort are as follows:

- There are thirty items in the 1982 measure, as compared with fifteen items in the 1972 scale; twelve of the fifteen 1972 items are very similar in both scales, while three were represented by five questions for the new scale. One of the last-mentioned items, on "vigorous effort" to provide supplies and services, was not included directly in the 1982 scale.
- The 1982 questions were much more detailed than those for 1972.
- The scores for 1972 were zero, one, or two, whereas the 1982 scores ranged from zero to four, and part scores (for example, 0.5 or 0.1) were used. Thus at the low end of the scale, small efforts received a positive score in 1982 but a zero score in 1972. Accordingly, a minor part of the reported increase in scores from 1972 and 1982 is attributable to the revised scoring system, although this probably accounts for no more than one or two points.

In the new scale, there are eight items on policy and stage-setting activities, thirteen on service and service-related activities, three on record keeping and evaluation, and six on the availability and accessibility of fertility-control supplies and services. (Copies of the questionnaire and of the scoring codes and rules are available upon request. They will be published in the forthcoming full report on this study.)

With thirty items, the possible total scoring range is 0-120. Within this range, possible scores have been divided into four levels of effort:

Program Effort Level	Score
Strong	80 and above
Moderate	55-79
Weak	25-54
Very little or none	0-24

One aspect of this scoring process must be emphasized: the reported scores represent the authors' best judgment as to the score indicated by the data received. Specifically, instead of taking the average of all answers on the questionnaires received for each country, we tried to ascertain the most appropriate score for each item for each country, using all of the information provided and otherwise available. For example, marginal notes and comments at the end of the questionnaires often provided clues; for some items, such as policies, reference was made to other documents, such as The Population Council Fact Books (Nortman and Fisher, 1982; Tietze, 1983) and the United Nations Monitoring Reports (United Nations, 1982 and forthcoming). In some cases, especially when no other information was available, the respondent data were averaged, although even in these cases, a respondent way out of line with others tended to be discounted.

The score range for each scale item is 0-4, with four indicating a strong policy or much activity on an item. However, a four does not mean that the maximum possible is being accomplished in the country. For example, a score of 4 on the training item can be obtained by having "very good" answers on training for two categories of personnel, and "moderately good" on training for four other categories.

Such a country might have poor training for a seventh category of personnel; in any case, the four "moderately good" situations could be improved.

Finally, the combined 1972 and 1982 program effort score was obtained by multiplying the 1972 score by two and dividing the 1982 score by two. This gave equal weight to the 1972 and 1982 scores since the maximum for the 1972 score was 30, and for the 1982 score was 120. The same cutting points as those previously established for the 1982 score were used to characterize programs as follows:

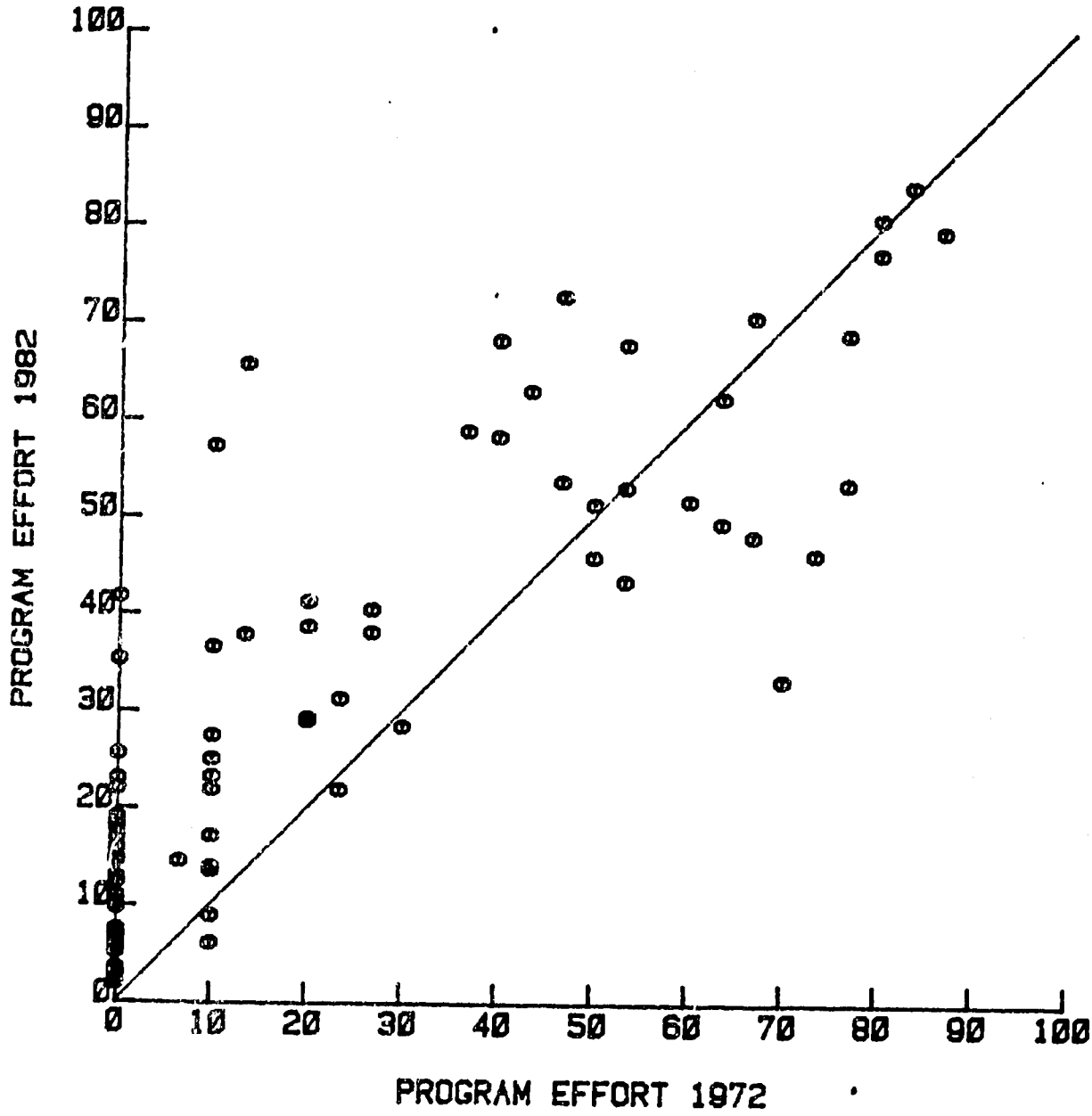
Strong	80+
Moderate	55-79
Weak	25-55
Very Weak or None	0-24

This combined scale is used later in this paper, in an analysis of program effort and fertility decline.

Findings by Country

Figure 3 is a scatter diagram of program effort scores in 1972 and 1982, with each set of scores being transformed to a 0-100 scale. In general, there are more countries above than below the diagonal; this reflects moderately higher scores in 1982 than in 1972. Countries with the highest scores are very close to the diagonal; that is, countries with very high scores in 1972 typically maintained a strong program during the intervening decade. Countries with significantly weaker programs in 1982 than in 1972 include Costa Rica, Fiji, Vietnam, and Jamaica. Countries with significantly stronger programs in 1982 than in 1972 include Indonesia, Sri Lanka, Colombia, Mexico, and Bangladesh. Figure 3 also indicates that the average score increased from twenty-one

Figure 3. Program Effort in Developing Countries, 1972 and 1982



VALUE	1972	1982
AVERAGE	21	30
MEDIAN	23	25

$R^2 = 0.73$

PE7282.GPH

to thirty during the decade, whereas the median score increased only from twenty-three to twenty-five. (Recall that for this scatter diagram, the scale is 0-100; on the scale of 0-120 used throughout the rest of this paper and in companion pieces, the increase in the average score for the countries included in both years is from twenty-five to thirty-five).

The changes in program effort scores are summarized in a 4x4 table (Table 1), which classifies scores as strong, moderate, weak, very weak, or none. Although this table obscures some of the changes, it also reflects others that are significant. Most of the countries remain on the diagonal, although the first group of countries identified above shifted from strong in 1972 to moderate in 1982, and to weak in the case of Costa Rica. Mexico and Bangladesh moved from weak to moderate, and Indonesia, Sri Lanka, and Colombia moved from moderate to strong. The largest gainers in program effort are shown in Figure 4.

Table 2 presents scores for both overall program effort and the four components described earlier--policy and stage-setting activities, service and service-related activities, record keeping and evaluation, and availability and accessibility (AA). The table lists the ninety-three countries in order of program effort score. Ranging widely in their total program effort scores, the ninety-three countries include several with little or no program effort, and nine with scores over eighty. One of the latter, the People's Republic of China, is the only country to surpass 100, although three other countries in East Asia score in the nineties; Mexico, at seventy-nine, just misses this top category. In general, the high-scoring countries tend to do well on all components; note in particular their AA scores, which are at or near the maximum of twenty-four in five of the nine cases.

Table 1. Comparison of 1972 and 1982 Program Effort Scores: 87 Countries

1982 Scores	1972 Scores: Strong	Moderate	Weak	None	
Strong (80+)	China (PRC) Singapore Taiwan Rep. of Korea Mauritius Hong Kong	Indonesia Sri Lanka Colombia			
Moderate (55-79)	Jamaica Vietnam* Fiji	El Salvador India Thailand Tunisia Dominican Republic Philippines Cuba Malaysia Panama Trinidad & Tobago	Mexico Bangladesh		
Weak (25-54)	Costa Rica	Chile	Brazil Ecuador Pakistan Nepal Egypt Morocco Haiti Venezuela Turkey Kenya Guatemala Algeria Papua N.G. Liberia Honduras Tanzania Zimbabwe	Lebanon Rwanda Peru	
Very Weak or None (0-24)			Uganda Nicaragua Ghana Nigeria Zaire Afganistan Mali Paraguay Bolivia Sudan Iraq	Senegal Congo Yemen PDR Jordan Sierra Leone Mozambique Lesotho Zambia Togo Burundi Somalia Madagascar Chad Yemen A.R. Cameroon Niger	Ethiopia Syria Malawi Kuwait Mauritania Ivory Coast Burkina Faso Burma Central Af. Republic Guinea Dem. Kampuchea Laos Libya Mongolia

*1972 Score is for North Vietnam only.

Figure 4. Countries Having Largest Gains in Program Effort, 1972-82

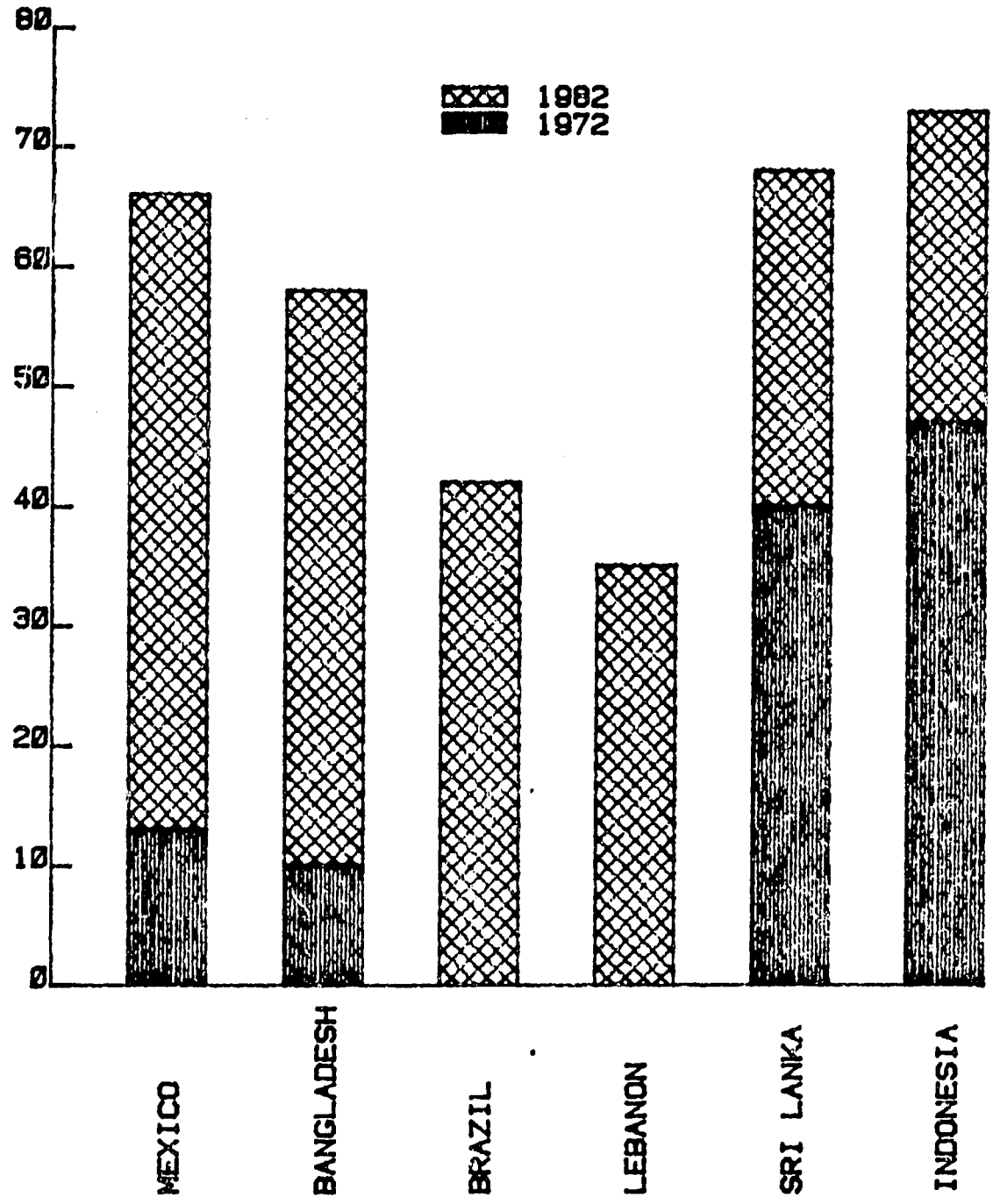


Table 2. Program Effort Scores for 93 Countries, Classified by Effort Levels and Components*

Effort Level and Country	Total Score	Component: Policy & Stage-Setting Activities	Service and Service-Related Activities	Record Keeping and Evaluation	Availability & Accessibility
Maximum Possible Score	120	32	52	12	24
Strong					
China	100.9	31.0	40.1	6.8	23.0
Republic of Korea	96.9	22.8	40.8	9.3	24.0
Singapore	95.3	21.4	39.4	10.5	24.0
Taiwan	92.6	20.1	37.1	11.4	24.0
Indonesia	87.1	23.0	39.6	10.9	13.6
Colombia	85.3	19.5	34.0	11.0	20.8
Mauritius	84.6	25.4	39.3	8.3	11.6
Hong Kong	82.6	17.7	30.0	11.4	23.5
Sri Lanka	81.6	20.9	36.5	7.3	16.9
Moderate					
Mexico	78.6	23.2	30.7	8.3	16.4
El Salvador	75.4	17.9	32.5	7.0	18.0
India	74.7	25.7	28.3	6.8	13.9
Thailand	70.5	16.6	25.9	8.5	19.5
Tunisia	69.8	19.8	25.0	7.5	17.5
Bangladesh	68.7	18.8	28.3	5.3	16.3
Dominican Republic	64.3	16.3	27.4	5.6	15.0
Jamaica	64.1	20.8	23.3	5.0	15.0
Philippines	63.6	15.5	27.0	6.1	15.0
Cuba	61.5	8.6	27.5	5.4	20.0
Malaysia	61.1	18.9	18.4	8.7	15.1
Panama	59.2	14.3	17.2	9.4	18.3
Vietnam	57.6	16.6	25.4	5.4	10.2
Fiji	55.4	16.9	22.1	3.2	13.2
Trinidad	55.0	17.7	17.8	6.7	12.8
Weak					
Chile	52.1	14.2	18.8	8.2	10.9
Brazil	50.1	11.6	18.5	7.6	12.7
Ecuador	49.4	12.4	17.7	5.0	14.3
Pakistan	48.5	18.8	14.5	6.3	8.9
Nepal	46.3	18.3	15.8	5.1	7.1
Egypt	45.7	16.1	17.5	3.0	9.1
Morocco	45.4	12.9	19.2	4.9	8.4
Haiti	43.8	15.2	15.3	5.1	8.2
Lebanon	42.4	6.0	19.0	7.6	9.8
Costa Rica	39.8	10.3	11.8	4.4	13.3
Cyprus	39.0	7.7	17.9	3.4	10.0
Venezuela	37.5	14.6	12.6	4.8	5.5
Turkey	35.0	16.4	10.6	4.5	3.5
Botswana	34.5	12.0	14.2	1.5	6.8
Guatemala	34.1	5.6	11.6	5.5	11.4
W. Samoa	33.8	13.3	12.0	3.6	4.9
Kenya	33.7	13.7	12.7	3.8	3.5
Zimbabwe	32.9	11.0	15.1	1.7	5.1
Gambia	31.2	16.6	8.7	1.9	4.0
Papua New Guinea	30.6	12.7	6.7	2.7	8.5
Algeria	30.0	13.5	10.1	5.2	1.2
Guyana	29.9	4.3	13.0	2.6	10.0
Liberia	27.9	13.7	9.6	2.3	2.3
Rwanda	27.6	16.7	8.3	2.0	0.6
Peru	26.4	10.7	6.6	3.4	5.7
Tanzania	26.2	11.1	11.6	1.6	1.9
Honduras	26.2	17.6	4.6	0	4.0

*The information in this table is presented alphabetically by country in Appendix C.

Table 2. Program Effort Scores for 93 Countries, Classified by Effort Levels and Components* (cont'd)

Effort Level and Country	Total Score	Component: Policy & Stage-Setting Activities	Service and Service-Related Activities	Record Keeping and Evaluation	Availability & Accessibility
Very Weak or None					
Senegal	22.9	9.4	9.2	1.5	2.8
Nicaragua	22.1	4.0	8.8	2.4	6.9
Uganda	21.9	11.6	6.7	2.5	1.1
Congo	21.5	10.2	6.8	2.4	2.1
Ghana	20.5	10.1	7.4	1.8	1.2
Yemen, PDR	20.2	7.5	9.1	1.5	2.1
Jordan	19.0	5.0	2.3	1.2	10.5
Sierra Leone	17.8	9.6	4.0	1.3	2.9
Nigeria	17.4	7.0	6.1	1.3	3.0
Mozambique	17.4	8.0	4.2	3.4	1.8
Afghanistan	16.7	4.8	8.4	1.5	2.0
Zaire	16.3	5.9	6.0	1.7	2.7
Lesotho	15.5	7.6	6.0	1.2	0.7
Zambia	14.7	8.1	2.7	1.9	2.0
Togo	13.1	5.5	5.2	1.6	0.8
Burundi	12.3	9.5	1.4	0.4	1.0
Mali	11.6	3.5	4.8	1.6	1.7
Paraguay	10.7	2.0	3.7	0	5.0
Madagascar	8.9	2.8	3.2	1.2	1.7
Bolivia	8.7	2.5	4.7	0.9	0.6
Somalia	8.5	3.5	3.4	1.0	0.6
Chad	8.3	5.0	2.9	0	0.4
Yemen, AR	8.2	5.1	1.6	0	1.5
Cameroon	8.1	4.5	1.3	0.4	1.9
Sudan	7.3	3.9	2.8	0	0.6
Niger	7.4	5.6	0.4	0.4	1.0
Ethiopia	7.4	2.5	3.1	1.0	0.8
Syria	7.3	2.4	2.3	1.2	1.4
Malawi	6.5	4.0	1.1	0.3	1.1
Kuwait	6.1	3.1	1.0	0	2.0
Mauritania	4.2	1.3	1.4	0	1.5
Iraq	3.7	2.0	0.8	0	0.9
Ivory Coast	3.7	3.2	0.2	0	1.3
Burkina Faso	3.6	2.3	1.0	0	0.3
Burma	3.4	0	0	0	3.4
Central African Rep.	2.8	2.0	0.8	0	0
Guinea	2.3	1.7	0	0.1	0.5
Equitorial Guinea	0.5	0	0.5	0	0
Dem. Kampuchea	0				
Laos	0				
Libya	0				
Mongolia	0				

*The information in this table is presented alphabetically by country in Appendix C.

How good is a score of ninety or more on this scale with a possible maximum of 120? Excellent, we suggest, and scores in the eighties are very good. However, another way to examine the data in Table 2 is according to how well countries do on each component. Other than total scores, what differentiates the strong, moderate, and weak program effort countries? For each program effort level, Table 3 shows the mean score and mean proportion of the maximum score obtained on each component. The results are instructive. For two components in Table 3--service and service-related activities, and availability and accessibility--the strong program effort countries score nearly three times as high as the weak effort countries. The differences among effort levels on policy and stage-setting activities are much less--69 percent of the maximum among the strong effort countries and 40 percent among the weak effort countries. It appears that the countries with strong program effort give considerable attention to providing services and to making sure that fertility-control supplies and services are readily and easily available and accessible to the population.

An additional comment is necessary. There is a lag, typically of several years, between the adoption of a policy, the implementation of the program, and resultant effects on fertility. Thus, countries that have recently adopted policies to reduce fertility may score high on this item but score less well on other items. Also, policy and stage-setting activities may be the easiest to implement in the development of population programs. If so, one would expect countries in general to score higher on this component. The data in Table 3 suggest that this is in fact the case: for all ninety-three countries, the highest proportion of the maximum score is obtained for the policy and stage-setting

Table 3. Mean Score and Proportion of Maximum Score Obtained on Each Component for Groups of Countries Classified by Level of Program Effort

Program Effort Level	Policy and Stage-Setting Activities		Service and Service-Related Activities		Recordkeeping and Evaluation		Availability and Accessibility		Total	
	Mean	% of Max	Mean	% of Max	Mean	% of Max	Mean	% of Max	Mean	% of Max
Strong (9 Countries)	22.2	69	37.3	72	9.7	81	20.0	83	89.2	74
Moderate (15 Countries)	17.8	56	25.2	49	6.6	56	15.7	65	65.4	55
Weak (27 Countries)	12.9	40	13.1	25	4.0	33	7.1	30	37.1	31
Very Weak or None (42 Countries)	4.4	14	3.2	6	0.9	8	1.7	7	10.2	9
All Effort Levels	10.8	34	13.0	25	3.5	29	7.3	30	34.6	29
Maximum	32		52		12		24		120	

Note: Mean scores are based on unit weights for each country.

activities. This can be attributed to the countries in the weak and very weak/none program effort groups. That is, in these countries, the percentage of the maximum score is higher for policy and stage-setting activities than for other components: for the weak effort group, 40 percent versus 25, 30, and 33 percent; and for the very weak/none group, 14 percent versus 6, 7, and 8 percent.

Regional Differences

While not surprising to specialists in the population field, the regional differences revealed by our study are remarkable: the mean unweighted program effort scores for 1982 are fifty-five for countries in South and East Asia, and forty-six for countries in Latin America (Table 4); the mean unweighted scores for countries in the Middle East and North Africa, and in sub-Saharan Africa, are much lower--twenty-four and eighteen respectively.

Table 4 also shows the means weighted by population size, for all ninety-three countries, for each region, and for components within regions. Whereas the mean unweighted program effort score for the ninety-three countries is about thirty-five, the weighted score is double that; the large countries, with their strong and moderate program effort, pull up the weighted average. Prominent in this process, of course, is China, but India's score of seventy-five for 706 million people also increases the weighted mean. Thus, measured on a country-by-country basis, the score of thirty-five out of 120 suggests a long way to go, while measured on a population basis, an average score of seventy out of 120 means a much higher level of program effort.

The regional differences are highlighted by the weighted scores. For East and South Asia, the weighted mean scores, total and for

Table 4. Mean Program Effort Scores, Classified by Region, and by Score Components (Unweighted and Weighted)*

Region	Score Component: Policy and Stage-Setting Activities		Service and Service-Related Activities		Recordkeeping and Evaluation		Availability and Accessibility		Total	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
A. Mean Scores										
South and East Asia	15.4	25.7	21.7	33.1	5.7	6.9	12.5	17.6	55.3	83.4
Latin America	12.4	14.6	17.1	21.4	5.2	7.1	11.6	13.2	46.3	56.3
Middle East and North Africa	7.7	11.6	8.9	11.2	2.5	3.2	5.0	4.9	24.1	30.9
Sub-Saharan Africa	7.9	7.1	6.4	6.7	1.5	1.5	2.2	2.2	18.0	16.9
All Regions (93 Countries)	10.8	21.7	13.0	27.7	3.5	6.1	7.3	14.7	34.7	70.2
Maximum Possible	32		52		12		24		120	
B. Percent of Maximum Score										
South and East Asia	48	80	42	64	48	58	52	73	46	70
Latin America	39	46	33	41	43	59	48	55	39	47
Middle East and North Africa	24	36	17	22	21	26	21	20	20	26
Sub-Saharan Africa	25	22	12	13	13	13	9	9	15	14
All Regions (93 Countries)	34	68	25	53	29	51	30	61	29	59
Maximum Possible	100		100		100		100		100	

*Scores are weighted according to population size in 1982.

each component, go up; to a lesser degree, the same occurs for Latin America. However, the result in Africa is the same: weighted and unweighted scores are low, especially for the components availability and accessibility of fertility-control supplies and services, and service and service-related activities. Therefore, the differences between sub-Sahara Africa and East and South Asia are greater in light of the weighted scores.

The lower panel in Table 4 presents the unweighted and weighted means in terms of the percent of maximum score. For all ninety-three countries, the weighted percent of maximum score is fifty-nine, but the differences among regions are striking: the score for South and East Asia at 70 percent of the maximum is five-fold greater than that for sub-Saharan Africa, and considerably higher than that for Latin America and the Middle East and North Africa.

A Parsimonious Set of Program Effort Items

Steps described in detail in our full report led to the selection of a parsimonious set of program effort variables, which together turn out to be excellent predictors of crude birth rate declines:

1. Supervision system
2. Personnel carry out assigned tasks
3. Use of mass media for information, education, and communication (IE&C)
4. Postpartum programs
5. Availability and accessibility of fertility-control supplies and services.
6. Management use of evaluation findings.

These variables give an R^2 value of .80 with CBR decline 1965-80. Note that this set includes five individual program effort items plus the availability and accessibility component, that is, the summary measure for that component. The five individual items include four service and service-related items, one record-keeping and evaluation item, and no policy and stage-setting items. An R^2 of .77 is obtained using three of the variables, supervision system, personnel carry out assigned tasks, and availability/accessibility. It should be noted that several items included in our program effort scale such as social marketing and use of incentives have been but little used. If they are used more in the future it is possible that they would be important indicators of a successful program.

It is of some interest to compare this set of predictors with the "least good" set, which includes the following:

1. Statements by leaders
2. Import laws and legal regulations
3. Advertising of contraceptives allowed
4. Training program
5. Use of incentives and disincentives
6. Social marketing program

Many family planning programs have been in existence for a decade or more, and we speculate that the relatively small contribution of the first three items listed above reflects the fact that while probably important, these items are inadequate without the addition of programmatic activities. We may not have a good measure of training programs, and it may be that how workers actually perform their jobs is much more important than the training program itself. Incentives and disincentives have been little used, with the notable exceptions of China and Singapore, and as a result there is not much variance in the scores

on this item for most of the countries. Similarly, social marketing programs are relatively new and are not yet widely used.

Program Effort and Fertility Decline

We turn next to a brief cross-tabulational analysis relating our program effort index to fertility decline. Table 5 presents data on CBR decline 1965-80 2/, with countries classified by socioeconomic setting in 1970 3/ and by strength of program effort 1972-82. The mean CBR decline in each of the 16 cells of the table was calculated by assigning unit weights to each country. It is also possible to weight the data by population size. However, when this is done, China dominates the summary values in the column and row in which it is located. (Using weights by population size increases the average CBR decline for countries with a strong program effort from the 36 shown to 43, and the average value for countries in the upper middle socioeconomic group from 13 to 37. Similarly, India lowers the average for countries with moderate program effort from 26 to 21, and increases the average for countries in the lower middle social setting group from 5 to 15.)

The mean CBR declines in the 16 cells of the table, with unit weights for countries, are as follows:

Socioeconomic Setting	Program Effort 1972-82				
	Strong	Moderate	Weak	Very Weak or None	Total
High	34	31	21	11	25
Upper Middle	43	23	12	3	13
Lower Middle	..	19	7	2	5
Low	..	..	0	1	1
Total	36	26	11	3	11

Table 5 1965-80 Crude Birth Rate Declines (in percents), by 1970 Social Setting and 1972-82 Program Effort: 87 Developing Countries

Social Setting	Program Effort 1972-82: Strong	Moderate	Weak	Very Weak or None	Total
High	1. Singapore 42 2. Hong Kong 40 3. Korea, Rep. 30 4. Taiwan 30 5. Mauritius 28 Mean 34	1. Cuba 59 2. Colombia 35 3. Chile 32 4. Jamaica 30 5. Panama 28 6. Costa Rica 24 7. Trin. & Tob 23 8. Fiji 18 Mean 31	1. Brazil 27 2. Mexico 22 3. Venezuela 14 Mean 21	1. Lebanon 27 2. Paraguay 14 3. Peru 11 4. Kuwait 8 5. Jordan 4 6. Libya 0 Mean 11	25
Upper Middle	1. China 43 Mean 43	1. Thailand 37 2. Malaysia 30 3. Philippines 23 4. Domin. Rep. 21 5. Tunisia 19 6. Sri Lanka 18 7. El Salvador 11 Mean 23	1. Turkey 34 2. Egypt 13 3. Guatemala 7 4. Ecuador 7 5. Morocco 6 6. Honduras 6 Mean 12	1. Mongolia 9 2. Nicaragua 7 3. Algeria 5 4. Syria 3 5. Congo 0 6. Ghana 0 7. Zaire 0 8. Zambia 0 9. Iraq 0 Mean 3	13
Lower Middle		1. Indonesia 28 2. India 17 3. Vietnam* 10 Mean 19	1. Haiti 11 2. Pakistan 9 3. Kenya 0 Mean 7	1. Kampuchea 14 2. Burma 6 3. Papua, N.G. 5 4. Yemen, PDR 3 5. Bolivia 2 6. Ivory Coast 1 7. Nigeria 1 8. Senegal 0 9. Liberia 0 10. Madagascar 0 11. Mozambique 0 12. Uganda 0 13. Cameroon 0 14. Zimbabwe -1 15. Lesotho -4 Mean 2	5
Low			1. Bangladesh 0 2. Nepal -1 Mean 0	1. Mauritania 6 2. Laos, PDR 5 3. Burundi 4 4. Afghanistan 3 5. Guinea 2 6. Togo 2 7. Niger 1 8. Cent. Afr. Rep. 0 9. Chad 0 10. Ethiopia 0 11. Malawi 0 12. Rwanda 0 13. Sierra Leone 0 14. Sudan 0 15. Tanzania 0 16. Burkina Faso 0 17. Yemen, AR 0 18. Somalia 0 19. Mali -1 Mean 1	1
Mean	36	26	11	3	11

*1972 Program Effort Score is for North Vietnam only.

The CBR declines increase in an orderly fashion as one moves from very weak or none to strong on program effort, and from low to high on social setting. The single exception is the cell in which China is located--strong on program effort and upper middle on social setting. China's CBR decline has been greater than might be expected on the basis of its socioeconomic conditions. However, that country's extremely strong population policy and program are well known, and thus the reader is unlikely to be surprised by this large decrease in fertility rates despite more modest, though impressive, socioeconomic achievements. CBR declines are somewhat greater when countries are classified by strength of program effort rather than by social setting; this suggests that program effort can, and does, lead to more rapid fertility decline than would be likely based only on SES variables. (The marginal CBR declines range from 1 to 25 on social setting and from 3 to 36 on program effort.)

A few countries merit attention. Indonesia is well known for its vigorous family planning program, which we classified as moderate in 1972 and strong in 1982. On social setting, it ranks in the lower middle group. Indonesia's CBR decline was appreciably more than expected on the basis of SES--28 percent rather than the average of 5 for all countries in that grouping. Mexico did not start its population program until 1974, but by 1982 had developed a moderately strong program. Its average program effort score for the 1972-82 period placed it just below the cut-off point between weak and moderate effort. Finally, although Brazil, Turkey, and Lebanon are examples of countries with weak or very weak program efort, they rank relatively high on SES variables, and their CBR declines have been more than 25 percent. Private-sector family planning efforts are significant in several states in Brazil; moreover,

some observers believe that organized family planning programs plus availability and accessibility of fertility-control methods should place Brazil in the moderate program effort group. We believe, however, that these three countries illustrate fertility decline that is due primarily to socioeconomic factors, coupled with changing demand for children.

Conclusions

After about a quarter of a century of intensifying work in the family planning field in developing countries, this study shows that a great deal of family planning program effort exists in a small number of countries; moderate effort occurs in a larger number of countries; and weak or very little effort is found in an even greater number of countries, including many in the Middle East, North Africa, and sub-Saharan Africa. However, despite increases in program effort during the last decade in a number of countries, program effort remains low in many countries, especially as regards the ready and easy availability and accessibility of fertility-control supplies and services.

Concerning change over time, between 1972 and 1982 there was a modest increase in program effort in more than half of the ninety-three countries studied and a substantial increase in program effort in more than a third. Table 6 summarizes these changes, using four SES categories and, to measure change in program effort, the difference in the proportions of the maximum score obtained in 1972 and 1982. The first column in Table 6 indicates a scattering of countries with modest to substantial increases in program effort, in all four SES categories. The second column, where countries up in proportion .10 to .24 are listed, has a larger number, again in all four SES categories, including seven with low SES--six of them in sub-Saharan Africa. A still larger

Table 6 Change in Program Effort 1972-82: 87 Countries Classified by Socioeconomic Conditions and Amount of Change in Program Effort a/

Socioeconomic Conditions in 1970	Program Effort 1972-82: Up in Proportion .25 or more	Up in Proportion .10 - .24	Essentially No Change: ± .09	Down in Proportion .10 or more	Total Number of Countries
High	Mexico .53 + Brazil .42 x Lebanon .35 x Mean .43 No. of Countries 3	Peru .22 x Jordan .16 Colombia .15 ++ Mean .19 No. of Countries 3	Cuba + Hong Kong ++ Korea, Rep. ++ Kuwait Libya Mauritius ++ Paraguay Singapore ++ Taiwan ++ Trin. & Tob. + Venezuela x No. of Countries 11	Costa Rica .37 x Fiji .27 + Jamaica .24 + Panama .15 + Chile .10 x Mean .23 No. of Countries 5	22
Upper Middle	Sri Lanka .28 ++ Morocco .25 x Mean .27 No. of Countries 2	Thailand .22 + Ecuador .21 x El Salvador .20 + Congo .18 Nicaragua .18 Tunisia .18 + Algeria .15 x Zambia .12 Egypt .11 x Mean .17 No. of Countries 9	China ++ Dom. Rep. + Ghana Guatemala x Honduras x Iraq Malaysia + Mongolia Philippines + Syria Turkey x Zaire No. of Countries 12	No. of Countries 0	23
Lower Middle	Haiti .27 x Indonesia .26 ++ Papua N.G. .26 x Mean .26 No. of Countries 3	Senegal .19 Uganda .18 Yemen, PDR .17 Zimbabwe .17 Mozambique .15 Lesotho .13 Liberia .13 x Pakistan .13 x Mean .16 No. of Countries 8	Bolivia Burma Cameroon India + Ivory Coast Kampuchea Kenya x Madagascar Nigeria No. of Countries 9	Vietnam, N. .19 + Mean .19 No. of Countries 1	21
Low	Bangladesh .47 + Mean .47 No. of Countries 1	Rwanda .23 x Nepal .19 x Sierra Leone .15 Tanzania .12 x Togo .11 Burundi .10 Mali .10 Mean .14 No. of Countries 7	Afghanistan Burkina Faso Cen.Afr.Rep. Chad Ethiopia Guinea Laos, PDR Malawi Mauritania Niger Somalia Sudan Yemen, AR No. of Countries 13	No. of Countries 0	21
Total No. of Countries	9	27	45	6	87

a/Measured as the difference in the proportion of the maximum possible score 1972 and 1982.

Key: ++ strong program effort in 1982; + moderate program effort in 1982; x weak program effort in 1982.

number of countries had essentially no change in program effort between 1972 and 1982, some because they scored high on the program effort scale in 1972 and stayed high (for example, Singapore and Taiwan), and some because they scored low on both dates. A handful of countries, nearly all with high SES, went down in program effort between 1972 and 1982.

To show the relationship between change in program effort 1972-82 and the actual level in 1982, the strength of program effort in the latter year is indicated in Table 6 by the symbols + and x: ++ = strong; + = moderate; x = weak. Among the nine countries in the first column (up in proportion .25 or more), in 1982, two had strong program effort, two had moderate program effort, and five were still in the weak category. The second column in Table 6 also includes a wide range of 1982 program effort, here with the addition of several countries that had very weak program effort in 1982. A clear message here is that there is much room for increased program effort. Note that among the thirteen countries that went up .10-.24 in proportion, nine were still in the weak category in 1982.

The question of program effort change 1972-82 can also be examined from a regional perspective, presented in Table 7. Here we see that the South and East Asia region is represented in all four columns, as is Latin America. The sub-Saharan African countries are bunched in the two middle columns; about half had no change in program effort during this decade, but the other half did. Thus, modest beginnings vis-a-vis family planning programs have occurred in this region; however, it takes a while to "crank up," so that by 1982 only four countries had reached even the weak category and none the moderate category, while only Mauritius was in the strong category, where it had been in 1972.

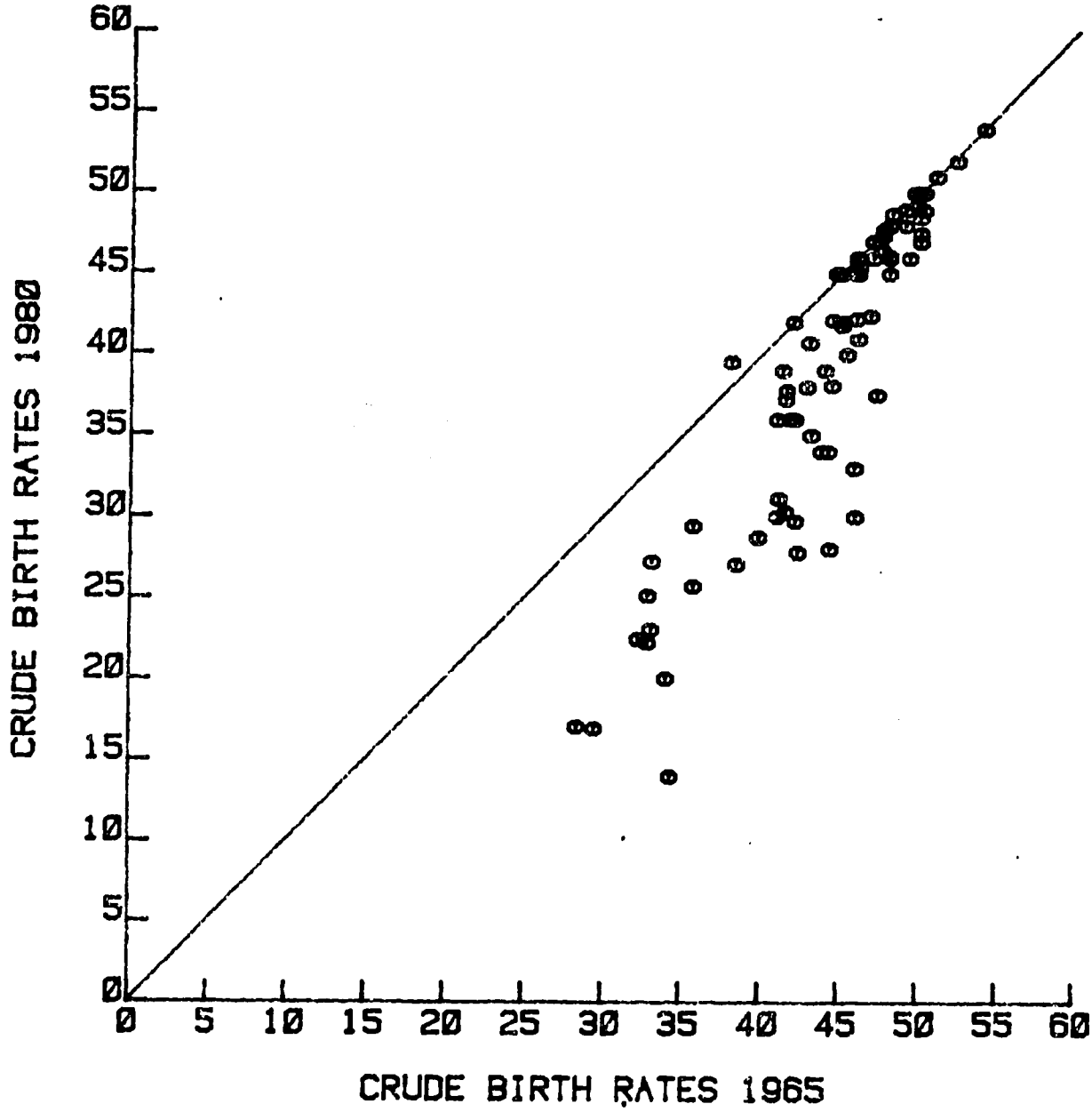
Table 7. Change in Program Effort 1972-82: 87 Countries Classified by Region and Amount of Change in Program Effort[a]

Region	Program Effort 1972-82: Up in Proportion .25 or more	Up in Proportion .10 - .24	Essentially No Change: ± .09	Down in Proportion .10 or more	Total Number of Countries
South & East Asia	Bangladesh .47 + Sri Lanka .28 ++ Indonesia .26 ++ Papua N.G. .26 x Mean .32 No. of Countries 4	Thailand .22 + Nepal .19 x Pakistan .14 x Mean .18 No. of Countries 3	Afghanistan Burma China ++ Hong Kong ++ India + Kampuchea Korea, Rep. ++ Laos Malaysia + Mongolia Philippines+ Singapore ++ Taiwan No. of Countries 13	Fiji .27 + Vietnam[b] .19 + Mean .23 No. of Countries 2	22
Latin America	Mexico .53 + Brazil .42 x Haiti .27 x Mean .41 No. of Countries 3	Peru .22 x Ecuador .21 x El Salvador .20 + Nicaragua .18 Colombia .15 ++ Mean .19 No. of Countries 5	Bolivia Cuba + Dom. Rep. + Guatemala Honduras x Paraguay Trin. & Tob. + Venezuela x No. of Countries 8	Costa Rica .37 x Jamaica .24 + Panama .15 + Chile .10 x Mean .22 No. of Countries 4	20
Middle East & North Africa	Lebanon .35 x Morocco .25 x Mean .30 No. of Countries 2	Tunisia .18 + Yemen, PDR .17 Jordan .18 Algeria .15 x Egypt .11 x Mean .15 No. of Countries 5	Iraq Kuwait Libya Mauritania Sudan Syria Turkey x Yemen, AR No. of Countries 8	No. of Countries 0	15
Sub-Saharan Africa	No. of Countries 0	Rwanda .23 x Senegal .19 Uganda .18 Congo .18 Zimbabwe .17 Sierra Leone .15 Mozambique .15 Lesotho .13 Liberia .13 x Zambia .12 Tanzania .12 x Togo .11 Burundi .10 Mali .10 Mean .15 No. of Countries 14	Burkina Faso Cameroon Chad Cen.Afr.Rep. Ethiopia Ghana Guinea Ivory Coast Kenya x Madagascar Malawi Mauritius ++ Niger Nigeria Somalia Zaire No. of Countries 16	No. of Countries 0	30
Total No. of Countries	9	27	45	6	87

[a]Measured as the difference in the proportion of the maximum possible score 1972 and 1982.
[b]1973 Score is for North Vietnam only.

Key: ++ strong program effort in 1982
+ moderate program effort in 1982
x weak program effort in 1982

Figure 5. Crude Birth Rates, 1965 and 1980



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As regards fertility decline during the period 1965-80 on which we concentrated, there was substantial fertility decline in Asia (about 26 percent) and in the Americas (about 23 percent); however, there was almost no decline in sub-Saharan Africa, and more than 15 percent decline in only three countries in the Middle East and North Africa (Turkey, Tunisia, and Cyprus). Several large countries--Bangladesh, Pakistan, and Nigeria--have had hardly any change and still have high fertility. However, large countries--those with populations of 40 million or more--showed greater declines than did smaller countries: an average of 27 percent as compared with less than 9 percent. China is so large that it affects the average appreciably. If this is left out of the calculations, countries with 40 million or more population had an average decline of 18 percent.

Footnotes

1/ A long form questionnaire has been designed by the authors in an attempt to address this issue, but it would not be feasible for the large number of countries necessary to carry out a micro-level analysis such as that presented here.

2/ Data on crude birth rates are from the U.N. Population Division publications and the World Bank, as well as for some countries, from the National Academy of Sciences reports on levels and trends of fertility and mortality. More detail on country-specific sources is available from the authors.

A similar table using total fertility rates leads to the same general conclusion.

3/ The socioeconomic level of a country is designated on the basis of systematic statistical analysis of such variables as adult literacy, school enrollment, life expectancy at birth, GNP per capita, and the urbanization rate. The method is discussed in detail in our full report.

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