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Chapter 7 Family planning as a service

7.1 Some seventy-two countries in the developing world, representing 94 percent of its population, now provide publicly subsidized family planning programs. In all of them, more could be done. Nearly all programs still fail to reach the majority of rural people; even in the towns and cities the quality of services is often poor. In many countries the potential of the private sector to provide family planning services has hardly been tapped; in others the gap in services provided privately can be filled only by bigger public programs. Sixty-two countries have yet to introduce family planning programs. Most of them are in Africa, where incomes are the lowest in the world, population growth is the highest, and the potential benefits from family planning may be greatest. Those benefits, moreover, do not depend on the existence of demographic objectives:

o Family planning improves the health of mothers and children. Infant and maternal mortality in developing countries could both be substantially reduced if pregnancies were spaced at least two years apart, and if pregnancies among teenagers and women over forty were prevented (see Box 7.1). Couples with access to family planning services can prevent unwanted pregnancies that might otherwise result in poorly performed abortions and the risk of serious, even fatal, complications. Family planning services were recognized as one of eight essential components of primary health care by the World Health Conference in Alma-Ata in 1978.

o Family planning makes responsible parenthood easier: parents can have the number of children for whom they know they can provide adequate food, health care, and education.

o Family planning enlarges the choices available to people, a central purpose of economic and social development. This is particularly true for women, who are often caught in a vicious circle where too many children means too few opportunities for other kinds of activity, and vice versa. By enabling women to control their fertility, family planning frees them to become better educated and to increase their own and their children's contribution to development.

o Family planning offers the greatest potential benefits for the poorest people, whose mortality and fertility rates are usually the highest of any group.

7.2 For all these reasons, family planning deserves a central role in the social and economic strategies of governments throughout the developing world. Properly designed, it need not be particularly expensive. But lack of finance is one of the reasons why it is being neglected in some countries and making only slow progress in others. Aid donors have a major contribution to make in ensuring that family planning programs receive the money they need to be effective.

The use of contraception

7.3 Surveys of married women of reproductive age (15-44) show wide variations in contraceptive use among developing regions (see Table 7.1). In East Asia more than half of married women in that age group use contraception; in China, Hong Kong, and Singapore the proportion is 70 percent or more, as high as in the United States and Western Europe. Latin America has reached 41 percent, whereas the proportion in the Middle East and South Asia is only about 25 percent. Contraceptive use is lowest in sub-Saharan Africa at less

than 10 percent of married women, and this estimate excludes the many countries where use is negligible but data are unavailable.

7.4 Contraceptive use varies widely within countries as well (Table 7.1). In most, a higher proportion of urban than rural couples use contraception; the distinction is particularly stark in Syria, where 34 percent of urban but only 5 percent of rural women are using contraception. In the Ivory Coast, Kenya, and Mexico, contraceptive use in rural areas is roughly half the rate in urban areas, and in Egypt less than a third. Regional differences are also great: in Indonesia, contraceptive use ranged from 53 percent of couples on the islands of Java and Bali to only 16 percent in some of the outer islands in 1983. In Maharashtra and Gujarat states of India, almost 40 percent of couples were using contraception in 1981-82, compared to only 11 percent of couples in the states of Uttar Pradesh and Jammu and Kashmir.

7.5 Among countries for which more than one survey estimate is available, contraceptive use has increased fastest in East Asia and Latin America (see Figure 7.1). In Thailand, for example, the proportion of married women of reproductive age using contraception rose from 15 percent in 1970, the year the official family planning program was launched, to 57 percent in 1981. Progress in South Asia has been slower, with contraceptive use increasing by about 1 percent of couples a year in Nepal, more quickly in Bangladesh, but not at all in Pakistan. In Egypt and Kenya, contraceptive use has remained unchanged, despite longstanding public programs.

7.6 These survey-based estimates may underestimate contraceptive use because they do not include use among unmarried men or women or among couples in informal unions. There may also be underreporting of the husband's use of contraception by some women, and some respondents may be too shy or modest to

admit to using contraception themselves. On the other hand, these figures may overstate the number of people protected by contraception because not all couples using a method are equally protected from the risk of pregnancy. Some are using "efficient" contraceptives such as sterilization, the pill, the IUD, injectables, condoms, spermicidal foam, and the diaphragm. Others are using methods, such as douche, rhythm, and withdrawal, which most couples practice much less effectively (see Box 7.2). In Peru, for example, 53 percent of those using rhythm or withdrawal had an unwanted pregnancy within three years after a birth, compared to only 29 percent of women who used the pill, the IUD, or injectables. The 1978 Philippines Fertility Survey found that 39 percent of married women of reproductive age used some method, but only 18 percent used an efficient method. In contrast, in the Dominican Republic in 1975 contraceptive use was 36 percent for all methods and 29 percent for efficient methods.

7.7 Contraception is not the only method of birth control. Induced abortion is widespread, even where it is illegal. There may be as many as 55 million legal and illegal induced abortions performed annually worldwide--perhaps more, given the uncertainty about the number of illegal abortions. Illegal abortion carries with it a high risk of complications and death and can affect future fertility. In many developing countries abortion is illegal under any circumstances or only to save the life of the mother; China and India are major exceptions. Elsewhere legal abortion is an important method of birth control--in Cuba, Japan, Korea, the USSR, and Eastern Europe. Legal abortion rates per 1000 women of childbearing age range from 11 in Canada (1981) and 25 in the United States (1980) to 84 in Japan (1975) and 88 in Romania (1979). Resort to both legal and illegal abortion often reflects lack of information about and access to safer, effective contraceptive methods.

Unmet need

7.8 The surveys from which data on contraceptive use have been drawn also asked women whether they would like to have more children. Two-fifths to three-quarters of married women of childbearing age in East and South Asian countries and 59 percent in Latin American and Caribbean countries want no more children. Even in sub-Saharan Africa, where couples want large families, about one quarter of married women of childbearing age in Cameroon, Kenya Lesotho, and Sudan want no more children. In a few countries women were also asked whether they would like to delay their next pregnancy for a year or more. Nineteen percent of women of childbearing age in Bangladesh and Thailand, 25 percent in El Salvador, and 32 percent in Guatemala said yes. In countries where both questions have been asked, from half to nine-tenths of women want either to limit or to space births.

7.9 In all countries surveyed, the number of women of childbearing age who want no more children exceeds the number using some kind of contraception. Some of the women who want no more children or would like to delay a pregnancy are not using a method because they are currently pregnant or because they have been breastfeeding for less than one year and therefore are afforded some (but not total) protection. Others are unable to conceive or their husbands are away. These women are not "exposed" to getting pregnant, so do not need contraception, at least not immediately.

7.10 The remaining women--those who would like to space or limit births, who are not using contraception, and who are exposed to the risk of pregnancy--are said to have "unmet need" for contraception. By this definition, 6-12 percent of women of childbearing age in Egypt, Kenya, and the Philippines have unmet need for contraception to limit births (see Figure 7.2, low estimate). In Bangladesh, Korea, and Peru, where both limiting and spacing questions were

asked, 16-33 percent of women of childbearing age have unmet need for contraception. Estimates for more countries are shown in the Population Data Supplement, Table 4. If breastfeeding women and those using inefficient methods of contraception are included in the definition, more than 40 percent of women in Bangladesh and Peru have unmet need for limiting and spacing births; 22 percent of women in Egypt, 10 percent in Kenya, and 29 percent in the Philippines have unmet need for contraception only to limit births (Figure 7.2, high estimate).

7.11 These high and low calculations of unmet need provide rough estimates of the potential for additional contraceptive use, given existing preferences for family size. However, some analysts have questioned the validity of estimates based on the response of married women to survey questions (see Box 7.3). Others have noted that even women who are pregnant may have had unmet need in the past which resulted in an unplanned pregnancy, and may shortly be in need again. Nor do these surveys include unmet need among unmarried people. Clearly, use of contraception depends not only on accessibility and cost, but on how intensely a couple wishes to avoid a birth. This factor is difficult to measure in surveys. Whether unmet need can ever be completely satisfied is debatable. In the United States, for instance, unmet need for limiting births was estimated at ___ to ____ percent of married women of childbearing age in ___, despite the wide availability of contraception.

7.12 The concept of unmet need is not static. It may decline as more people have access to contraception or as the nature of services changes. It may increase as people want fewer children, or as better availability of services itself raises interest in regulating fertility faster than new services can meet new need. Many women who say they want more children might in fact be potential users of services, if given the chance to plan their

births. To some extent family planning programs do more than simply satisfy unmet need; they actually generate and then fill such need. In this sense "demand" for contraceptive services is not easily measured; it is partly a function of their supply.

7.13 In most countries women in rural areas are less likely to want to stop childbearing than urban women. But those that do want to stop have greater unmet need than their urban counterparts and are much less likely to be using contraception. Unmet need is also greater in virtually all countries among less educated women. Government plays a central role in narrowing these gaps, especially between urban and rural areas (see Table 7.2). In Colombia and Korea, with strong government programs, rural women are as likely as urban women to be using contraception. In Kenya, Nepal, and Pakistan, with weaker programs, the rural-urban contrast is much greater.

Reasons for not using contraception

7.14 Couples who wish to plan their families face certain "costs"--financial, psychological, and medical. If these exceed the net costs of additional children, couples will not regulate their fertility, even if they would ideally prefer to postpone or prevent a pregnancy. To individuals, the costs of contraception include:

o Information--finding out where contraceptive methods can be obtained, and how they are properly used. In Nepal only 22 percent of women were aware of any method of contraception in 1978, and only 6 percent knew where to obtain a modern method.

o Travel and waiting time--because it takes money and time to go to and from a shop or clinic and to obtain family planning services. Average waiting times are as high as three hours in hospitals and family planning clinics in El Salvador. Family planning programs in Bangladesh, India, and Sri Lanka

compensate volunteers for sterilization for their transport costs and lost wages.

o Purchase--either of contraceptive supplies (condoms, pills, injections) or services (sterilization, IUD insertion and periodic check-ups, menstrual regulation, and abortion). Most public family planning programs provide supplies and services free of charge or at highly subsidized rates. Purchase costs from private suppliers and practitioners may be substantially higher.

o Side effects and health risks--some women experience unpleasant physical side effects while using contraception. Users of the pill may gain weight or feel ill. The IUD may cause excessive menstrual bleeding, persistent spotting, and painful cramps. In some countries, women are forbidden for religious or cultural reasons from cooking during their menstrual periods; spotting and heavier menstrual flow caused by the IUD can further restrict their activities. Some methods increase the risk of developing serious health problems, such as a higher risk of pelvic inflammatory disease among IUD users and of cardiovascular disease among pill users. (These risks are small compared to those associated with pregnancy and childbirth, however.)

o Social disapproval--because family planning is a private subject, difficult to discuss with neighbors or even spouses. It may violate personal beliefs, create marital disharmony, or be socially, culturally, or religiously unacceptable.

7.15 Surveys of contraceptive use in ten countries asked married women not using contraception why they were not doing so. Unless they wanted another child or were pregnant, their reasons included: lack of knowledge of a source or method of contraception, medical side effects of methods, religious

beliefs, opposition from husbands, and financial costs. In Nepal, lack of knowledge of a source was the main reason. In Honduras, Mexico, and Thailand, half of the exposed nonusers knew of no outlet or feared side effects. In Bangladesh, Barbados, and Nepal, as much as a quarter to a third of all married women were not using contraception for these reasons. They could clearly be helped by better information and services.

7.16 Discontinuation rates tell a similar story. According to surveys in thirty-three countries, as many as 30 percent of married women of childbearing age have used contraception in the past but are no longer doing so (see Table 7.3). When contraception is being used to space births, some discontinuation is normal. But many discontinuers do not want more children. As the second column of Table 7.3 shows, as many as 10 percent of all married women are discontinuers who want no more children and are at risk of getting pregnant. In Barbados, Guyana, Jamaica, Korea, and Pakistan, the proportion exceeds a third (column 3). Follow-up surveys of women who have accepted contraception typically find that much discontinuaton is due to medical side effects. In a Philippines follow-up survey, for example, this reason was cited by 66 percent of pill and 43 percent of IUD discontinuers. Reducing discontinuation among women who want no more children could increase contraceptive use by at least one-fifth or more in eight countries (column 4).

Supplying family planning

7.17 Family planning programs have evolved in a variety of ways, but a typical pattern begins with services being provided only by private family planning associations and a few concerned doctors and nurses. These groups gradually show that family planning is feasible and acceptable, and start

pressing for government support. Once persuaded, governments undertake to provide family planning through the public health system. But because health care is often underfinanced and concentrated in urban areas, while family planning competes with other medical priorities, the quality of services is uneven and available to only a small proportion of people. Eventually programs are extended to the countryside, often by paramedical and semi-skilled staff with back-up support from health centers. More attention is paid to increasing the range of contraceptive methods, providing follow-up services to clients, and working with community leaders to encourage local support. Commercial organizations are also encouraged to provide family planning. Private associations are delegated major responsibilities within the national program for certain services or target groups and continue to test new ways of providing services.

7.18 Public family planning programs are now at different stages of development in different regions:

- o East Asia. Governments have a longstanding commitment to reducing population growth. They have been extremely successful in improving access to family planning services and widening the range of contraceptive methods available. Large numbers of field workers have been recruited to provide family planning and sometimes basic health care in villages in China, Indonesia, and Thailand. Contraceptive use has increased dramatically over the past decade.
- o South Asia. Official commitment to reducing fertility is strong, but results have been mixed. Contraceptive use is highest in Sri Lanka and several states in southern India, lowest in Nepal and Pakistan. The demand for contraception is still constrained by high infant mortality and a preference for large families, but recent surveys have revealed substantial

unmet need for both limiting and spacing births. Most programs have yet to achieve the rural spread found in East Asia and have tended to emphasize sterilization. Other methods have been largely supplied through subsidized commercial outlets.

o Latin America and the Caribbean. Widespread demand for family planning was initially met largely by private doctors, pharmacies, and nonprofit organizations, primarily in urban areas. Government support was weak, in part due to opposition from the Catholic Church. The 1970s saw a growing interest on the part of governments and greater tolerance by religious authorities. Most governments now support family planning services for health and humanitarian purposes; Colombia, the Dominican Republic, El Salvador, Mexico, and Trinidad and Tobago do so to reduce fertility as well. In rural areas, access to services is still inadequate in most countries.

o Middle East and North Africa. Some countries in North Africa--Egypt, Morocco, and Tunisia--have long-established programs to reduce fertility. About half the countries in the Middle East provide family planning to improve childspacing and promote health; only Turkey's program seeks to reduce fertility. In a few Middle-Eastern countries, contraception is illegal. In others, cultural practices often confine women to their households, making it difficult for them to seek out family planning services. Programs that include home visits by family planning workers are not well developed.

o Sub-Saharan Africa. Only four of thirty-one governments for which data are available have demographic objectives. Most governments that support family planning do so for health reasons, and seven countries still provide no official backing for family planning. Where services exist, they are provided through health care systems that have only limited coverage, particularly in rural areas. Throughout Africa, couples want large families and infant

mortality is high. But some demand for family planning exists, and is poorly met by existing programs. As traditional ways of child-spacing (prolonged breastfeeding and sexual abstinence) are eroded, the demand for modern contraception is rising. Private organizations have helped to demonstrate that demand to governments and to press for their support.

The management of family planning programs

7.19 Perhaps more than any other social programs, family planning programs can be effective only to the extent that they meet the needs of individuals, both for better information about the benefits of controlling fertility and for better services to make doing so easier. At the same time family planning programs, like all public programs, operate within certain constraints: availability of manpower and finance; training and supervisory capacity; and transport and communications infrastructure. The availability of medical backup is a special constraint for the delivery of some contraceptive methods. The challenge for family planning managers is to address individual needs within the confines of these constraints, and in the longer term to ease them.

7.20 The personal nature of family planning services has several important implications for designing and managing programs. First, programs must be able to adapt to local and individual needs and to a variety of audiences. Potential clients include men and women, married and unmarried, of different social, economic, cultural, or religious backgrounds, who may be delaying a first pregnancy, spacing between children, or preventing additional pregnancies. Staff must be discreet, sensitive to the individual needs of clients, and familiar with local customs and beliefs. This requirement has been addressed in a number of ways: by selecting staff from local communities; by training staff in the environment in which they will work; and

by making special efforts to hire female workers. Special services have also been targeted at particular client groups: adolescents, women who have just given birth, and mothers with young children.

7.21 Second, programs must encourage clients not only to accept a method of contraception, but to use it effectively on a continuous basis. In societies where people marry young, couples who are spacing and limiting births may have to use contraception for twenty years. Prolonged, effective use is easier where information and support regarding side effects is assured, resupply is convenient, and the opportunity to switch methods is available. Medical backup and referral is critical, as is the capacity to follow up clients. Managers need information not only on new acceptors, but on continuing users, dropouts, and nonparticipants (see Box 7.4). Indonesia's effective monitoring system includes acceptor records, quarterly follow-up surveys of acceptors, and periodic sample surveys of households that collect information on fertility and contraceptive use.

7.22 Finally, because information about the benefits of family planning and of small families may not be widespread, programs must create an awareness of services and their benefits, as well as spread information about the proper use of methods. Information, education, and motivation activities are necessary both within and outside the system for delivering services. Program staff motivate potential clients and offer information on proper use of methods. The mass media inform people of the benefits of small families and how to obtain contraceptive methods. Population education as part of school curricula can motivate and inform young people before they marry; it can also be offered through nonformal education, such as adult literacy programs. Such efforts complement other economic and social policies to create demand for smaller families, discussed in Chapter 6.

7.23 Because of the need for medical backup or services for many contraceptive methods, most family planning programs are linked to the public health system. The nature of these links varies among countries and has often changed. In some programs, family planning workers provide services through clinics administered by the Ministry of Health, but are responsible to some other body. In Pakistan, family planning is delivered through the Population Welfare Division of the Ministry of Planning and Development, using its own specialized facilities and workers. Elsewhere, family planning is directly administered by the Ministry of Health, through a special department of family planning (as in Egypt) or as part of preventive or maternal and child health services (as in Botswana, Kenya, and Malawi). Staff may specialize in family planning ("single-purpose"), as in Kenya, Pakistan, and Indonesia; or they may also be responsible for general health or maternal and child health services in addition to family planning ("multipurpose"), as in Bangladesh, Botswana, and India.

7.24 There have been obvious advantages in integrating health and family planning in the delivery of services. The health benefits for mothers and children of spacing and limiting births clearly establish family planning as a valuable component of maternal and child health services. For both services, the main target group--married women of childbearing age--is the same. Joint delivery can reduce unit costs. And in countries where family planning is controversial, integrated services make the program more acceptable.

7.25 But they also present difficulties. Health ministries are often understaffed and underfunded; they cannot always mobilize the political and administrative wherewithal to implement an effective family planning program. Heavy demands for health care may eclipse family planning services. Multipurpose workers must not be overloaded, otherwise they will do

none of their tasks well. If an integrated delivery system employs single-purpose workers, friction may arise over differences in training, seniority, salaries, and promotion. For example, in addition to their salaries, family planning workers have sometimes received incentive payments based on the number of acceptors they recruit, while health workers receive only salaries. In Kenya, Family Health Field Educators (with family planning responsibilities) were paid more than the Enrolled Community Nurses to whom they were to report. These personnel issues can seriously affect worker morale and performance.

7.26 At the same time that family planning programs need some link with health systems, services need not be confined to them. When services are provided through a maternal and child health program, important client groups may be overlooked: men, adolescents, unmarried women, and nonpregnant women. Ministries of Health may be poorly equipped to organize social marketing schemes (for subsidized commercial distribution of contraceptives, discussed below), develop mass media programs, or coordinate public, private, nongovernmental, and commercial activities. Some of these responsibilities are often delegated, for example, to information or education ministries. Many programs have boards within or outside a ministry to coordinate the wide range of family planning activities. In Mexico, the Coordinacion General del Programa Nacional de Planification Familiar monitors and coordinates all family planning activities; it is located within the Ministry of Health but has direct access to the President and works closely with the National Population Council (CONAPO), a separate body responsible for population policy. In Indonesia, the National Family Planning Coordinating Board (BKKBN) is an autonomous body which collects data, produces information and education programs, coordinates activities, and has its own fieldworkers who promote

family planning, refer clients, and set up community distribution points. In some countries these boards are also responsible for overall population policy--a role discussed more fully in Chapter 8.

7.27 In the end, there is no simple formula for the "best" organization of family planning programs. Programs that differ widely in structure can be equally successful. Workers in India deliver both family planning and maternal and child health services and are under the general guidance of the Division of Family Welfare within the central Ministry of Health and Family Welfare. Indonesia provides family planning as part of maternal and child health services within the health system, but also uses single-purpose fieldworkers responsible to the BKKBN. The Chinese program relies on joint personnel in the health system, but has a separate policymaking body for family planning and overall population policy. Irrespective of the way service delivery is organized, all programs need some health backup.

7.28 Other significant factors in the success of programs are the degree of political commitment and the overall administrative capacity of government in terms of logistics, training, supervision, and availability of staff. These influence the effectiveness of three program strategies for expanding contraceptive use: increasing access to services; improving service quality; and assuring social acceptability.

Increasing access

7.29 Perhaps the greatest achievement of family planning programs in the past decade has been to make services more accessible to clients, by expanding the amount of information and cutting down travel costs. In twenty-three of the twenty-nine developing countries where surveys have taken place, more than 80 percent of married women are aware of at least one effective method of contraception. In urban areas of almost all of thirty-six countries examined

by the World Fertility Survey, family planning methods are available within an hour's travel from home. In Costa Rica and Thailand, most people in rural areas are also less than an hour away. Further, most public programs provide services free of charge or at heavily subsidized rates.

7.30 But there are still many countries and areas where information and travel costs are major obstacles to satisfying the unmet need of clients. According to household surveys in Guatemala and Piaui State, Brazil, 15 percent of married women of childbearing age were not using contraception, said that they would like to, but were unaware of an outlet. In Nepal, almost half of married women do not know of a method of contraception; about 15 percent know of a method but not of an outlet. In Honduras, about a quarter of women are unaware of either method or outlet. Of those women in rural areas who know of somewhere to obtain contraceptives, 32 percent in Colombia, 42 percent in Honduras, and 62 percent in Nepal live more than an hour away from the source. These barriers of information and distance are particularly high in sub-Saharan Africa: more than half of the eligible women in Senegal and Sudan are unaware of modern contraceptive methods and in most African countries contraceptives are available only in urban areas.

7.31 To reach the rural areas, family planning programs have placed special emphasis on extending the work of health centers into communities and households through the use of fieldworkers and other "outreach" staff. Access has also been increased in many countries by encouraging the private sector to provide family planning services.

7.32 Extending public services. A decade ago, almost all public family planning programs provided services from centers--usually clinics--and relied heavily on medical staff. As health services were not well-established in rural areas and medical staff were scarce, access to family planning as well as to medical care was limited.

7.33 Today, a few large family planning programs have succeeded in using their health centers as a springboard for taking services and supplies into the villages.

o National programs in Indonesia, Korea, and the Philippines use full-time, paid fieldworkers who encourage people to use contraception, provide services directly to households, and act as a link between clinics and clients (see Box 7.5). They have been trained to distribute condoms and oral contraceptives and, for other contraceptive methods and treatment of side effects, to refer people to health care centers. They may also provide some basic health services to mothers and children. In Indonesia and the Philippines, fieldworkers also recruit, train, and supervise large numbers of local volunteers to distribute condoms and pills and refer clients for other methods.

o In Thailand, auxiliary midwives have been trained to insert IUDs and provide injectable contraceptives, further increasing the availability of effective methods through thousands of rural health centers.

o Programs in Mexico and Indonesia have established local supply depots of pills, condoms, and foam, which assist the work of field staff and reduce travel costs to clients.

7.34 The use of paramedical personnel and outreach workers was pioneered by private and nongovernmental organizations, who are demonstrating the viability of this approach. To take an example from Kenya, the Chogoria hospital project in the Meru district has achieved contraceptive use of 28 percent, compared to a rate of 5 percent for the rest of the country. Volunteer workers are selected by local health committees to provide pills, condoms, and other basic health services, and are supervised by paid workers attached to local health centers. In Bangladesh the Pathfinder Fund has more than doubled

contraceptive use to about 50 percent among the 96,000 eligible couples in its project, compared to a national rate of about 20 percent. Fieldworkers visit nonacceptors every fortnight and continuing users once a month, registering and motivating eligible couples, distributing contraceptives, and providing a few simple maternal and child health services.

7.35 The advantages of outreach are considerable: fieldworkers cost less time and money to train than medical professionals; health staff can spend more time on health care than they otherwise would; and community-based fieldworkers are often most aware of local needs. But the extensive use of fieldworkers requires regular, supportive supervision. They must be trained well at the outset and receive periodic refresher courses to maintain the quality of services. They should concentrate on a few key tasks; additional responsibilities must be introduced only gradually. Fieldworkers also require a good medical backup and referral system so that any side effects which clients develop can be promptly treated. Finally, supervisors and fieldworkers must travel frequently and contraceptive supplies must be made available in an increasing number of remote outlets. The money for transport is often the first to be sacrificed when budgets are cut, yet the whole strategy depends on extensive travel and good logistics.

7.36 Encouraging private suppliers. Another way that governments have increased access to family planning services is by encouraging wider private involvement. This strategy makes fewer demands on scarce public funds and administrative capacity. Policies include subsidized commercial distribution of contraception, coordination with and encouragement of private nongovernmental organizations (NGOs), and removal of legal and other barriers to private and commercial provision of contraception.

7.37 Subsidized provision of contraception through the commercial outlets --often called social marketing--has been tried with some success in at least thirty countries. Social marketing programs use existing commercial distribution systems and retail outlets to sell, without prescription, contraceptives that are provided free or at low cost by governments or external donors. The first social marketing scheme was in India, selling subsidized "Nirodh" condoms. Almost all countries with such schemes sell condoms, and at least seventeen are known to sell oral contraceptives, sometimes several brands. Spermicides, in the form of suppositories, creams, pressurized foam, and foaming tablets are also commonly sold. Until recently, social marketing schemes have been limited to methods which do not rely on clinical services for distribution. But Egypt now sells subsidized IUDs through private doctors and pharmacies. And in Bangladesh, there are plans to test-market injectables through social marketing arrangements.

7.38 Social marketing helps to make family planning supplies more easily accessible by increasing the number and variety of outlets where they can be obtained: pharmacies, groceries, bazaars, street hawkers, and vending machines. In Sri Lanka some 6,000 commercial outlets sell subsidized condoms and pills--more than five times the number of government family planning outlets. In the late 1970s social marketing schemes accounted for more than 10 percent of total contraceptive use in Jamaica, Colombia, Thailand, and Sri Lanka. In Bangladesh, the social marketing program supplied about one-quarter of couples who used contraception in 1983: it accounted for 67 percent of total condom use, 12 percent of oral contraceptive use, and 70 percent of spermicide use. In 1981 about half of all pill users and 80 percent of condom users in Sri Lanka obtained supplies from the social marketing program.

7.39 Reliance on commercial distributors does not lift all the burden off the public sector, however. It still has to provide advertising, promotion, contraceptive supplies, distribution, and medical backup. Some training is necessary for commercial suppliers to dispense oral contraceptives and to advise clients on proper use, as has been done in Jamaica, Nepal, and Thailand. Failing that, some system of referral or prescriptions must be developed.

7.40 Although government subsidies to the commercial sector are usually provided for contraceptive supplies only, some governments also subsidize IUD insertion, abortion, and sterilization by private physicians. In Korea more than 2,300 physicians have been trained and authorized by the government to provide family planning services. The government pays the entire costs of sterilizations, but the costs of IUD insertion are shared--two-thirds by the government, one-third by the client. The involvement of private physicians has been a crucial factor in the success of the Korean program, although in 1978 about 60 percent of rural townships had no authorized physician.

7.41 Access to services has also been increased by collaborative efforts between government and private nongovernmental organizations. This collaboration has taken many forms: subsidization of or grants to NGO services; coordination of NGO and government services so as to assure maximum coverage; allocation of responsibilty for critical functions or services in certain regions to NGOs. In Bangladesh and Indonesia, for example, government services are allocated to rural areas, leaving NGOs to provide a large share of urban services. Since 1973 the Sociedade Civil de Bem-Estar Familiar no Brasil (BEMFAM) has worked with the governments of several states in Brazil to establish community-based programs for low-income groups in the Northeast. The private nonprofit program in Thailand acts as an extension of the

government's rural health service; it recruits local distributors to promote family planning and sell subsidized contraceptives donated by the government and international agencies. By mid-1978 there were some 10,000 distributors covering one-quarter of the 600 districts in Thailand. In Kenya in 1980, NGOs were operating 374 rural health facilities out of a total of 1,204. But less than 1 percent of the NGO facilities offered daily family planning services and only 7 percent offered part-time services. A new project is creating family planning service delivery points in at least thirty of the NGO facilities. In addition, both government and NGO representatives will sit on a National Council on Population and Development that will coordinate national efforts in population information, education, and communications.

7.42 Governments have also removed legal and regulatory obstacles that restrict commercial provision. In Egypt the sale of oral contraceptives through private pharmacies does not require a physician's prescription, although their provision through government clinics serving rural areas does. Several countries--including China, Mexico, Morocco, the Philippines, and Thailand--allow pills to be distributed in facilities other than pharmacies. Other options for stimulating the private sector include: removing import tariffs on contraceptive supplies--Korea recently eliminated a 40 percent tariff on raw materials for domestically produced contraceptives; active promotion by government of condoms, spermicides, and pills that can be easily supplied through commercial outlets; and training of private pharmacists and physicians who frequently have little knowledge of modern family planning methods.

Improving quality

7.43 The quality of family planning services matters in all phases of program development. In the early stages services are new and contraception still lacks social legitimacy. Once programs are well-established and accessible,

quality counts because other costs of family planning--such as physical side effects--have replaced access as the factor limiting the success of the program. Three ingredients of quality--the mix of contraceptive methods, the information and choice provided to clients, and program follow-up--have contributed much to program success (see Box 7.6).

7.44 The mix of programs. The number of contraceptive methods that are available affects the ability and willingness of clients to practice birth control:

o Some women have medical conditions which rule out certain methods. Oral contraceptives should not be prescribed for women who are over forty; who smoke and are thirty-five or older; who are breastfeeding; or who have a history of stroke, thromboembolism, cancer, liver damage, or heart attack. The IUD is undesirable for women with pelvic infection or a history of ectopic pregnancy. Some women cannot be properly fitted with diaphragms.

o If the side effects of one method cannot be tolerated, the availability of other methods improves the chance that couples will switch rather than stop using contraception altogether. For example, in Matlab Thana, Bangladesh, 36 percent of women had switched methods within sixteen to eighteen months after initial acceptance. And a study in the United States showed that married white women aged twenty-five to thirty-nine had used an average of more than two methods; more than a third of those aged twenty-five to twenty-nine had used three or more.

o Couples' preferences are influenced by their fertility goals --postponing a first birth, spacing between children, or limiting family size. Women using the pill tend to be younger and have had fewer births than those protected by sterilization; many of the former are spacing births, while the latter have completed their families.

o Some methods of fertility control may be religiously or culturally unacceptable. Two-fifths of the world's countries, comprising 28 percent of its population, either prohibit abortion completely or permit it only to save the life of the mother. For religious reasons, sterilization is illegal in a number of countries. When couples regard periodic abstinence as the only acceptable form of birth control, programs should aim to provide information on proper timing of abstinence, though this method carries higher risks of unwanted pregnancy.

7.45 Due to the sheer lack of alternatives, early family planning programs offered only a limited range of contraceptive methods. In the late 1950s and early 1960s, the Indian program had to rely on rhythm, the diaphragm, and the condom. Today, most national programs offer a wider variety of methods, though the number available at any given outlet is often fewer than implied by official statements. Some governments still promote a single method because such an approach is easier to administer or because certain methods, such as sterilization and the IUD, are viewed as more "effective" and require less follow-up over the long run than other methods. For example, India, Korea, and Sri Lanka continue to emphasize sterilization; Indonesia, until recently almost exclusively a "pill" program, is giving more emphasis to the IUD.

7.46 Supply constraints also limit the availability of different methods. Most contraceptives are imported, often provided free or cheap by donors; China, India, and Korea, which produce most of their own contraceptives, are major exceptions. Heavy reliance on one donor can cause problems, since some donors are restricted in the type of contraceptives they can supply. The United States Agency for International Development (USAID) is legally prevented from financing abortion training or services and cannot finance Depoprovera, an injectable which has not been approved for use within the

United States. Due to the limited number of donors that supply injectable contraceptives, Thailand almost exhausted its supplies in 1982, raising the prospect that many clients would have to switch methods or discontinue altogether. Difficulties can also arise if donors change suppliers, as the hormonal make-up of oral contraceptives varies from one manufacturer to another. Other factors restricting method mix include shortages of trained staff to perform sterilizations, poor transport and logistics which prevent timely resupply, and the great distances which clients must travel to obtain some methods.

7.47 To improve the method mix of programs, tubectomy, vasectomy, and IUDs can be made more readily available through mobile facilities (such as sterilization vans in Thailand) or periodic "camps" (such as vasectomy and tubectomy camps in India and IUD "safaris" in Indonesia). Careful attention must be paid to providing follow-up services for complications, however --particularly for IUD campaigns. Paramedical workers can be trained to provide the IUD and injectables in clinics and even in homes. Referral procedures can be strengthened so that clients are informed about all methods available from public, private, and commercial sources. Private suppliers can be encouraged to offer contraceptive methods that are in short supply or that cannot be offered by the official program. Finally, governments can sponsor local research on the effectiveness, side effects, and acceptability of methods which might be introduced into the national program.

7.48 Informed choice. Although family planning workers may know more about the advantages and disadvantages of each method, clients are best equipped to choose what suits them--provided they have information on effectiveness, side effects, reversibility, and proper use. In the early stages of the Indian and Pakistani programs, the side effects of the IUD were not fully explained, a

medical examination was not always conducted before insertion, and there was little in the way of treatment or referral for side effects. For years afterwards, IUDs were shunned. With more explaining of side effects and greater care paid to screening and medical backup, the IUD is now regaining popularity. When private pharmacies in Colombia provided their customers with pamphlets explaining effectiveness, proper use, and side effects, sales of contraceptives increased.

7.49 Virtually all family planning programs provide some information to clients about methods, but fully informed choice is still only an ideal in many countries. Family planning workers still tend to doubt the ability of couples to use effectively methods such as the condom and pill, thereby discouraging their use. Staff may also fail to mention methods of which they disapprove, such as the pill, abortion, or sterilization. When incentives are offered to staff for recruiting acceptors of some methods but not others, the information provided to clients may be biased. Sometimes clients are given inaccurate or incomplete information because family planning staff are themselves not properly informed about methods and their side effects. A survey of the Dominican Republic, Kenya, and the Philippines by the UNFPA in the mid-1970s found that workers felt that their training in methods had been inadequate. A study in India, Korea, the Philippines, and Turkey demonstrated the strong influence of providers on method choice: given a thorough explanation of all available contraceptive methods, clients chose a very different mix of methods than did those prior to the study who had been denied this information.

7.50 From the manager's viewpoint, what are the critical requirements for better information? First, appropriate training. Workers must be trained to explain properly the methods available to clients and to encourage them to participate in the choice. Informal explanation works better than formal

presentations which use technical or anatomical terms. As new contraceptive methods are included in programs, staff must receive prompt training. Second, more and better supervision of workers to ensure that they are not holding back information on methods because of their own prejudices or because they are receiving financial incentives for some but not all methods. The incentive structure might also be altered by offering financial or other awards (such as educational opportunities or additional training) to the worker who attracts and retains the most clients for a variety of different methods.

7.51 Following up acceptors. In their early stages, family planning programs devoted much time to recruiting new clients. It is now obvious that sustained use cannot be assumed--continuous motivation and encouragement is needed to reinforce clients' commitment to contraception. Follow-up support includes medical backup and referral for side effects; encouraging clients to change contraceptive methods if their initial choice causes problems or their needs change; reassuring them that they are using contraceptives properly; and reminding them of the benefits.

7.52 Follow-up is most important in the first few months after acceptance, since this is when side effects are first experienced, when clients are learning to use methods properly, and when they need reassurance in the face of social disapproval. A study in Calabar State, Nigeria, found that 11 percent of pill acceptors never took even the first month's worth of pills, and only 53 percent were using them three months later. A lack of concern with follow-up is believed to be the major contributory cause of low continuation rates of IUD and pill users in Korea. According to a survey of contraceptive acceptors, only 24 percent were followed up at home or returned to health centers for consultation on side effects. Korea's program sets targets for the number of acceptors, but none for follow-up work.

7.53 Follow-up cannot be left to clients, who are likely to return to the family planning center only if they are living close by or if they experience severe side effects that they cannot stop even by abandoning contraception. Follow-up is best provided by fieldworkers and and community-based services. However, in areas where family planning is still regarded with suspicion, some clients would like to be spared the embarassment of a follow-up visit from a family planning worker. Some programs have managed this by having fieldworkers deliver health services as well.

7.54 With or without an extensive field network, family planning programs can improve follow-up:

o They can change policies that encourage staff to recruit new acceptors but not to follow them up. Targets and incentives can be offered to staff for the number of current users of contraception or the number of checkups, rather than only on the basis of new acceptors. Training must also emphasize follow-up procedures.

o Where the burden for follow-up rests on clients, programs can experiment with various ways of encouraging clients to seek appointments. For example, financial incentives might be offered to clients who return for a follow-up visit within a specified period of time, just as South Asian programs offer compensation to sterilization acceptors for the costs of transport, food, and time lost. The media can also be used to reassure acceptors about side effects and encourage them to return for checkups.

o The quality of follow-up can be monitored by periodic sample surveys of acceptors.

Assuring social acceptability

7.55 To be successful, family planning programs must have the support of the clients and communities they serve. But in communities where modern

family planning has never been provided, there may be no evident demand because potential clients are not aware of the benefits of the service, of smaller families, or of longer childspacing intervals. Services introduced by an "outside" agency with few local links and little appreciation of local norms and needs may not be readily accepted. The absence of links to the local community can be a weakness for family planning in particular, as it concerns personal subject and may conflict with social norms that favor high fertility.

7.56 Private family planning associations and nongovernmental groups have led in experimenting with new ways to involve clients and communities. Their strategies have included: consultation with local leaders; training local people as paid or volunteer workers; consulting and training traditional midwives and healers; establishing local management or review committees; encouraging local contributions of money and labor; and organizing groups of family planning acceptors to reinforce effective use and engage in other community development projects.

7.57 In communities where there is no apparent demand for family planning, it can be introduced jointly with services in greater demand. The Honduras Family Planning Association combines a community-based adult literacy program with a planned parenthood theme. In Awutu, Ghana, family planning is promoted for childspacing as part of a maternal and child health project. Family planning is provided with agricultural extension to a population of 100,000 in Allahabad (Uttar Pradesh state, India) and as part of the nationwide Integrated Rural Development Project in Pakistan. It has been offered through the resettlement schemes of the Federal Land Development Authority in Malaysia and with women's rural credit cooperatives and vocational training in Bangladesh. Profamilia, the private family planning organization in Colombia,

extended its services to the countryside through the National Federation of Coffee Growers. In China, India, and the Philippines, family planning services are organized in factories. Both the Indonesian and Chinese programs have used strong political organizations which extend into rural areas to provide many economic and social services, including family planning.

7.58 Private family planning associations are well suited to implementing these approaches: they are small, decentralized, well staffed, highly motivated, have greater control over service quality, and are less confined by the bureaucratic constraints of government. But many of these approaches have also been tried on a larger scale. For example, the Planned Parenthood Federation of Korea pioneered the highly successful mother's club program. Initially these clubs served as a source of contraceptive supplies, of reassurance for acceptors, and for spreading information on the benefits of family planning. They have now merged with the Saemaul Women's Association and are involved in, for example, agricultural cooperatives, and community construction projects. Mother's clubs have also been used by programs in Indonesia and Bangladesh. The national program in Indonesia has successfully involved village headmen, religious leaders, and local volunteers on the islands of Java and Bali, where over two thirds of Indonesia's population lives. In the Philippines, some outlets for contraceptives are organized and run by local volunteers.

7.59 Where communities and clients are involved, they are less likely to see family planning as being imposed by outsiders. Use of traditional midwives, volunteers, and lcoal contributions in cash or in kind reduces the cost of services. But these approaches require certain managerial qualities not always found in larger public programs: decentralized decisionmaking; technical and organizational expertise to support local organizations,

volunteers, and clients; skilled managers and fieldworkers who can identify local leaders, stimulate community activities, supervise volunteers, and reconcile local needs with program capabilities; and sometimes workers who are technically competent in more than one field. Finally, social acceptance of family planning takes time and is a continuous process. There is no "benchmark" for measuring social acceptability, nor can managers easily set targets; it is one of many factors reflected in greater contraceptive use.

Finance

7.60 Public family planning programs, like programs in education and health, are heavily subsidized, and services are often offered free of charge. Although the private sector makes a significant contribution to providing services in some countries, public finance will continue to be critical, especially in low-income countries and backward regions, where contraceptive demand is limited and health services are weak.

Public spending

7.61 China and India--the two most populous countries in the developing world, with approximately half its population--spent roughly $1.00 and $0.30 per capita respectively on population programs in 1980. Of two dozen developing countries for which rough estimates are available, spending in most of them fell within this range (see Table 7.4). Assuming that other developing countries with programs were spending equivalent amounts, the total spent on population activities in all developing countries in 1980 must have been about $2 billion.

7.62 Practically all spending on population in China, and close to 80 percent of the Indian total, is financed from domestic resources. For all

other developing countries combined, the government share is smaller and the share of foreign donors larger, around 50 percent each. The government share tends to rise the longer a program has been in existence: three out of four countries with programs less than five years old were contributing less than 10 percent of the costs of their programs, in contrast to an average of 54 percent among twenty-seven countries with programs at least ten years old. Nepal is one of the rare exceptions: the share of domestic government financing fell from 80 percent of its population spending in 1975 to 40 percent in 1980.

7.63 Even among well-established programs, there is wide variation in government spending. Domestic budgetary outlays in 1980 are estimated to have been $0.08 per capita in Sri Lanka, about $0.45 per capita in Korea, and $0.70 per capita in Mexico. But these estimates probably understate the true government contribution. The cost of health workers--whose functions often include family planning--is not always imputed to the population program; nor are contributions by local government.

7.64 The estimate for China of $1.00 per capita includes the amount spent by its formal layers of government--central, provincial, prefectural and county--on providing contraceptive supplies free to users; reimbursing service fees for sterilization, abortion, and IUD insertion; and providing training and producing information on family planning. These costs amount to $213 million annually, about $0.21 per capita. On top of this, the rural collective system finances the family planning staff at the commune or brigade level (at an estimated cost of $0.34 per capita) and pays incentives, in the form of food supplements and reimbursement of travel costs, to holders of one-child certificates ($0.25 per capita) and to individuals undergoing sterilization ($0.15 per capita). Finally, additional time is spent by

barefoot doctors on family planning work (though not much: in Shandong Province they allocate an average of 1.5 percent of their time to family planning, valued at approximately $3 million). Health workers and midwives probably spend more time on family planning. Adding all these contributions together produces a figure for family planning expenditure of nearly $1 per capita.

7.65 Although governments finance a large share of their population programs, the amounts spent are still trivial--both in absolute terms and relative to other government outlays (see Box 7.7). In China, the state budget for the family planning program absorbs only 0.4 percent of total current spending, compared with 5.2 percent for health and 13.1 percent for education. In India and Mauritius, spending on family planning in 1981 accounted for only 0.5 percent of total government expenditure. The figures are even lower in Korea (0.2 percent) and Malaysia (less than 0.1 percent).

7.66 Foreign donors spent an estimated $491 million for population programs in developing countries in 1981, about two-thirds of which was for family planning and related programs. In real terms, population assistance grew at almost 6 percent a year during the 1970s, but fell 3 percent in 1980 and 6 percent in 1981. The prospects for increased assistance are not good: the United Nations Fund for Population Activities, a major channel for population assistance, expects its spending to rise by barely 1 percent over the next four years. Population assistance from donors is discussed in the next chapter.

Private spending

7.67 Important constraints limit the growth of private spending on family planning, especially in rural areas. The biggest constraint is the need for medical backup for providing contraceptives. Although prescription

regulations have been liberalized in nineteen countries, making condoms and oral contraceptives available through nonclinical suppliers such as pharmacies, the demand for IUDs, male and female sterilization, and abortion can be met only by trained health workers. Very few of them work in the private sector. In addition, the cost of providing family planning services is high in rural and marginal urban areas, whereas the ability to pay for commercial services is low. Private suppliers cannot appeal to the national interest as governments can to stimulate demand for contraception, and cannot use community institutions and pressures to spread family planning. Finally, a combination of government policies often inhibits the development of private supplies--including price controls, prohibition of or tariffs on the import of contraceptives, and restrictions on certain kinds of family planning services, especially sterilization and abortion in Muslim and Catholic countries.

7.68 Despite these constraints, private suppliers provided more than 20 percent of all family-planning services in more than two-thirds of the countries in recent surveys. In some countries, private suppliers play a major or even dominant role, especially among urban consumers (see Table 7.5). In Korea, 42 percent of all contraceptive users are supplied by pharmacies or physicians, and in the state of Sao Paulo, Brazil (a country with some state but no central government programs), the proportion is as high as 63 percent.

7.69 In urban areas some commercial suppliers may be displaced by publicly subsidized contraceptives: half of the initial users of an official program of oral contraception in Piaui State, Brazil, in 1979 had shifted over from the private sector. On the other hand, private suppliers benefit from family planning advertising financed by the government. It is probably not a coincidence that they flourish in several countries where government strongly supports birth control, such as Korea, Mexico, and Thailand.

7.70 The activities of private suppliers demonstrate that many people in developing countries are willing to pay for contraceptive services. Although charges for publicly subsidized services are usually low or nonexistent, data for twenty countries show that private sector prices can be high enough to absorb a significant fraction of household income. The cost of a year's supply of oral contraceptives averaged $30 in 1980, ranging from $8 in Egypt and $16 in Colombia up to as much as $75 in Nigeria. Across countries, the various forms of contraception cost an average of $20 to $40 a year.

7.71 In the better-off developing countries, the cost of buying contraceptives is small in relation to average income (though even in those countries, the costs may be relatively large for the poor). For example, the retail price of a year's supply of oral contraceptives in 1979 was equivalent to only 0.3 percent of per capita income in Mexico and 0.5 percent in Brazil. But in low-income countries the costs can be prohibitive--equivalent to 17 percent of per capita income in Bangladesh, for example, and 18 percent in Zaire. All these figures understate the real cost of obtaining family planning services, whether private or public, because people also have to pay for the time and travel needed to obtain their contraceptives.

7.72 It is not easy to compare private spending on contraception with domestic and internationally funded subsidies. In Korea, some 1.2 million users bought contraceptives commercially in 1979 at an average annual cost of about $12--a total outlay of $15 million, about $0.40 per capita for Korea's entire population, and roughly equivalent to the $0.50 per capita spent on the domestic government budget. Private spending on this scale--which understates the total, because it excludes access costs--is clearly not typical of most developing countries, but it emphasizes a widespread willingness to pay for contraception.

Allocation of public expenditures

7.73 The bulk of public spending on population--almost 50 percent in seventeen countries reporting breakdowns--goes directly to providing contraceptive services. Progressively smaller shares are taken up by general program administration, information-education-communication activities, research and evaluation, and personnel training.

7.74 Taking all public spending on family planning into account, it averages about $0.70 per capita across all developing countries. Per contraceptive user, spending is much higher--around $21 a year. But most users are in China and India, where programs spend less per user so the weighted average is lower at $11. Adding private expenditures could easily double these per user costs. Public cost per user varies across countries, as Table 7.4 shows, depending on many factors, including local salaries and program efficiency and quality.

7.75 Cost per user tends to be very high in the first few years of a family planning program, and then falls sharply as the rate of contraceptive use rises above 5 percent. At higher rates, the cost per user tends to stabilize, or perhaps rise slightly. Between 1965 and 1980, while contraceptive use in South Korea rose from 12 percent to 30 percent, cost per user fluctuated, with little apparent trend, between $7 and $13 (in constant 1982 dollars).

7.76 In any country with contraceptive use of at least 5 percent, current cost per user is a conservative guide to costs at higher levels of use. Marginal costs could rise if new users are in inaccessible rural areas with high delivery costs, though they could also fall if services are more intensively used. They will rise everywhere if program quality improves--which is probably necessary to achieve a wider spread of contraception.

Future financial requirements

7.77 What would it cost to satisfy the unmet need for limiting births? Some idea can be obtained by extrapolating levels of unmet need--the proportion of exposed women who want no more children--in thirty-five countries in the mid-1970s to cover the developing world as a whole. That suggests a possible increase in the rate of contraceptive use of 13 percentage points. If the public cost for each additional user were the same, country by country, as the cost per user in 1980, such an increase would require another $1 billion in public spending (see Table 7.6).

7.78 In the next two decades, the costs will go up further, because of the growing number of women of childbearing age and the increasing proportion of them who are likely to want contraception. World Bank projections indicate that the number of married women of reproductive age (fifteen to forty-four) in all developing countries will increase from about 500 million to more than 700 million between 1980 and 2000. About 39 percent of these women used contraception in 1980.

7.79 The "standard" projections in Chapter 4 imply a total fertility rate of 3.3 in the year 2000. Assuming that the fertility effects of later marriage and shorter breastfeeding will largely cancel each other out and that the abortion rate will stay constant, achieving this fertility decline will require an increase in the rate of contraceptive use to 57 percent. For the projections of a "rapid" decline in fertility, which imply a total fertility rate of 2.4 in 2000, contraceptive use would need to reach 72 percent.

7.80 How much would this cost? To achieve the standard decline in fertility, and assuming 1980 costs per user, total public spending on population programs would need to reach $5.5 billion by the year 2000--a rise in real terms of 5 percent a year. To assure the rapid decline, spending

would need to total $7.9 billion by 2000, rising by 7 percent a year in real terms.

7.81 Growth in spending will have to be much greater in some regions than in others. Average real increases of 2.5 percent a year would be enough to meet targets in East and Southeast Asia as a whole (though not for individual countries), and 5 percent would be enough for Latin America and the Caribbean. For South Asia, the Middle East and North Africa, and sub-Saharan Africa, however, population spending would have to grow 8 to 9 percent every year to achieve a standard decline in fertility, and as much as 15 percent every year in sub-Saharan Africa to support a rapid decline (see Table 7.6).

7.82 Since spending on population currently represents less than 1 percent of government budgets, small increases could go a long way toward meeting the requirement for higher spending. The same is true for external assistance. Only about 1 percent of official aid now goes for population assistance (and only a part of that for family planning). Increasing spending by 50 percent could fill "unmet need" today, but larger increases will be needed in the future.

Obstacles to program expansion

7.83 If the financial resources to expand family planning services were made available, could they be put to good use? Program expansion may be difficult for a variety of reasons, including administrative and logistical obstacles, scarcity of personnel, and limited demand.

7.84 The administrative and logistical obstacles include many of the same factors that hamper other development programs. For example, a family planning program requires a system for obtaining, storing, and distributing contraceptives. If a program attempts to provide a mix of methods, this system can become complicated; provision has to be made, for instance, to

resupply users of oral pills every few months. As a consequence, some programs choose to emphasize a single method like sterilization. Where overall government administration is weak, roads are poor, and communications slow, even the best-run programs will appear inefficient and incapable of sustained expansion. These limits may not be evident in small pilot projects, but can become overwhelming when the attempt is made to extend services to the masses in the villages. In areas where health services are scant or nonexistent, a family planning program would face very heavy going.

7.85 The personnel requirements for an extensive family planning program are not large relative to the supply of educated people. Desirable ratios are about one fieldworker to 300 families, and one supervisor for every eight fieldworkers. For Upper Volta, a country with extremely low literacy, a program could be fully staffed at these ratios by about a tenth of a single year's primary and secondary school graduates. The conclusion becomes less sanguine, however, as soon as one takes into account specific requirements for fieldworkers: for instance, they should be village-based rather than city-based, belong to the appropriate ethnic, linguistic, or caste group, and be favorably disposed to contraception. The Pakistan program has faced recruitment problems of this sort. In the late 1960s, only a seventh of the midwives assigned as fieldworkers believed in the efficacy of modern contraceptives. In the early 1970s, they were replaced by a group including many unmarried women from urban areas who did not have the confidence of the villagers. If finding appropriate fieldworkers in each area is difficult, finding higher level supervisors can be even more of a problem.

7.86 Program expansion also depends on the demand for contraceptive services. A key task of programs is to generate some of this demand itself, but where initial interest is low or nonexistent this task can be very

difficult. If no group takes the lead in adopting contraception, the program cannot benefit from the favorable opinions of local users.

7.87 Taken together, these limits to expansion might seem to suggest that programs could not make good use of more money. Such a view must be qualified, however. During the 1970s, India, Pakistan, Bangladesh, and Sri Lanka were spending as much as $2.50 per married woman on family planning programs, and were still producing contraceptive users at acceptable cost--under $20 each, in some years much less. Despite the unpromising conditions --per capita GNPs between $100 and $300, adult literacy rates as low as twenty, and infant mortality rates per thousand as high as 150--spending on family planning expenditures was effective and economical.

7.88 Furthermore, many of the factors that hamper effectiveness can be overcome as a program develops. Culturally acceptable solutions to administrative and personnel problems, and to limited public interest, take time to develop, but should be seen not as obstacles to the program per se but to its rapid expansion.

7.89 Foreign funding has been largely absent in the early stages of some family planning programs, as it continues to be in China. In other programs it has played a catalytic role, for instance through stimulating pioneering research into demographic problems. Local finance eventually becomes critical, however: most of the older, more effective programs in 1980 had 40 percent or less foreign funding. For one thing, local finance demonstrates political commitment to family planning, the subject of the next chapter. Many of the obstacles to expansion can be overcome with sufficient commitment, and most of them cannot be overcome without it.

Box 7.1 Family planning for health

Early and frequent childbearing contributes substantially to illness and death for babies, young children, and mothers in developing countries. Family planning programs can tackle these problems through four main mechanisms:

o Lengthening the interval between pregnancies (childspacing). The interval between pregnancies is an important determinant of survival for both the newborn baby and his or her older sibling. Infants and children at highest risk of death are those born less than 24 months apart (see Figure). This relationship holds even when allowance is made for birth order, mother's age, mother's education, urban/rural residence, and the sex of the child.

There are two main explanations for the link between mortality and spacing. The first is that the youngest and next youngest child must compete for the resources of the family and the attention of the mother. When a woman becomes pregnant again soon after giving birth, the young child may be prematurely weaned, increasing risk that it will get malnutrition, gastrointestinal infection, diarrhea, and other illnesses. Second, a rapid succession of pregnancy, breastfeeding, then pregnancy again, weakens the mother and is associated with low birthweight in the newborn baby. One study of twenty-five developing countries suggested that, if births were spaced two to six years apart, infant mortality would decline by an average of 10 percent and child mortality by 16 percent. In Pakistan, infant mortality (currently 140 per thousand) would fall by 30 percent if all birth intervals of less than 36 months could be lengthened to 36-47 months.

o Preventing births for women under 20 and over 34 years of age. In these age groups, women who become pregnant carry a greater risk of illness

and death, both for themselves and their children. Infant and maternal mortality are highest among teenage mothers. In Pakistan, for example, babies born to teenage mothers have a 50 percent greater chance of dying than those with mothers aged 20-29. In Thailand, there were 154 maternal deaths per 100,000 live births for women aged 20-29 in 1971, compared to 204 for women under 20. These contrasts can be partly explained by the fact that teenage mothers may not be physically mature enough for a safe pregnancy; in addition most of their births are first births, which also carry a higher risk of infant and maternal death. As for mothers over 35, their babies run an increased risk of congenital defects, such as Down's syndrome, cleft palate, and heart disorders.

Because most births are already in the twenty to thirty-four age group, confining all births to that group would have only a modest effect on overall infant and child mortality rates. For example, both would decline by only 2-6 percent in Indonesia, Pakistan, and the Philippines. The impact on maternal mortality is potentially greater. A study in the mid-1970s estimated that maternal mortality would be reduced by 24 percent in the Philippines, 23 percent in Colombia and France, and 19 percent in Mexico, Thailand, Venezuela, and the United States. The effect on maternal and child illness has not been estimated, but would certainly be greater than on mortality.

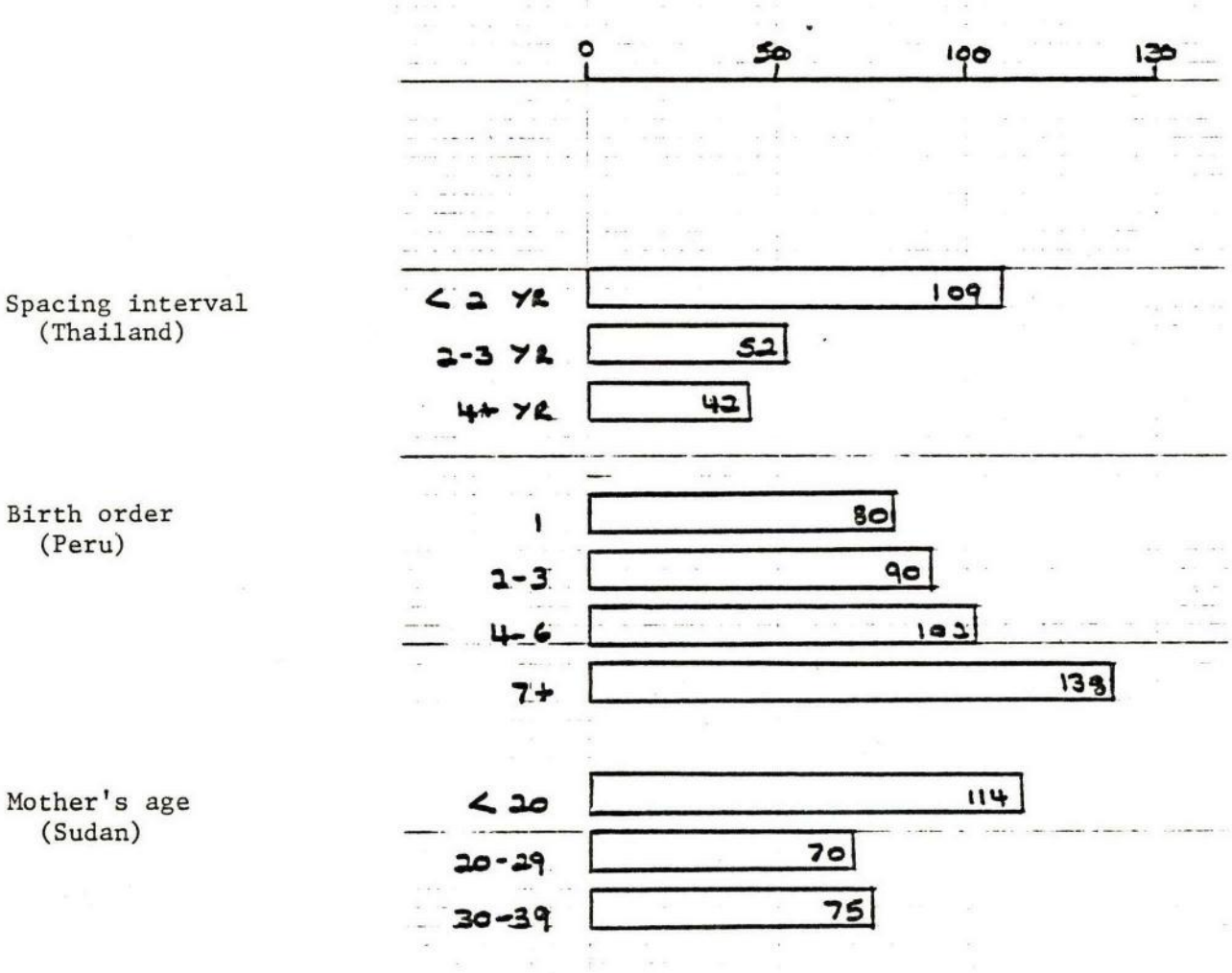
o Allowing couples to have fewer children. Depending on the country, the risks of infant and maternal mortality increase rapidly after the third, fourth, or fifth child. In El Salvador, for example, infant mortality for fifth and later children is more than twice the level for the second and third child. In Matlab, Bangladesh, maternal mortality is about 250 per 100,000 live births for the second and third births, but about 450 per 100,000 for the fourth and fifth births (see figure). These relationships hold even when

allowance is made for differences in the age of mothers. If all births of fourth and later children were prevented, infant mortality would decline by between 5 percent and 11 percent in Indonesia, Pakistan, the Philippines, and Sri Lanka.

o Preventing illness and death resulting from unsafe abortion. Abortion is extremely safe when performed in the first three months of pregnancy by trained personnel in sanitary conditions. But in most developing countries the procedure is illegal, and therefore more likely to be self-induced or performed unhygienically by untrained people. Such abortions carry with them a high incidence of complications, such as incomplete abortion, pelvic hemorrhage, lacerations of the cervix, perforation of the uterus, and tetanus. These complications may require hospitalization, and may damage the mother's fertility; in the worst cases, they can kill her.

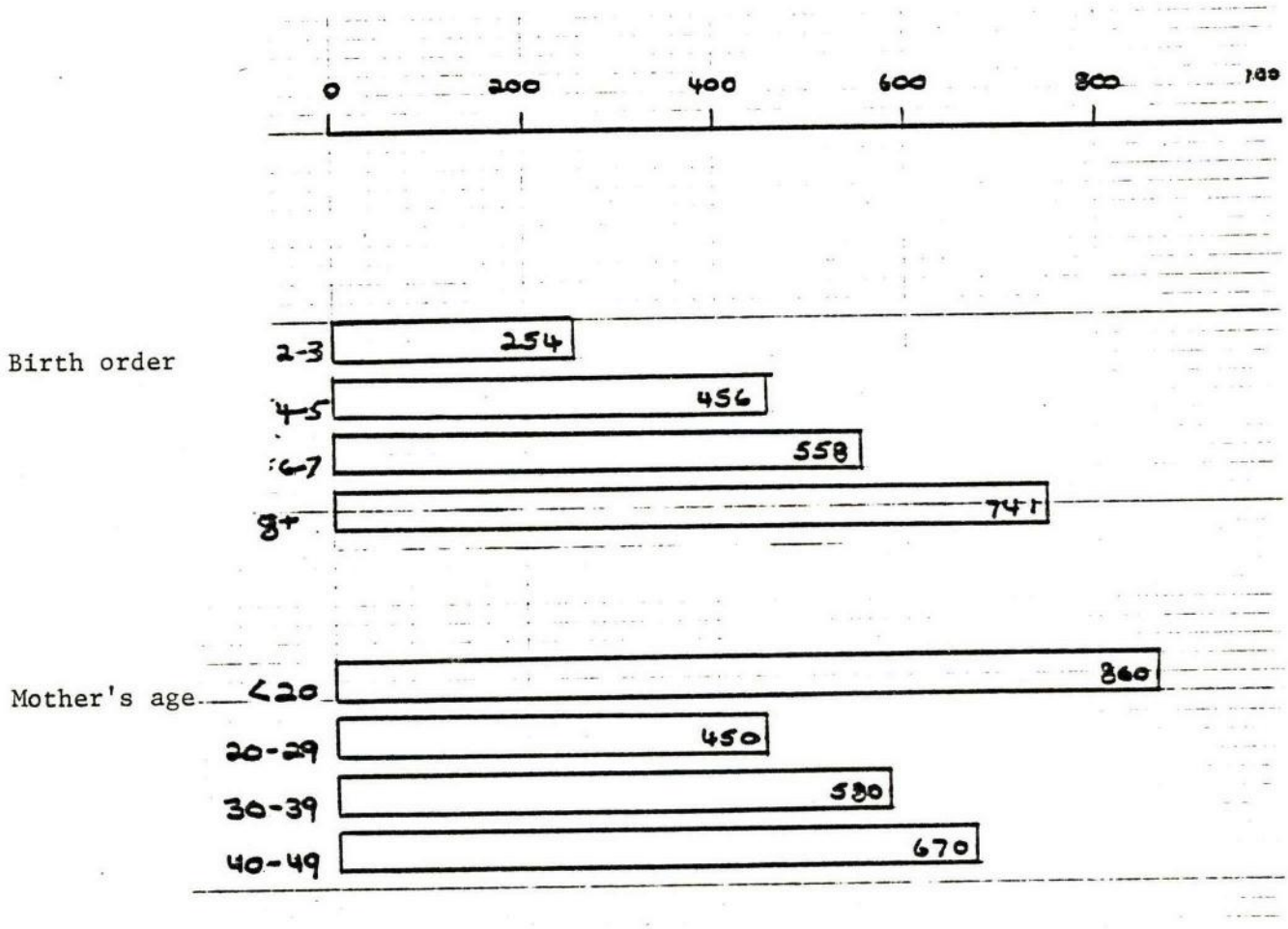
As abortion is illegal in many countries, the number of women affected is difficult to estimate. In twenty-four countries over the years 1970-78, complications of abortion were cited as a cause of between 6 percent and 46 percent of all registered maternity-related deaths. Scattered evidence from Africa suggests that hospital admissions for complications after induced abortion are increasing, and that a disproportionate number are teenagers. The International Planned Parenthood Federation estimated in the late 1970s that 84,000 women die annually from complications of abortion in 65 developing countries.

Figure 1 Infant mortality per 1,000 live births



Source: Rutstein 1982

Figure 2 Maternal mortality per 100,000 live births
Matlab, Bangladesh



Source: Chen et al 1980, Table 6.

Box 7.2 Birth planning technology

Several methods of birth control have been practiced throughout human history--abstinence, abortion, prolonged breastfeeding, and coitus interruptus (withdrawal)--but with uncertain effectiveness, and psychological and health damage. Contraceptive research in the past thirty years has made possible a much greater variety of more effective methods. Combined estrogen and progestin oral contraceptives (the "pill") and various intrauterine devices (IUD) were the first major breakthroughs in the late 1950s and early 1960s. Since then other methods have been developed: injectable contraceptives effective for 2-3 months, more effective copper and hormone-releasing IUDs, simplified early abortion by vacuum aspiration, male sterilization, simplified female sterilization by laparoscopy and minilaparotomy, low-estrogen pills with fewer side effects, and a progestin-only "minipill". Barrier methods, such as the condom, diaphragm, and spermicide, have also been improved.

In 1980 the most commonly used methods of birth control worldwide were sterilization and the pill. Among developed countries, the pill is the most used method, but sterilization has gained in popularity in the United States and Great Britain, where it accounts for about a quarter of total use among married couples of childbearing age. The major exceptions to this pattern are Spain, Italy, and the Eastern European countries (except Hungary), where withdrawal, rhythm, or abstinence are still the most prevalent methods.

Among developing countries, sterilization is the most common method in Bangladesh, El Salvador, India, Korea, Nepal, Pakistan, Panama, Sri Lanka, and Tunisia. The pill is the most favored method in Jordan, Syria, much of Latin America, Thailand, and Indonesia.

Despite the greater variety of contraceptive methods now available, all have shortcomings:

o Effectiveness. Under the ideal conditions of controlled studies in developed countries, existing methods can be highly effective in preventing pregnancy: nearly 100 percent for sterilization, the pill, and injectables; 98 percent for the IUD; and as much as 97 percent for the condom and the diaphragm after one year of use. But outside these controlled studies, some methods can be significantly less effective owing to incorrect or inconsistent use. In the United States, one in 100 couples using the pill will have a pregnancy within one year, more than two couples using the IUD, twelve using the condom or diaphragm, and twenty using rhythm. In the Philippines, more than three women out of a hundred using either the IUD or the pill and thirty-three using rhythm will become pregnant within a year. The motivation of couples to prevent pregnancy plays an important role in the effectiveness of contraceptives. Couples who want no more children are likely to use methods more effectively than those who are spacing births.

o Side effects. Physical side effects are a major reason why people switch or stop using contraceptives. For some methods, the long-term health risks of prolonged use are unknown. Methods such as the IUD and injectables which alter bleeding patterns--by spotting between periods, increased or decreased flow, or amenorrhea--may be culturally unacceptable or restrict the activities of users.

o Inconvenience. Barrier methods (condom, diaphragm, spermicides) have to be used each time couples have intercourse. In households in developing countries, pills and diaphragms are difficult to store and condoms difficult to dispose of.

o Reversibility. Sterilization is highly effective but rarely reversible. Injectables are completely reversible but delay the return to fertility for several months.

o Acceptability. To some couples, abortion and sterilization are religiously or culturally unacceptable; some may regard only abstinence or rhythm as acceptable.

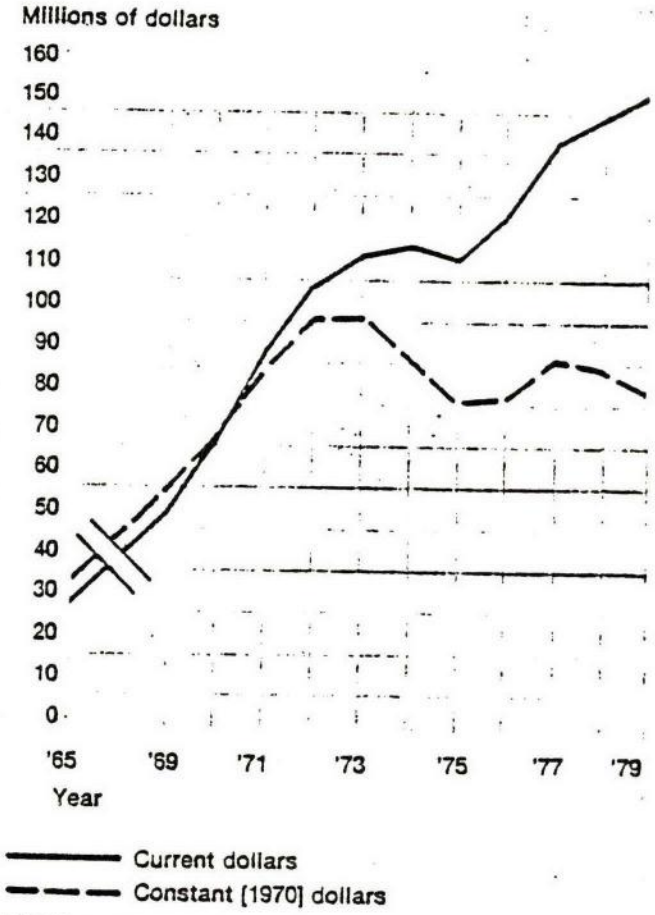
o Delivery. Sterilization (of both men and women) requires skilled medical or paramedical staff, who are often scarce in developing countries. The IUD, injectables, and the pill require medical backup for treatment of complications and side effects. Programs which promote the condom, pill, and spermicidal foam require a good network of supply points.

No single method of contraception is appropriate to the needs of all people nor is there one that is completely safe, reversible, effective, and convenient. Nor is such an "ideal" method likely to be developed in the next twenty years. Family planning programs will have to rely on a mix of existing methods and a few new ones whose development is already well advanced.

Research is being concentrated in two areas: (1) improving the safety, convenience, and life span of existing methods, such as the IUD, pill, injectables, and female barrier methods; and (2) developing new methods, such as a monthly pill to induce menstruation, long-lasting biodegradable hormonal implants for women, nonsurgical chemical sterilization for men and women, a male "pill", and a vaccine for women. Some of these new methods--such as the hormonal implant (in the arm), improved IUDs, the vaginal sponge, cervical cap, and diaphragms which release spermicide--may be widely available in the near future. Others, such as new male methods and an anti-pregnancy vaccine, require much more research and are unlikely to be marketed before the end of this century.

Compared with the past few decades, the pace of technological development is slowing. Worldwide funding for contraception-related research was $155 million in 1979, but has been declining in real terms since 1972-73 (see figure). About 30 percent of the total is spent on contraceptive development and safety studies; the rest goes to training and basic research on human reproduction. Some 72 percent of the total was spent in the United States. Over 80 percent of the total was financed by the public sector; industry's share has shrunk from 32 percent in 1965 to less than a tenth. Special testing and regulatory requirements, combined with product-liability problems, have lengthened the time between product development and marketing, increased the cost of developing new products, and made the future profitability of research more uncertain for private firms.

Worldwide expenditure on reproductive research and contraceptive development, 1965-79



SOURCE: L. Atkinson, et. al., "Prospects for Improved Contraception," *Family Planning Perspectives*, 12(4), pp. 173-192, 1980.

Box 7.3 Measuring unmet need for family planning

The concept of "unmet need" used in this Report is based on two questions asked of married women in representative nationwide surveys during the past decade. In over forty countries women were asked, "Do you want additional children?" Among women who were exposed to the risk of pregnancy (that is, they were not pregnant nor infertile) some said that they did not want more children. Of them, those who were not using any contraceptive method were defined as having unmet need for limiting births. In some surveys (in fewer countries), women were also asked, "Do you wish to delay pregnancy for a year or more?" Among exposed women, some said yes. Of them, those who were not using any contraceptive method were defined as having "unmet need" for spacing births.

Some investigators have suggested that responses to such questions are meaningless or, at best, unreliable. They argue that many women in developing coutnries are not accustomed to planning their families or are uninformed about how to affect the number of births they will eventually have. These criticisms apply most strongly to questions on preferred family size ("If you could choose exactly the number of children to have in your life, how many would that be?") or desired family size ("Suppose you were recently married and were able to have just the number of children you wanted, how many would that be?"). These questions contain significant hypothetical components since women cannot costlessly choose family size, cannot have fewer children than they already have, and must imagine alternative life cycles involving different family sizes.

In contrast, "wanted" family size is estimated by asking how many additional children women want and adding the number of children they currently have. Wanted size turns out to be a more realistic expression of

preferences, taking into account the respondent's present conditions and future expectations. Asked how many additional children they want, women answer consistently over time. Their replies are a reasonably good predictor both of contraceptive use and of future fertility. In one study, women were reinterviewed after one month; 92 percent gave identical answers to a question about wanting additional children, while only two-thirds gave identical answers to a question on preferred family size.

In countries surveyed as part of the World Fertility Survey, contraceptive use among women who said they wanted no more children consistently exceeded use among women wanting more children. A 1970 follow-up study of women in China, who were asked in the late 1960s whether they wanted more children, found that by 1974 four-fifths of those who answered yes had had a baby, compared to one-fifth of those who answered no. In Korea in the early 1970s, among women who said they wanted more children, 88 percent had had a baby five years after they were first surveyed, compared to 56 percent of those who wanted no more children.

Obviously, not all women wanting no more children use contraception, and not all women who want to limit their family size cease bearing children. Several factors may account for these discrepancies between attitudes and behavior. First, some women may not consider the costs of birth control in answering questions on family size. If the benefits of avoiding births are small relative to the costs of contraception, women who want no more children have little motivation to use contraception. Second, the surveys look only at women's attitudes to having more children. Most surveys indicate little difference in the proportions of men and women who want additional children in countries where both spouses have been interviewed. Third, growing experience with children, plus unanticipated events--a child dying, illness of husband or wife--may lead couples to alter their plans. Finally, even modern

contraceptive methods can fail, so some women will have more babies despite intending not to.

The table below compares estimates of desired and wanted family size with total fertility rates derived from World Fertility Surveys:

	Family size *		
	Desired	Wanted	TFR
Africa			
Cameroon	8.0	...	6.4
Ghana	5.7	5.5	6.2
Kenya	7.2	7.0	8.1
Lesotho	6.0	5.2	5.3
Mauritania	9.2	...	6.2
Senegal	8.8	6.8	7.2
Sudan	6.3	6.4	5.9
Middle East			
Egypt	4.1	...	5.3
Jordan	6.3	6.7	7.6
Syria	6.1	...	7.5
Latin America			
Colombia	4.3	4.5	4.3
Costa Rica	3.2	4.7	3.2
Dominican Republic	4.3	4.8	5.4
Haiti	3.4	...	5.2
Jamaica	4.0	4.3	4.7
Mexico	4.2	4.9	6.3
Panama	4.2	4.5	3.8
Paraguay	4.5	4.4	4.6
Peru	3.8	...	5.4
Trinidad and Tobago	3.8	...	3.2
Venezuela	3.6	...	4.4
Asia			
Bangladesh	4.1	...	6.0
Indonesia	4.1	4.1	4.5
Korea	3.2	3.6	4.2
Malaysia	4.4	5.0	4.6
Nepal	3.9	4.1	6.1
Pakistan	4.2	4.8	6.2
Philippines	4.4	4.8	5.1
Sri Lanka	3.8	4.1	3.7
Thailand	3.7	4.1	4.6

* Number of children.

In most countries except in Africa, "desired" family size is significantly lower than actual fertility, as measured by total fertility rates. In Asia, Latin America and the Middle East "wanted" family size is slightly higher than desired family size in all countries surveyed, but lower than actual fertility.

Box 7.4 Management information systems for improved service delivery

The arrangements for providing family planning services in many countries are plagued by lack of reliable information on which to base management decisions. Data collection requirements are imposed on overburdened staff and supervised by medical or other technical personnel untrained to make use of the information. Much time is spent collecting information that is never used.

A management information system (MIS) is any system which organizes the collection and interpretation of data needed by managers to make decisions. The rural health supervisor reviewing a worker's records to assess performance, and the health minister reviewing information on hiring and deployment of staff are both using an MIS. For a family planning program, an MIS could include information on target group size and characteristics, new and continuing acceptor rates and characteristics, numbers and types of follow-up visits, birth rates, staffing patterns, and availability of supplies. This allows managers to make decisions based on up-to-date and reliable information that is collected as a matter of routine.

Studies in two states in India, Karnataka and Uttar Pradesh, in the mid-1970s showed that fieldworkers providing health and family planning services were spending as much as 60 percent of their time on activities not directly related to delivering their services. Keeping records and attending meetings were the most common extraneous activities. A total of forty-six registers were maintained by five types of field workers, relating to a range of subjects (family planning, maternal and child health, immunization, malaria control) and with considerable overlap of the data they recorded. An assistant nurse-midwife alone maintained twenty-two records and prepared

twelve reports a month. The information was not used by supervisors and managers, nor did workers receive any systematic feedback on their performance relative to others. There was little incentive to maintain good records and to report regularly and on time.

Following a review of the system, recordkeeping and reporting was streamlined. The number of registers kept by fieldworkers was reduced from forty-six to six: a register of eligible couples and children, a maternal and child health register, a report on blood smears for malaria, a birth and death register, a stock and issue register, and a diary of daily activities. The various separate reports forwarded to program managers were replaced by a single monthly report by each fieldworker, a single report by each supervisor, and a single report from each primary health center. Family planning staff were informed immediately on how they were measuring up to predetermined targets. To encourage competition, feedback reports from the district to the primary health centers also ranked centers on the basis of ten indicators, such as the number of immunizations and the number of sterilizations as a percent of annual targets.

In three districts in the state of Andhra Pradesh where this system was introduced, the time spent on recordkeeping and reporting has been reduced considerably. An assistant nurse midwife, for example, now spends only about half an hour a day with the new system compared to two hours before. Reports are complete and are submitted on time (in other districts, reporting is about three months behind schedule) and managers are responding better to local needs. Steps to expand the system for statewide use are now being taken in Andhra Pradesh, and the Government of India is recommending that all states adopt the new MIS.

Box 7.5 Family planning fieldworkers

Outreach systems using nonphysician fieldworkers have been the key to success in effective national family planning programs--overcoming the relative inaccessibility of physicians and lowering the costs of contraceptive use by bringing services directly to beneficiaries. Experience in different countries illustrates a diversity of approaches.

o Korea: full-time paid family planning fieldworkers--nurses, midwives and nurse aides--are assigned to health centers from which they spend at least fifteen days each month making home visits and organizing group meetings to motivate and recruit eligible couples. Fieldworkers distribute condoms and pills, and refer IUD and sterilization clients to designated family planning clinics. Coverage averages one fieldworker per 2,600 married women of reproductive age nationwide. It is greater in rural areas where travel time is greater--averaging 1:1,200 couples compared to 1:6,900 in urban areas.

o Indonesia: in Java-Bali where the family planning program was first implemented, there is about one paid family planning fieldworker to every 2,000 eligible couples. The fieldworkers, who are normally secondary school graduates, recruit new acceptors, provide door-to-door supplies, and provide the managerial link between health clinics and part-time local volunteers who run village and sub-village contraceptive resupply centers. Financing constraints have precluded reliance on paid fieldworkers in recent extensions of the program into the outer islands.

o Philippines: about 3,000 outreach workers--one to every 2,000 eligible couples--work as full-time government employees. Each worker recruits, trains and supervises about sixteen community volunteers who provide information and motivation to couples, supply condoms and pills to current

users and make referrals to government health clinics. Some 50,000 volunteers serve almost three-quarters of the nation's eligible couples. The future of the outreach program is uncertain because external funding will terminate in 1985 and local governments have not been able to absorb the cost of the fieldworkers' salaries as rapidly as expected.

o Thailand: unlike the single-purpose outreach programs in Korea, Indonesia and the Philippines, the Thai national program has--until recently--been clinic-based. Now multipurpose village health volunteers in some provinces--serving one-fifth of the nation's villages--have been trained to provide family planning information and are authorized to resupply pill and condom acceptors. They also serve as referral agents for a mobile sterilization service.

o India: family planning services are delivered by paid male and female multipurpose workers. Female workers provide pre- and post-natal services to mothers and children, disseminate family planning information, distribute condoms and deliver babies. The government has recently sanctioned the distribution of oral contraceptives by female workers; workers are trained to screen clients for contra-indications and each acceptor must be examined by a doctor within three months. Male workers also provide family planning information and distribute condoms, but concentrate mainly on environmental sanitation. Between them they are expected to cover a population of 5,000 (3,000 in remote hilly and tribal areas) although in many parts of India, this coverage has not yet been achieved.

o Zimbabwe: the national Child Spacing and Family Planning Council has about 300 full time, single-purpose outreach workers who supply oral contraceptives to rural couples through regular home visits. A new project will train another 500-600 fieldworkers by 1987.

o Mexico: the national program provides outreach services through four different government agencies. The Secretariat of Health and Welfare trains multipurpose field workers who concentrate mainly on family planning. They are local volunteers who receive small incentive payments. The Social Security Instutute runs a program aimed at reaching isolated areas by training traditional midwives and other local volunteers to provide motivation and supplies in exchange for a modest payment. The Secretariat of Agrarian Reform and the National System for Integral Family Development also provide services through outreach workers.

Box 7.6 The impact of service quality: Matlab Thana, Bangladesh

Matlab Thana is an administrative division of 280,000 people in a rural area of Bangladesh. Its population density is 2,000 people per square mile. Transport is difficult--mostly by boat--and incomes are low. Fishing and farming are the main activities.

Between 1975 and 1981 the International Center for Diarrhoeal Disease Research, Bangladesh conducted two experiments in Matlab Thana to measure the impact that availability access and quality of family planning services had on contraceptive use. Before 1975 family planning services were based in a government-run center in Matlab town. A small staff provided a conventional range of contraceptives and IUD insertions but, with the exception of two brief house-to-house campaigns conducted nationally, made little attempt to reach out to the villagers. Throughout Bangladesh, unmet need for contraception clearly existed. A national survey in 1968 showed that 55 percent of rural married women wanted no more children and that 13 percent would consider using contraception, but that only 1.9 percent were currently using a method.

The Contraceptive Distribution Programme (CDP). The first of the two experiments, from 1975-1978, tested the impact of house-to-house distribution of oral contraceptives and, one year later, of condoms. Female workers were given six half-days of training on the proper use of the condom and the pill, adverse symptoms, expected side effects, and simple treatments for them. These workers were mostly elderly, widowed, and illiterate women, with almost no personal experience of contraceptives. Beginning in October 1975, they visited each household in the project area of 150 villages. During a 5-10 minute visit, women were told about the benefits of spacing and limiting

births, proper use of the pill, and possible side effects. Those who were interested were given a six-month supply of pills. For thirty months, workers were responsible for continuing to recruit acceptors, resupplying users, and advising on side effects.

The impact of the CDP was great, but shortlived. Contraceptive use in the project area jumped from 1.1 percent to 17.9 percent in three months, but declined to 11 percent after two years. During the same period, the rate of contraceptive use outside the project area increased from 2.9 to 3.8 percent. After a year, 34 percent of married women in the project area had accepted contraception, but only 42 percent of these women were continuing to use it (see Figure). Some ten to fourteen months into the program, fertility had declined by 11 percent to 17 percent, but this effect lasted only one year. The project's limited impact was attributed to poor management of side effects, inadequate training of staff, insufficient information provided to clients, the narrow range of contraceptive methods (which discouraged method switching), and too little supervision.

The Family Planning-Health Services Project (FPHSP). In October 1977 a second experiment also tested house-to-house distribution of contraception, but with much better quality of services. Female village workers were recruited locally and received seven weeks of pre-service training and weekly in-service training sessions. They were literate, married with children, had contraceptive experience, and came from respected families. Eighty workers--one per 1,000 people--received technical supervision and medical backup from four clinics staffed by qualified women paramedics, and administrative supervision from a male senior health assistant.

The FPHSP provided comprehensive services aimed at the special needs of each current and prospective client. The methods offered included not only

pills and condoms, but foam tablets and injectables. In addition, women were referred to centers where tubectomy, vasectomy, IUD insertion, and menstrual regulation could be performed. All households were visited once a fortnight, regardless of whether they were contracepting. Side effects were managed through reassurance, frequent method-switching, and medical referral for treatment. Workers also offered people aspirin, vitamins, and iron tablets, which helped them to gain access to households that had previously rejected family planning.

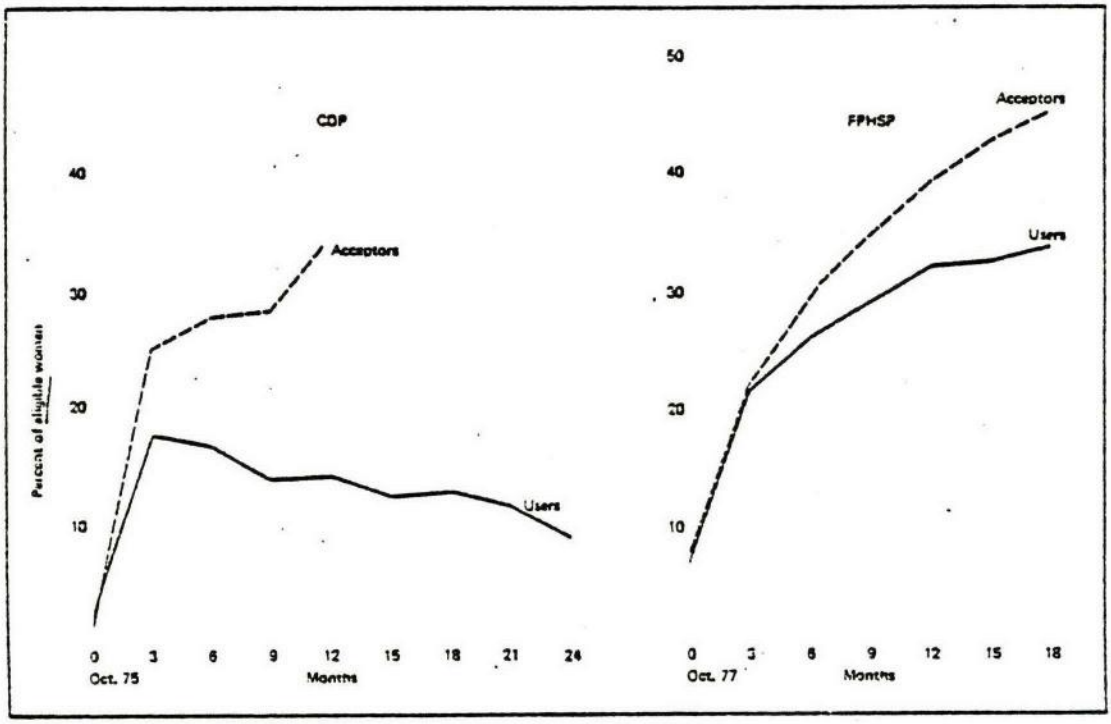
In the first three months, contraceptive use in the project area rose from 7 percent to 21 percent. Unlike in the CDP, however, the rate continued to climb slowly to 34 percent. Continuation rates were dramatically improved: after a year, 39 percent of eligible women in the FPHSP had accepted and 81 percent of these women were continuing to use contraception (see figure). During the first two project years, fertility declined 22-25 percent compared with villages outside the project area. With the addition of a few other health services--tetanus toxoid and oral rehydration salts--as well as home insertion of the IUD, contraceptive use had reached 41 percent in December 1983, almost exclusively by modern methods. The injectable, Depo-provera, accounts for almost half of contraceptive use. In the rest of the country in 1981 the use rate of modern methods was only 11 percent.

Replicability. The FPHSP has been highly effective in increasing contraceptive use in field conditions typical of rural Bangladesh. But it may be hard to replicate on a larger scale because the FPHSP was able to draw on extra resources unavailable to the national family planning program. For example, although fieldworkers in the project receive salaries equivalent to workers in the national program, their supervisors' salaries are much higher. The project also used costly speedboats for moving supervisors and

research staff around the area. And management was decentralized to an extent rarely found in national programs. The managerial and organizational structure that guaranteed close, supportive supervision, worker accountability, continuous training, good recordkeeping, and continuous feedback to workers should take much of the credit for the project's success.

The Government of Bangladesh and the International Center are now embarking on an extension project to transfer some of the management techniques of the Matlab project to government health and family planning workers in several thanas in North Bengal and to measure the impact of these changes on fertility, mortality, and contraceptive use. The project will make minimal changes in the existing program structure and there will be no special inputs other than for training, organization-building, and research.

Comparison of the cumulative contraceptive acceptance and user rates in the first 18–24 months, for the simple household Contraceptive Distribution Project (CDP) and the Family Planning–Health Services Project (FPHSP)

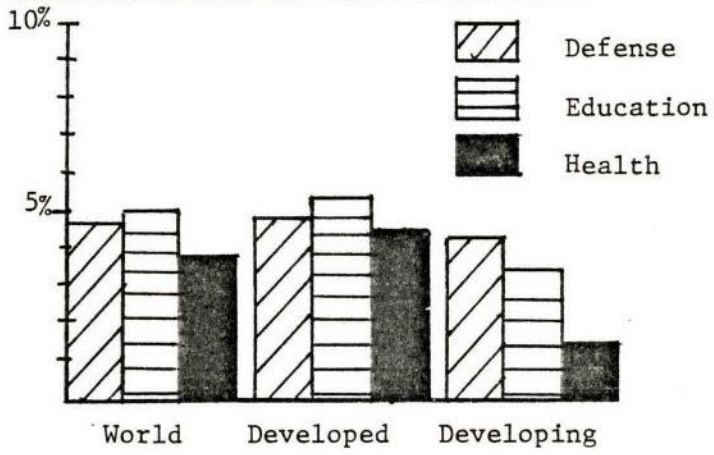


(Source: Bhatia et al 1980)

Box 7.7 Military versus social expenditure

Military spending is not easy to measure. What estimates there are indicate that global military expenditure in constant 1982 dollars has risen from $300 billion to more than $600 billion in the last twenty years. The amount spent in the developing world quadrupled from $30 billion to more than $138 billion. In 1981, developed countries spent more than 4.9 percent of GNP on defense, and about 0.3 percent of GNP on aid to developing countries. In 1980 the United States spent 5.6 percent of its GNP on defense, almost $170 billion, and 0.28 percent ($8.2 billion) on aid. In developing countries, almost as much is spent on defense as on education and health combined (see figure).

Expenditures on defense, education and health as a percentage of GNP, 1980

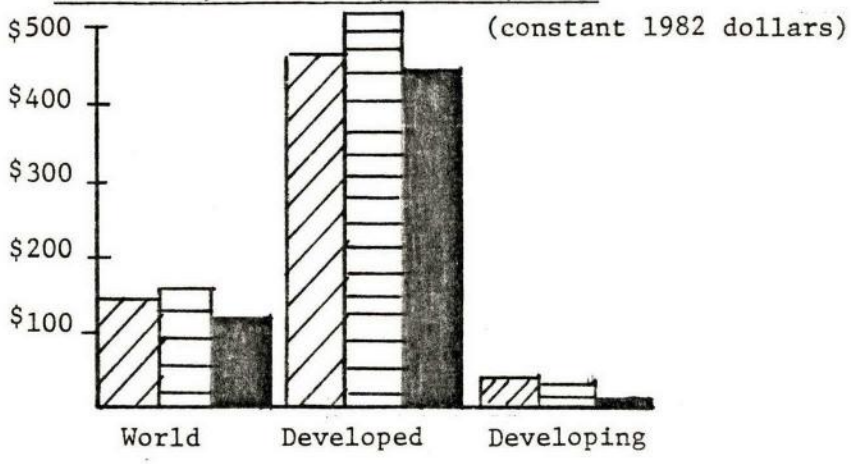


Military expenditures, 1960-81
(billions of dollars, 1982 prices)

	1960	1981
World	302	631
Developed	272	493
Developing	30	138

Source: Sivard, 1983.

Average government per capita expenditure on health, education, health, 1980



Source: Sivard, 1983, except per capita health expenditures: World Bank estimates.

Table 7.1 Percent of currently married women age 15-49 using contraception,[a] recent survey-based estimates by region and for selected countries [b/]

Country	Total	Urban	Rural
Sub-Saharan Africa	(5)*		
Ivory Coast (1980-81)	3	4	2
Kenya (1977-78) c/	7	12	6
Middle East and North Africa	(23)		
Egypt (1980)	27	40	12
Syria (1978)	20	34	5
East Asia	(52)		
Philippines (1978)	39	47	31
Thailand (1981)	57	64	55
Latin America and Caribbean	(41)		
Colombia (1980)	49	54	37
Mexico (1979)	40	51	27
South Asia	(25)		
Bangladesh (1981)	19	29	18
Sri Lanka (1982) d/	55	57	54

* Unweighted average for all countries in region with recent surveys. Percent of developing countries with populations over 1 million represented in each region: Africa (18 percent); Middle East and North Africa (22 percent); East Asia (40 percent); South Asia (67 percent); Latin America and the Caribbean (68 percent).

a. Contraception includes: oral contraceptives, male and female sterilization, IUD, condom, injectibles, spermicides, diaphragm, rhythm, and withdrawal. Douche and abstinence may or may not be included.
b. Countries selected to demonstrate the range of prevalence within each region.
c. Age 15-50.
d. Age 15-44.

Source: PDS, Table 2

Table 7.2 Percentage of women using contraception a/ among women who want no more children, selected countries, by wife's education b/ and region

Country	Program effort score (calculated for survey year) c/	Urban		Rural	
		No education	High education	No education	High education
Strong					
Korea, 1979	81	58	62	61	63
Colombia, 1980	65	35	69	30	52
Moderate					
Malaysia, 1974	58	37	--	27	49
Thailand, 1981	57	72	83	53	58
Philippines, 1978	53	22	45	15	38
Tunisia, 1979	53	50	60	45	n/a
Bangladesh, 1979	44	21	55	16	37
Mexico, 1978	40	40	71	17	53
Weak					
Nepal, 1981	37	40	71	15	45
Egypt, 1980	36	53	72	24	70
Ecuador, 1979	35	17	60	6	58
Pakistan, 1975	31	17	35	6	17
Venezuela, 1976	26	53	67	18	54
Kenya, 1977/78	25	13	44	12	32
Honduras, 1981	22	53	58	15	49
Ghana, 1979/80	16	11	30	8	25

a. Pills, IUD, injections, diaphragm, condoms.
b. High education defined as seven years or more of schooling.
c. Program effort interpolated from 1972 and 1982 scores to year shown, for which survey data are available on contraceptive use.

Sources: Fertility data from CPS and WFS surveys; see Population Data Supplement, Table __ for original sources.

n/a not available.

Table 7.3 Discontinuation of contraception, recent surveys

Country	Percent of MWRA who have: (1) Used contraception but are not current users ("discontinuers")	(2) Discontinued use, exposed to the risk of pregnancy, and want no more children	Percent of discontinuers who are exposed and want no more children (2 divided by 1)	Discontinuers who are exposed and want no more children (2), as a percentage of current use[a]
Africa				
Cameroon (1978)	6	(.)	1	2
Ghana (1979/80)	30	2	7	23
Kenya (1977/78)	25	2	7	24
Lesotho (1977)	18	2	10	33
Sudan (1979)	8	1	8	15
Middle East and North Africa				
Egypt (1980)	17	4	25	18
Jordan (1976)	22	3	12	10
Syria (1978)	14	1	9	6
Tunisia (1978)	15	3	18	9
South Asia				
Bangladesh (1979)	9	3	30	21
Nepal (1981)	2	(.)	8	2
Pakistan (1975)	5	2	43	42
Sri Lanka (1975)	14	4	29	12
East Asia				
Indonesia (1976)	12	2	16	7
Korea (1979)	24	8	33	16
Philippines (1978)	23	4	19	12
Thailand (1981)	21	5	26	9
Latin America and Caribbean				
Barbados (1981)	28	10	36	21
Colombia (1980)	20	4	22	9
Costa Rica (1980)	23	3	14	5
Dominican Republic (1975)	18	3	17	8
Ecuador (1979)	20	4	20	12
Guyana (1975)	22	8	34	22
Haiti (1977)	17	3	15	14
Honduras (1981)	15	2	10	6
Jamaica (1975/76)	26	9	36	24
Mexico (1978)	15	3	20	8
Panama (1976)	21	4	17	7
Peru (1981)	20	3	14	7
Paraguay (1979)	21	3	12	7
Trinidad & Tobago (1977)	27	8	28	14
Venezuela (1977)	20	4	19	8

a. Not pregnant or infecund.

Source: Contraceptive Prevalence Survey data tapes for Bangladesh, Nepal, Korea, Thailand, Barbados, Colombia, Costa Rica, Honduras, Mexico, Peru. All other countries, World Fertility Survey data tapes.

Table 7.4 Public expenditures on population programs, selected countries, 1980

	Total public expenditures (million US$)	Per capita public expenditures (US$)	Expenditures per current contraceptive user (US$)
Sub-Saharan Africa			
Burundi	0.7	0.17	a
Ghana	2.8	0.24	16
Guinea	0.5	0.09	a
Kenya	11.8	0.71	68
Liberia	2.3	1.22	a
Mauritius	1.7	1.81	24
Sierra Leone	1.5	0.44	a
Swaziland	1.8	2.89	a
Tanzania	3.3	0.18	a
Zaire	1.8	0.06	a
Zimbabwe	1.8	0.25	13
Middle East and North Africa			
Egypt	34.1	0.81	22
Iran	50.6	1.30	38
Jordan	2.5	0.78	21
Morocco	13.3	0.66	a
Tunisia	8.3	1.31	32
South Asia			
Bangladesh	45.1	0.51	26
India	226.9	0.34	10
Nepal	10.6	0.72	69
Pakistan	24.5	0.30	33
Sri Lanka	6.2	0.42	7
East and Southeast Asia			
China	979.6	1.00	10
Hong Kong	2.0	0.40	3
Indonesia	86.2	0.59	11
Korea, Rep. of	27.1	0.71	9
Malaysia	16.4	1.18	19
Philippines	37.6	0.78	11
Singapore	1.8	0.74	7
Thailand	28.1	0.60	7
Latin America and the Caribbean			
Bolivia	0.1	0.03	a
Brazil	10.6	0.09	a
Colombia	8.1	0.31	4
Costa Rica	3.3	1.45	15
Dominican Rep.	3.8	0.70	11
Ecuador	6.3	0.75	15
El Salvador	8.1	1.77	35
Guatemala	9.3	1.28	47
Haiti	3.9	0.77	27
Honduras	3.0	0.81	20
Jamaica	4.8	2.19	27
Mexico	61.3	0.88	15
Panama	4.4	2.42	26
Paraguay	2.1	0.69	13
Peru	5.3	0.32	5

a = Contraceptive prevalence rate unavailable or close to zero.

Table 7.5 Sources of family planning services

Country	Percent of currently married contraceptive users age 15-44 obtaining services from:			
	Government programs	Other publicly funded/ subsidized programs	Private Sector	No source/ other
Korea (1979)	36	0	42	22
Thailand (1978)	37	35	18	10
Brazil				
Piaui (1979)	59	0	23	18
Sao Paulo (1978)	16	0	63	21
Colombia (1978)	21	27	33	19
Costa Rica (1978)	57	0	28	15
El Salvador (1978)	73	8	12	6
Guatemala (1978)	44	11	26	18
Jamaica (1979)	63	27	7	3
Mexico (1978)	42	2	36	20
Panama (1979-80)	71	0	19	10
Paraguay (1977)	41	8	28	22
Tunisia				
Jendouba (1979)	91	0	5	4

a. No source for rhythm or withdrawal; other may include from a friend or in a foreign country.

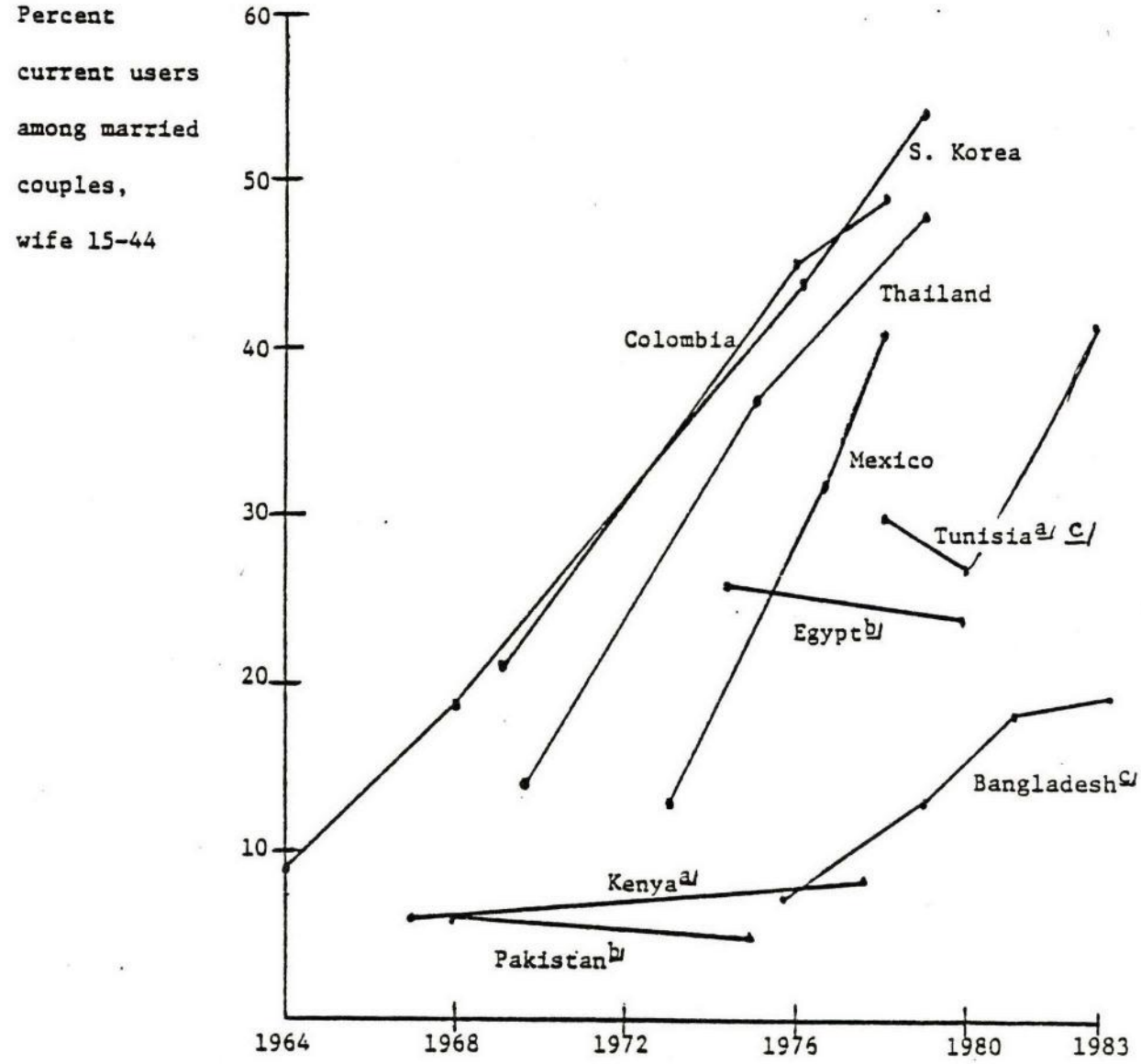
Source: CPS data; Morris et al. 1981, Table 15.

Table 7.6 Fertility targets and population program expenditure estimates and requirements, 1980 and 2000, by region (constant 1980 dollars)

Region and year	Fertility targets		Expenditures	
	Total fertility rate	Contraceptive prevalence	Per capita	Total (millions)
All developing countries and territories				
1980 estimates	4.36	39.0	0.63	2,055
1980 with unmet need filled	3.56	52.2	0.93	3,040
2000, standard decline	3.30	56.7	1.13	5,525
2000, rapid decline	2.32	71.9	1.72	7,895
Sub-Saharan Africa				
1980 estimates	6.59	9.9	0.39	155
1980 with unmet need filled	6.05	18.1	0.94	365
2000, standard decline	5.81	22.5	1.16	860
2000, rapid decline	2.69	69.2	4.07	2,575
Middle East and North Africa				
1980 estimates	5.78	22.9	0.62	140
1980 with unmet need filled	5.08	33.6	0.99	230
2000, standard decline	3.79	53.4	1.73	690
2000, rapid decline	2.43	73.1	2.52	905
South Asia				
1980 estimates	5.19	20.4	0.36	315
1980 with unmet need filled	4.14	38.5	0.77	680
2000, standard decline	3.41	51.5	1.10	1,495
2000, rapid decline	2.40	68.5	1.50	1,830
East and Southeast Asia				
1980 estimates	3.02	60.8	0.87	1,235
1980 with unmet need filled	2.28	73.1	1.05	1,495
2000, standard decline	2.28	72.8	1.05	1,955
2000, rapid decline	2.16	74.4	1.08	2,030
Latin America and the Caribbean				
1980 estimates	4.28	39.9	0.59	210
1980 with unmet need filled	3.56	51.6	0.77	275
2000, standard decline	2.80	64.0	0.97	525
2000, rapid decline	2.17	73.7	1.10	555

Note: The fertility targets and per capita expenditure figures are all population-weighted means.

Figure 7.1 Trends in contraceptive prevalence, 1964-80, selected countries
(Survey-based estimates)



Sources: Mauldin, "Population Programs and Fertility Regulation", NAS, Report No. 15b; except Tunisia, Kenya, Pakistan and Egypt: UN 1983 Monitoring Report, Table 2.27.

a/ wife 15-49, ever-married.
b/ wife 15-49.
c/ the figure for 1983 is an estimate.

Figure 7.2 Unmet need for contraception
[Figure in preparation]

	Percent of married women of reproductive age	Low estimate of unmet need	High estimate of unmet need
Unmet need for limiting and spacing			
Bangladesh (1979)		32.6	41.3
Korea (1979)		16.1	26.2
Peru (1981)		16.3	46.2
Unmet need for limiting			
Egypt (1980)		12.3	22.4
Kenya (1977/78)		5.9	9.9
Philippines (1978)		11.1	29.0

Chapter 8 The policy agenda

8.1 "Population policy" is the province of government. By choosing how much money and political authority to invest in a policy, a government will determine its effectiveness. Inaction is itself a choice which has implications for future policy and the room for maneuver that a government will later have. Actions culturally and politically acceptable in one country might be rejected in others. But there are no religious or cultural characteristics which prevent effective action. In every part of the developing world during the past decade, some governments have made significant progress in developing a population policy.

8.2 Choosing from the policy options is a matter for local decision. However, outsiders can help to identify what those options are and how they can be most effective. Foreign aid for population programs can help developing countries meet their policy objectives and increase the impact of aid in other parts of the economy. This chapter examines the elements of an effective population policy, the main policy issues in each region of the developing world, and how aid donors can complement their efforts.

Population policy

8.3 Population policy needs to be distinguished from public support for family planning services. Family planning support has wider social goals than fertility reduction, but more limited population goals than overall population policy. Family planning programs provide information and services to help people achieve their own fertility objectives. By contrast, population policy

involves explicit demographic goals. It employs a wide range of policies, direct and indirect, to change the signals that otherwise induce high fertility. Effective policy requires action by many ministries, and thus an interministerial approach to setting policy and monitoring its results. And it requires clear direction and support from the most senior levels of government.

8.4 Family planning programs and other socioeconomic policies which can have an effect on fertility are often pursued independently by governments to achieve development objectives. What distinguishes countries with a population policy from those without is an explicit demographic objective and the institutional mechanisms to translate that objective into effective policy.

Policy steps

8.5 Table 8.1 summarizes the current state of population policy in the largest developing countries (those with 15 million people or more). Moving across the table from left to right, each policy step tends to build on the one preceding it. In the table, a cross shows which of the countries have already taken a particular policy step. Countries are listed in order of their 1982 family planning program "effort" score, explained in Chapter 6.

8.6 Developing a population policy takes time. Some countries are ranked low in the table because their commitment to reduce population growth is recent, while most of those near the top--like China, India, Korea and Sri Lanka--have had longstanding policies. But there are important exceptions. Countries like Colombia, Indonesia, and Mexico have developed a strong program effort in a short period. Others--Egypt, Kenya, Morocco, and Pakistan--have stayed roughly where they are in the table for more than a decade. Progress can also be reversed. In five countries not shown in the table--Chile, Costa

Rica, Fiji, Jamaica, and Panama--scores have declined by as much as half in the past decade. In some countries population policy aims to increase population growth--such as in Bolivia, Burma, Chile, Guinea, Ivory Coast, Kampuchea, and several eastern European countries (see Box 8.1).

8.7 The development of population policies takes the following sequence:

8.8 Data collection and analysis. Reliable data on population size, fertility, and mortality document the existence of rapid growth and allow projections of its consequences. This information is critical to generating and sustaining the political commitment of leaders to slower growth. Demographic data are also vital inputs for economic planning, policy formulation, and evaluation. The minimum requirements are published and analyzed census data less than ten years old and other national sample surveys documenting current fertility, mortality, and contraceptive use at more frequent intervals (item A in Table 8.1). The lack of reliable demographic data has hampered the growth of political support for population policies in sub-Saharan Africa. Data collection and analysis is a continuous process, necessary to monitor trends and the effect of policies over time.

8.9 Political commitment. Support for slowing population growth is reflected in public statements by the head of state and other national leaders, and in written statements of national priorities, such as a national development plan (item B). These statements can range from a general commitment to reducing population growth to specific demographic targets (see Box 8.2). Because population policy usually involves the cooperation of numerous sectors and ministries, each with their own agenda, high-level political commitment must be visible and sustained. It must also be transferred throughout the political and administrative hierarchy, down to those who are in immediate touch with people.

8.10 Institutions. The role of institutions is to translate political commitment into effective policy. The experience of countries in Table 8.1 suggests the need to institutionalize two important functions:

o Relating demographic targets to the policies and resources necessary to achieve them. This is fundamentally a planning function. It requires careful consideration of the links between demographic variables and policy alternatives, so as to integrate population policy and economic planning (item C). It is usually the responsibility of a specialized unit within a planning ministry, such as the Manpower Board of the Ministry of Finance and Plan in Ghana, and the Population Planning Section within the Planning Commission in Bangladesh.

o Coordinating and evaluating the implementation of population policy. This may require few new institutional arrangements if the scope of population policy is limited to, say, wider provision of family planning. In this case, the policy-coordinating body may be the one that also coordinates multisectoral family planning activities. But as population policy becomes more complex, it is likely to require the joint efforts of other ministries: education (for population education and female literacy); information (to popularize small families); justice (age at marriage, incentives and disincentives); women's affairs, rural development, and cooperatives (integrated population and development projects). As an example, very few countries now give much priority to raising age at marriage as part of demographic policy--more likely because the institutional framework to do so is poor than because the costs of implementing such a policy are high.

8.11 As the task of coordination becomes more complicated, so the responsible body requires an independent base in the government (item D), separate from the delivery system for family planning. The institutional arrangements vary:

a unit within an existing ministry of health or plan but with representatives from many ministries ( ); an extraministerial committee ( ); or a separate ministry devoted entirely to multisectoral population policies (Indonesia). There is no consensus on what works best; sustained political commitment may matter more to the outcome than organizational structure.

8.12 Family planning. In many countries--such as Brazil, Nigeria, Sudan, and Tanzania--subsidized family planning is provided as a basic health measure for mothers and children before the political commitment develops to reduce population growth. But once the objective of reduced population growth has been established, support for family planning services intensifies. As noted in Chapter 7, family planning policies tend to evolve in similar ways. Government programs are often preceded by private family planning organizations which eventually receive government financial support (item E). As political commitment increases, government assumes a bigger role, providing publicly subsidized services (F), family planning outreach (G), education and motivational activities (H), and social marketing schemes (I).

8.13 Policy steps E-I are the minimum necessary to help couples have the number of children they want. Virtually all countries in the table could reduce their fertility by increasing the availability and quality of family planning services. Countries with moderate and weak scores for program effort have yet to generate any outreach services; many with stronger programs, including outreach, fail to cover the entire population. Social marketing is not widely used, even among countries with relatively strong program effort. About 65 million couples in developing countries do not have effective access to the family planning services they need.

8.14 Incentives and disincentives. By ensuring that people have only as many children as they want, governments can slow population growth. However, this

might not be enough to bring privately and socially desired fertility into balance. If a private-social gap still exists, it cannot be reduced simply by providing more family planning. Economic and social policies are critical to reduce this gap in the long run. They may take some time to have an impact on fertility, however. Items J to L are policies that close the gap more quickly: eliminating all implicit subsidies for large families (item J), offering financial or other incentives for small families (item K), and imposing disincentives for large families (item L). A large number of countries have disincentives built into their tax system and their benefits system for public employees, but these are generally mild and affect only a small part of the population (Chapter 6). Only a handful of countries, even among those with the strongest programs, have taken steps beyond this.

8.15 Birth quotas. China is the only country to have implemented a system of assigning to communities (sometimes employees of a particular factory) a quota of births to be permitted each year. Individual couples within communities are then given permission to have a birth, with priority to couples who have followed the recommendations for marrying only after a certain age, and who are older and childless. The system of quotas, and the accompanying pressure to have an abortion when a woman becomes pregnant without permission, are an additional policy "step" over and above the extensive system of incentives and disincentives. Most other countries, where state control is much more limited, could not administer such a system, and most would presumably not wish to.

Policy and ethics

8.16 Birth control is not just a technical and demographic issue; it has a moral and a cultural dimension. Becoming a parent is both a deeply personal event and--in virtually all societies--central to community life as well.

Procreation is held by many to be a right which is personal and fundamental, superior to any 'good' which might be bought and sold, and subject to challenge only by some other right. Once a government is actively involved in reducing fertility, the methods it uses require careful and continuous scrutiny. There is a distinction between encouraging lower fertility (by changing the "signals" which influence people), and coercion. The trade-off between current and future welfare, insofar as it exists, will differ in different settings.

8.17 In fact, virtually all the programs that signal lower fertility also improve individual welfare. Programs to raise education and reduce mortality pose no moral dilemma. Family planning expands the options available to people, allowing couples to realize their own fertility objectives and improving the health of mothers and children. In many countries, current fertility exceeds desired family size; within every country, there is "unmet need" for family planning (Chapter 7). Incentives and disincentives, carefully designed, can also meet the criteria of improving welfare and allowing free choice. Incentives compensate individuals for the economic and social losses of delaying births or having fewer children. Those who accept payment for not having children do so because they find this tradeoff worthwhile; they are compensated for some of the public savings from lower fertility. Similarly with disincentives: those who elect to pay the higher costs of additional children compensate society as a whole for the private benefits of an additional child.

8.18 But incentive and disincentive programs require additional care to avoid unfairness and abuse, in the way they are implemented as well as in their design. Some incentives are bound to go to people who would have deferred pregnancy or limited births anyway; public subsidies may therefore benefit the

rich unnecessarily. When payments are offered for sterilization--which is usually irreversible--care must be taken that they are not tempting poor people to act out of short-term economic necessity against their own long-term interests. Such payments are usually quite small, as they are meant primarily to compensate for time and travel costs. Governments that offer them have generally established procedures that make written consent mandatory, and criteria that potential clients must fulfill (such as having several children already). A waiting period between the decision, the sterilization, and the payment can also be a safeguard--though in inaccessible rural areas that may be difficult to apply, as volunteers may find it hard to make even one trip to a clinic. Deferred incentives, as in the case of educational bonds or an old age security payment, build in such a safeguard.

8.19 Incentives that offer schools, low-interest loans, or a tubewell to communities for using contraceptives also directly link lower fertility to increased welfare. To the extent that all members can benefit from community incentives, individual welfare is improved. There is the danger that, in closely knit communities, some couples will be pressured to use contraception against their will. But community pressure always exists, usually influencing couples to have many children even when they would prefer not to. In Indonesia and Thailand, community incentives are only loosely tied to actual use of contraception and are thus primarily promotional. Care must be taken that the benefits of community incentives are distributed equitably, however.

8.20 Like incentives and various socioeconomic programs, disincentives alter the balance of costs and benefits from having children. Rather than raise the benefits of having fewer children, however, they increase the cost of having many. They are therefore in danger of unfairly penalizing the poor. The rich will find it easier to accept the additional costs of more children, yet the

poor may have greater need of children. And children, who have no choice in the matter, bear the costs of disincentives that give preference in schooling to the first born and which heavily tax family income. It is essential to design disincentives so that they avoid inequality; with care, however, they need be no more objectionable than any other taxes or subsidies.

8.21 Even policies that are theoretically voluntary and welfare-enhancing can be implemented in a coercive fashion if not properly monitored. Many countries set performance targets for family planning workers in recruiting new acceptors. While some criteria for evaluating workers' performance are clearly necessary, excessive pressure to achieve unrealistic targets threatens the voluntaristic nature of programs. This is the lesson of the Indian Emergency of 1976-77, when workers were subject to extreme pressure to achieve high sterilization quotas and many people were pressured to be sterilized against their will.

8.22 The ultimate goal of public policy is to improve living standards, to enhance individual choice, and to create conditions that enable people to realize their potential. Lower fertility is only an intermediate objective; a commitment to achieve lower fertility must not mean a willingness to achieve it at any cost. The successful experience of many countries already indicates that it need not.

Policy issues in developing countries

8.23 The differences between developing countries, both in their demographic situation and in the evolution of their population policies, are profound. In sub-Saharan Africa, few countries have yet to take the first steps in developing a population policy. At the other extreme, in East Asia family

planning services are accessible, political commitment is high, and governments offer incentives for couples to have small families. In all regions there is scope for reducing mortality, increasing literacy, and improving the availability of family planning services. But in taking the next steps in population policy, each region faces a different set of issues.

Sub-Saharan Africa: increasing public commitment

8.24 Sub-Saharan Africa has the fastest population growth rate and the highest fertility in the world. Between 1970 and 1979, population increased at 2.7 percent a year, up from 2.5 percent a year during the 1960s. In a few East African countries population is growing at 4 percent or more a year. Of the thirty-three sub-Saharan countries with over 1 million people, thirty-one have a total fertility rate of 5.9 or more. Kenya, Rwanda, and Zimbabwe had fertility rates of eight or more in 1981. Fewer than 5 percent of married women of reproductive age are using modern contraception. Sub-Saharan Africa is the only region where fertility has not begun to fall, and where population growth is expected to accelerate in the next decade.

8.25 Africa is also the poorest region, with a per capita income averaging only $411 in 1979--or $329 excluding Nigeria. During the 1970s per capita income grew in real terms by just 0.8 percent a year; if Nigeria is excluded, it declined. The region's gross domestic product stagnated in 1981 and 1982, while population rose 2.7 percent in each year. Fertility in most countries is higher than income alone would predict (see Figure 8.1). But when Africa's high mortality, low literacy, and largely rural population are taken into account, fertility is not unusually high. Only a quarter of adults are literate in low-income sub-Saharan countries, compared with half of adults in all low-income countries (see Table 8.2). Life expectancy at birth is forty-seven years, ten years less than in other countries at the same income levels.

8.26 The poor economic performance of sub-Saharan Africa cannot be blamed just on rapid population growth, nor will slower population growth solve all its economic problems. External economic shocks as well as inappropriate domestic policies have contributed to the region's economic crisis. But rapid population growth is creating severe strains in some countries and, throughout the region, it is holding back improvements in living standards.

8.27 The strains are acute in a few countries and areas that are already overcrowded--Burundi, Kenya, Malawi, eastern Nigeria, Rwanda, and parts of the Sahelian countries (see Box 8.3). These and other countries, like Ethiopia and Upper Volta, have neither the physical capital nor the skills to compensate for a shortage of natural resources. A few countries--such as Angola, Ivory Coast, Nigeria, Zaire, and Zambia--are rich in natural resources, but need extra skills, plus heavy investment in roads and storage and distribution systems to realize their potential.

8.28 In all sub-Saharan countries, governments are having to cope with a rapidly-growing workforce. As their revenues are shrinking as a result of slow or no economic growth, they have also had to struggle to provide basic services such as schooling, which in 1978 was taking 16 percent of national budgets, but reached less than two-thirds of primary school age children. Only a tiny fraction of the people can obtain modern medical care. Human development in all its forms is essential to future economic progress but, as Chapter 5 showed, population growth makes it hard to achieve. These difficulties will remain, because Africa's current population of 440 million seems set to double by the year 2005. That much is almost inevitable. Choice arises over whether populations will merely triple in size in the next half-century or increase even more rapidly, to five or six times their current size.

8.29 Few sub-Saharan countries have explicit policies to reduce rapid population growth. Kenya was the first to adopt such policies in 1967; Ghana followed in 1969 and Mauritius in the early 1970s. There are recent indications of heightened concern about rapid population growth in Burundi, Rwanda, Malawi, the Comoros, Senegal, and Zimbabwe. About half the governments in sub-Saharan Africa provide family planning services for health and human rights reasons, but without any demographic purpose. Limited services are provided through an already overstretched public health system, with poor coverage of rural areas, and by a few private associations. Eleven sub-Saharan countries neither have population policies nor support family planning. Most are in Francophone Africa--the Central African Republic, Chad, Gabon, Guinea, Ivory Coast, Madagascar, Mauritania, Niger, and Upper Volta--where anticontraception laws from the colonial period are still in effect. These countries have no tradition of private family planning associations, which are elsewhere active in lobbying governments for public involvement.

8.30 What explains the limited development of population policy in sub-Saharan Africa? Population control is a sensitive political issue wherever religious and tribal groups are competing for resources. And much of the pressure for smaller families has come from (or is perceived as coming from) western aid donors, causing local resentment.

8.31 Even if these factors were less important, politicians would still be hesitant to propose smaller families when the demand for children is extremely high. Recent surveys in six countries found that women want between six and nine children in their completed families. Depending on the country, only 4-17 percent of women wanted no more children, and most of them had already had at least six. In much of the region the concept of self-determined family size is unknown. Modern contraception is poorly understood and lacks social

legitimacy. In this atmosphere couples who wish to use family planning services are discouraged from doing so. And, compared with other regions, infertility affects a disproportionate number of Africans, tragically depriving some women of any children (see Box 8.4). The threat of infertility also discourages women from controlling their childbearing through modern contraception.

8.32 Policy development and political commitment are constrained throughout the region by a lack of recent and reliable demographic data. Especially in countries which appear to have open spaces--although often only marginally productive--it is difficult to demonstrate the magnitude and consequences of rapid population growth without recent, reliable demographic data. Many African countries, particularly in Francophone Africa, do not have a long history of census-taking. In some countries where censuses have been conducted, the results have never been published because of political controversy. As a result, the size as well as growth rates for countries such as Ethiopia, Nigeria, Zaire, and Guinea are not known within a reasonable degree of certainty.

8.33 Census results are critical in demonstrating to political leaders the need for population policy. The results of the 1976 Senegalese census implied a population growth rate of 2.9 percent a year, much higher than the 2.2 percent annual rate in the 1960s. This prompted the president to create the National Population Commission in 1978 to consider a population policy and family planning services. The 1960 census was a catalyzing factor for population policy in Ghana. The World Fertility Survey, conducted in Benin, Cameroon, Ghana, the Ivory Coast, Kenya, Lesotho, Mauritania, Nigeria, Senegal, and Sudan has made an important contribution to improving demographic data in the region, but these periodic sample surveys have generally not been institutionalized.

8.34 In the long run, social development--especially the education of women--is critical for reducing desired family size. More and better schooling for women will also lower infant mortality, reducing the uncertainty about child survival which keeps family size high. An all-out attack on infant and child mortality and infertility is imperative; as long as fate seems to govern family size, pronatalist norms will be reinforced and individual choice discouraged.

8.35 In the short run, family planning services could do more on two fronts, even in the face of relatively little unsatisfied demand for birth control:

o Childspacing. Extended breastfeeding and sexual abstinence have long been practiced in Africa to guarantee two to three years between each child. The aim is not to regulate fertility, but to protect the health of children and maximize the number who survive. Throughout Africa, there is potential demand for contraception for childspacing in both urban and rural areas. But spacing practices appear to be declining most rapidly in urban areas--which is also where desired family size may fall first. In Senegal, for example, both breastfeeding and amenorrhea are six months shorter in the capital city of Dakar than in rural areas. In Lagos, Nigeria, traditional childspacing practices are in decline and intervals between births are shortening. Unless contraception becomes a more readily available substitute, total fertility may increase and the health of mothers and children may worsen.

8.36 Programs in Rwanda, Tanzania, and Zaire have recently been set up to promote contraception for childspacing. In Zimbabwe, the private Child Spacing and Fertility Association provides 40 percent of national childspacing services, as well as in-service training for Ministry of Health personnel, contraceptive supply procurement, and service statistics. Among women of childbearing age, contraceptive use is estimated at 15 percent. Already

heavily subsidized by government, the Association seems likely soon to become an independent parastatal and will intensify its activities through funding by USAID: a doubling of field staff, recruitment of a full-time information and education staff, and expanded research capability.

8.37 The emphasis on spacing means that programs throughout Africa must offer effective, reversible methods of contraception. Since most people will never have tried modern contraception before, careful explanation, reassurance, and treatment of side effects will be critical. Such programs also provide an opportunity to encourage breastfeeding, which is still almost universal in Africa but eroding in urban areas.

o Adolescents. In many countries--and not just in Africa--there has been a sharp rise in premarital adolescent pregnancy, abortion, and sexually transmitted disease (see Box 8.5). Family planning services and advice can avert these unwanted births, abortions, and health risks. In Ghana education for family life is now part of the school curriculum. Eight other sub-Saharan countries are considering including this step. Governments also need to pay special attention to reaching young people outside of the school system.

Middle East and North Africa: rural outreach and expanding women's opportunities

8.38 This region contains great diversity, ranging from one of the world's poorest countries (Afghanistan) to the four wealthiest (Kuwait, Libya, Saudi Arabia, and the United Arab Emirates). However, 90 percent of its 250 million people live in thirteen middle-income countries. All its countries share a common cultural heritage and are predominantly Islamic. After sub-Saharan Africa, countries in the Middle East and North Africa have the highest rates of population growth and fertility. Between 1970 and 1982 their population grew at an average 3 percent a year; the total fertility rate in 1982 was 5.7. Migration is common, both into and out of the region and between countries within it.

8.39 In most countries fertility is higher than would be expected given per capita income (see Figure 8.2). Four high-income oil exporters, with per capita incomes of $13,450, had a fertility rate of 7.1 in 1981. In the past decade incomes in Jordan, Syria, and Algeria have risen strongly but total fertility has remained at more than 7. Income growth in these countries is recent and social development naturally takes even longer to affect fertility. Low literacy (particularly among women) and high infant mortality help to explain high fertility. Also responsible are cultural, religious, and legal pressures that confine women to the home and restrict their property rights, rights within marriage, and ability to seek work outside the home.

8.40 Three countries in Figure 8.2--Egypt, Tunisia, and Turkey--have had a marked fall in fertility in the past decade; in all three, fertility is now below what would be expected for their income levels. In Morocco, fertility has experienced a more modest decline. Unlike most other countries in the region, all four have policies to reduce population growth. Government family planning programs began in 1964 in Tunisia, 1965 in Egypt and Turkey, and 1966 in Morocco. According to recent surveys, 19 percent of married women of childbearing age in Morocco, 25 percent in Egypt, and 40 percent in Tunisia and Turkey are using contraception. Later marriage has also contributed to fertility decline. The change has been most dramatic in Tunisia, where the proportion of women aged fifteen to nineteen who are married fell from 42 percent in 1956 to 6 percent in 1975. In Egypt the proportion fell from 32 percent in 1960-61 to 21 percent fifteen years later; in Turkey, the decline was from 33 percent to 22 percent.

8.41 Despite these achievements, population growth remains rapid and acceptance of family planning slow. Total fertility, although reduced, is still 4-5 in Egypt, Tunisia, and Turkey, and about 7 in Morocco. In Egypt and Tunisia, an

increase in the proportion of women of childbearing age has kept the birth rate high. Mortality has declined, and the rate of population growth has changed little. Population pressure has been eased in both countries by emigration, but poor economic conditions in Europe have reduced emigration from Tunisia and caused many families to return. The rate of contraceptive use has remained at about 25 percent in Egypt for several years; growth has been slow in Turkey and Morocco. The number of new acceptors of family planning has barely risen in Tunisia for about five years.

8.42 At the same time, there is ample evidence of unmet need for contraception. Low and high estimates in Egypt ranged from 12-22 percent of married women of childbearing age in 1980. In certain areas, unmet need is even higher. One study found that 82 percent of married women in rural areas of upper Egypt want no more children and are not using contraception, and that more than half of these women would like to use a method. In Jendouba, Tunisia, 46 percent of women who were not using contraception wanted no more children, and 22 percent said that they would like to space the next birth. When women in Marrakech, Morocco, were offered supplies of oral contraceptives through home visits, the rate of contraceptive use rose from 18 percent to 43 percent. In the Sfax region of Tunisia, household distribution increased the rate from 7 percent to 18 percent.

8.43 Continued progress in reducing fertility in these countries will depend on better family planning services as well as on measures to improve the status of women.

o Family planning programs. Access to services in rural areas is still restricted. The Tunisian program has had difficulty reaching a dispersed rural population which includes half of the married women of reproductive age. Services in Morocco and Egypt rely heavily on physicians and are

clinic-based with little outreach. Only physicians may prescribe the pill and insert the IUD in Egypt. The few outreach workers in place are not permitted to distribute contraceptives and are only supposed to motivate women who already have three children. In Morocco, nurses were only recently authorized to insert IUDs, and non-clinical distribution of the pill is frowned upon. Yet experience in South and East Asia as well as in Latin America indicates that carefully trained paramedical fieldworkers can deliver many methods and increase contraceptive prevalence dramatically. Use of the media to promote family planning and small families has been limited in Morocco: not until 1982 were the Ministry of Public Health and the private family planning association permitted to air family planning messages and films.

8.44 The limited range of contraceptives available in Egypt and Morocco also limits their use. Although the IUD and condoms are theoretically available, both programs favor the pill. Only one quarter of outlets in Egypt are staffed or supplied to provide IUD insertions. Only one brand of pill is offered and it follows a 21-day cycle. This means that women must stop taking pills at the end of every cycle and resume use one week later. Sterilization is legal but not promoted by the official program; abortion is prohibited. In contrast, the Tunisian program has made the pill, IUD, female sterilization, and abortion (in the first three months of pregnancy) more widely available.

o The status of women. Raising female education could do much to reduce fertility in the region. Enrollment rates for girls in 1980 were still only two-thirds the rates for boys at both primary and secondary schools (see Figure 8.3); in twenty years the gap has not narrowed: An important exception is Jordan, where primary education is now universal and about three-quarters of secondary age children of both sexes are enrolled. In Egypt, Morocco, and Tunisia, universal primary schooling for girls has yet to be achieved. Female

primary enrollments have increased steeply in Tunisia, and the male-female gap has been somewhat reduced. In Egypt, the increase in primary places has barely kept pace with population growth; primary enrollment rates have remained low and access is particularly limited in rural areas, where fertility is high. At the same time, much has been invested in expanding secondary schooling.

8.45 The status of women can also be improved by raising the minimum age of marriage and by changing laws that restrict their social and financial rights. The legal minimum age of marriage for women in Tunisia was raised to fifteen in 1956, and then to seventeen in 1964. The legal minimum age in Morocco and Turkey is still fifteen. In Turkey, other legal changes are under discussion: the repeal of a husband's status as head of the family in favor of a system of "joint responsibility of spouses" and abolition of a husband's right of consent for his wife to be gainfully employed.

Latin America and the Caribbean: reducing social inequities

8.46 Population growth is rapid throughout Latin America and the Caribbean, and will remain so until the 1990s at least. The labor force will be growing by more than 2 percent a year until the end of the century. Urbanization will slow somewhat from its recent fast pace, but in some countries (Argentina, Chile, Uruguay, and Venezuela) 80 percent of the people are already living in cities. As Chapter 5 emphasized, all the pressures that stem from labor-force growth, urbanization, and the provision of public services can be eased by policies that slow the rate of population growth.

8.47 No single issue matters more in Latin America than the distribution of income and social opportunities. Latin America is the region with the greatest inequalities of income, wealth, and other measures of welfare.

Despite rapid economic growth in the 1950s, 1960s, and 1970s, millions of people still live in poverty. Some of the inequalities may be due to the stage of Latin America's development. As economic growth accelerated after 1950, certain areas and socioeconomic groups benefited more than others, widening income and wealth differentials. As development proceeds, those differences may start to narrow. One aim of public policy, particularly in health and education, is to promote equality of opportunity. Population programs have a related role to play: they can improve the chances of the poor by making it possible for them to devote more resources to each child.

8.48 Three countries, Brazil, Colombia, and Mexico, account for 60 percent of the region's 390 million people. Economically and demographically, they are somewhat more advanced than the Andean countries, Central America, and the Caribbean, but (Center-South Brazil excepted) they are less advanced than Argentina and Uruguay.

8.49 As is true elsewhere in Latin America, a major characteristic of these countries is their urban-rural contrast. In Colombia health facilities are concentrated in the urban areas; per household, public subsidies to rural health are less than one-seventh the national average. Not surprisingly, life expectancy for urban Colombians is sixty-four compared with fifty-eight for those in the countryside. In Brazil current spending on education is ten times greater per child in urban than in rural areas; the average urban teacher has more than eleven years of education, compared to six years for rural teachers. Literacy rates in rural Brazil are 48 percent, compared to 78 percent in the towns and cities. In urban areas of Brazil 76 percent of all households have piped water, against only 3 percent in rural areas.

8.50 Provision of family planning services is also greater in urban areas, especially in Brazil. The national government has not assisted or promoted

family planning services, so most users rely on private suppliers. In the well-to-do southern state of Sao Paulo, 63 percent of women obtain contraception through a private doctor or a drugstore. This is difficult or impossible in rural areas. The Brazilian Family Planning Association (BEMFAM), a private nonprofit organization, does provide services to the poor. In the states of Rio Grande do Norte and Piaui, where BEMFAM is active, almost 60 percent of women use contraceptives. In Bahia, where BEMFAM does not operate, only 40 percent do.

8.51 How is population growth related to inequality in these countries? Fertility is consistently and inversely related to household income and to education. Surveys in Brazil indicate that poor rural women bear twice as many children as women from the upper 40 percent of urban households. Brazilian women who neither have paid jobs nor have completed primary school have more than twice as many children as working women who completed secondary school. Similar differentials occur in Mexico and Colombia. The well-to-do are anyway able to spend more per child than are the poor; with fewer children as well, their advantage is compounded.

8.52 The extent of these differences was shown in Chapter 5 (Table 5.10). In both Brazil and Colombia, the poorest 20 percent of households have almost one-third of all children--but only 4 percent of total income in Colombia and 2 percent in Brazil. The richest 20 percent of households, in contrast, have 10 percent of the children and 60 percent of the income in Colombia, 8 percent of the children and 64 percent of the income in Brazil. These differences, which are far greater than those in countries like India, Thailand, and Malaysia, help to perpetuate themselves because of the way they interact with fertility differences.

8.53 Population policies have helped to reduce fertility in Latin America. During the 1970s they were adopted by both Colombia and Mexico, but not by Brazil (or at least not formally--see Box 8.6). The Mexican government began providing family planning services in 1973. By 1976, contraceptive use had doubled, almost entirely because of public programs. Organized family planning programs (half public, half private) were responsible for 44 percent of the decline in Colombian fertility in the first half of the 1970s. Fertility fell during the 1970s by one-third in Colombia and Mexico but by only 19 percent in Brazil.

8.54 This contrast becomes even sharper when it is noted that per capita real incomes nearly doubled in Brazil but were up only 50 percent in Colombia and Mexico. Whereas they managed a sharp decline in fertility relative to income growth, Brazil's fall was more modest (see Figure 8.3). If Brazil had followed the Colombia-Mexico pattern, given its income growth its total fertility rate would have fallen to 3.0 by 1982; in fact it was 3.9. With a population policy no more vigorous than that of Colombia and Mexico during the 1970s, Brazilian fertility might now be one-quarter lower than it is. Most of the difference would come from lower fertility among the poor, since it is they who would be assisted most by a public policy. They would have better access to subsidized services, and be in a position to narrow the gap between their children and those of the better off parents.

8.55 These and other advantages of lower fertility are already becoming apparent in some Latin American countries. In Colombia, the number of enrolled primary students increased by 1.6 million between 1965 and 1975; in 1980-90, the number of children in the primary-age group will grow by less than a million, easing the strain on the education budget. By 1990 the Colombian labor force will be growing by 2.2 percent a year, well below the

3.5 percent rate of the 1970s. With fewer new entrants to the labor force, a larger proportion of them can expect to qualify for high-wage jobs.

8.56 Looking ahead, Colombia and Mexico need to extend public family planning programs to the rural poor, and to do more to integrate population policy into the overall framework of development planning. Brazil's popular private sector programs, long tolerated by the government, do not have adequate resources. There is significant unmet demand for family planning in the poor Northeast. Brazil spends more than 4 percent of its GDP on health; by devoting a tiny share of that budget to family planning, it could extend family planning coverage to the 40 million people of its poorer regions.

8.57 Brazil, Colombia, and Mexico are not the only countries in Latin America where population policies could be effective against poverty and inequality. Ecuador, Paraguay, Peru, and the Central American countries could all benefit from stronger policies. Rapid population growth in El Salvador has been identified by many as a partial cause of its civil war. In Bolivia and Haiti, the poorest countries in the region, initiatives to slow population growth are among the most urgent policy needs to combat poverty.

South Asia: expanding and improving programs

8.58 The 900 million people of Bangladesh, India, Nepal, Pakistan, and Sri Lanka comprise one-fifth of world population and one-quarter of the population of developing countries. Despite the region's having incomes among the lowest in the world, its fertility has already fallen substantially (see Figure 8.5). In Sri Lanka, for example, the total fertility rate fell from 5.5 in 1960 to 3.5 in 1974; in India, it has dropped from 6.5 in the 1950s to 4.8 today. Bangladesh and Pakistan have had more modest declines. No other country at India's level of socioeconomic development--measured by low literacy and per capita income and high infant mortality--has a lower level of

fertility. The rate of contraceptive use is 55 percent in Sri Lanka, the highest in the region. About 28 percent of couples use modern contraceptives in India, and 19 percent in Bangladesh use either modern or traditional methods.

8.59 What accounts for this impressive record? Continued progress in raising female literacy and lowering infant mortality, plus a major effort to expand access to family planning have all played a role. Within India, for example, there is wide variation in fertility and contraceptive use which closely corresponds to patterns of social development. Total fertility is lowest in the state of Kerala, at 2.7 in 1978. Three-quarters of rural women in Kerala are literate, infant mortality is 47 per thousand live births and 32 percent of couples are protected by modern contraception. In contrast, total fertility in the state of Uttar Pradesh in 1978 was 5.6. Infant mortality is almost four times higher (171 per thousand), female literacy is one-seventh and contraceptive use one third that found in Kerala.

8.60 The experience in Sri Lanka is similar. Despite a 1981 per capita income of only $300, infant mortality had been reduced to 43 per thousand and virtually all primary-aged girls were enrolled in school. Within the rate of contraceptive use of 55 percent, almost two-thirds was due to modern methods; total fertility had declined to 3.5.

8.61 Progress in South Asia has not been uniform, however, and rapid population growth is a source of continuing concern. In India and Sri Lanka mortality has declined as fast as or faster than fertility. As a result, population growth has actually increased in India; its population is increasing by 16 million a year, more than any in other country (including China). India's birth rate has remained at 33 to 34 per thousand since 1976; contraceptive use, steady at 23-24 percent since 1976, has only recently begun

to rise again. Fertility has stopped falling in Sri Lanka, fluctuating between 3.4 and 3.7 since 1974. In Bangladesh contraceptive use increased from 8 percent in 1975 to 19 percent in 1981, but appears to have made slow progress since then (though the share of modern methods has apparently risen). In Pakistan, only about 5 percent of couples are using contraception, and in Nepal only 7 percent. Both of these countries lag behind others in providing health and family planning services, although both show signs of a renewed political commitment to curb population growth.

8.58 The experience in Sri Lanka and some Indian states suggest that much more could be done to bring about fertility decline. Every country has considerable scope for reducing infant mortality, raising the age at marriage, and increasing female education--all of which would have a major impact on fertility. In Bangladesh, greater economic independence of women and family planning are jointly promoted through credit cooperatives for women (see Box 8.7). A few countries are moving beyond schemes that compensate those who adopt contraception to consider positive incentives for small families. Bangladesh has contemplated offering bonds for sterilization volunteers with two to three children and for couples who postpone a first pregnancy or space children at long intervals (see Box 6.7). India is considering a scheme to give "green cards" to couples sterilized after two children which would entitle them to preferential access to social services.

8.62 There is also evidence of substantial unmet need for contraception. Desired family size in Bangladesh is now about four; actual size averages about 5.5. Sri Lankan women are having on average one child more than they want. According to a 1979 survey in Bangladesh, as many as 41 percent of married women of childbearing age have an unmet need for contraception to limit or space births. Pilot projects there have achieved rates of

contraceptive use of 35-40 percent with modern methods, three to four times the prevalence of these methods nationwide. In Sri Lanka, 44 percent of women of childbearing age who want no more children are nevertheless not using contraception.

8.63 To satisfy unmet need, family planning programs must resolve important access and quality issues.

o Access. Better family planning outreach could go a long way in increasing contraceptive use throughout the region. Access is most restricted in Nepal and Pakistan. In Nepal, couples want more children than they are having, due to extremely high infant and child mortality. But even in this environment there is unmet need for contraception among 29-65 percent of eligible women. Fewer than a third of Nepali women are aware of a modern contraceptive method, and fewer than a quarter know where one can be obtained. In Pakistan, three-quarters of married women of childbearing age knew of a modern method in 1975, but only 5 percent were using one. A quarter to a half of these women had unmet need for contraception to limit births. Since then, contraceptive use has stagnated. The government plans to meet these needs by a major expansion and upgrading of services.

o Method mix. Family planning programs in South Asia have continued to emphasize sterilization to the neglect of reversible methods of contraception, particularly in India and Sri Lanka (see Figure 8.6). Sterilization accounts for more than three-quarters of contraceptive use in India and Nepal, two-thirds in Sri Lanka, and 44 percent in Bangladesh. Sterilization is, of course, highly effective and clearly in demand among couples who want no more children. But other forms of contraception are being used less largely because they are not widely available. Given the high rate of child mortality in South Asia, reversible methods may be most desirable for couples who have had two or three children but do not wish to be sterilized immediately.

8.64 The only widely available reversible method in India is the condom, provided through 400,000 retail outlets in the social marketing program as well as in family planning program outlets. The pill, important in countries like Indonesia, is not offered through social marketing arrangements, and in 1981-82 was being distributed through only 4,500 rural and 2,500 urban outlets. There are plans to train health and family planning workers to insert IUDs; they are not yet permitted to prescribe pills. Although abortion was legalized as a back-up service for contraceptive failure more than ten years ago, by 1981 there were still only 3,294 centers offering abortion services in all of India. Only 376,000 legal abortions were performed, compared with an estimated 4-6 million done illegally.

8.65 In Sri Lanka, 25 percent of married couples of childbearing age were using traditional methods of fertilty regulation (rhythm, withdrawal, and so on) in 1981, a doubling of the percentage since 1975, and evidence of growing unmet need for effective spacing methods. Only 664 centers offer the IUD; public health midwives have not yet been trained to perform insertions. Injectable contraceptives are popular in rural areas because of their convenience, but are available at only 120 centers.

8.66 Although Bangladesh continues to stress sterilization, its social marketing project has made available several types of condoms, pills, and spermicides. And the program has recently put more emphasis on IUDs by offering financial incentives to staff and compensation for travel and lost wages to acceptors. There are plans to train more fieldworkers in IUD insertions and menstrual regulation, but not all fieldworkers are in place, and not all of those thar are have received adequate training. Injectable contraceptives have proved popular in pilot projects, but are available on only a limited basis under the supervision of a physician.

o Follow-up. As South Asian programs try to meet the demand for a wider range of reversible methods, following up acceptors will become even more critical. The emphasis on sterilization has meant that staff have had little continuing contact with clients. Lack of follow-up greatly damaged the reputation of the IUD throughout South Asia in the 1960s, from which it has only recently recovered. At present, family planning staff judge their performance (and are rewarded) according to the number of acceptors they obtain, not to whether contraceptives are being used. Programs will have to develop new performance criteria and incentive arrangements to put more emphasis on regular contacts with clients.

8.67 Programs also need to resolve certain administrative and operational difficulties, particularly in integrating health and family planning services. In Bangladesh, for example, health and family planning services were initially separate, then integrated, then divided, and are now re-integrated. The program in Pakistan has also recently undergone a major reorganization. Whenever there are such upheavals, staff morale and performance suffer. Other problems are manifest in all programs. In some cases salaries are so low that staff have to take on other work to support their families. Inadequate training, incomplete staffing patterns, and lack of supervison have also lowered morale and performance. Where it exists, supervision takes the form of enforcing accountability and targets rather than supportive training and advice.

8.68 Program managers have tried to overcome problems of morale and supervision in two ways. One, paying workers according to their performance in recruiting acceptors, carries the risk that follow-up services will be neglected. Another way has been to set high program targets. But neither incentives nor targets can substitute for better training and supervision--the two

requirements that are critical to improving the performance of family planning programs in South Asia.

East Asia: incentives for small families

8.69 The countries of East Asia have experienced marked declines in fertility in the last decade (see Figure 8.7). Total fertility (less than 3) and population growth rates (about 1.6 percent per year) are the lowest of any developing region. For the most part, recent declines in fertility have occurred in countries where fertility was already lower than would be expected, given the region's income. The most dramatic reductions have been in China: fertility dropped from ___ to ___ over the past two decades, despite a per capita income of only $300 in 1981. Indonesia, the Philippines, and Thailand have also experienced remarkably rapid falls in fertility with only modest increases in income.

8.70 Population policy has gone further in East Asia than in any other developing region. In most countries, political commitment to reduce rapid population growth is high. Family planning programs are well established, with outreach to rural areas and a reasonable mix of contraceptive methods. Many governments, irrespective of level of income, have been highly successful in improving socioeconomic conditions favorable to fertility decline. Ninety percent or more of all girls of primary school age are enrolled in China, Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, and Viet Nam. Overall secondary enrollments are also high in a few countries--53 percent of the secondary age group in Malaysia, 63 percent in the Philippines, and 85 percent in Korea. Life expectancy in China, Hong Kong, and Singapore has risen to 70 years or more and in most other countries exceeds 60. In almost all countries, infant mortality has been reduced by half or more over the last twenty years. However, further substantial reductions could be made in

Indonesia and Viet Nam (where rates are nearly 100 per thousand live births), China (with a rate of 71), and Thailand and the Philippines (about 50).

8.71 Despite dramatic declines in fertility, population in the region will double in about forty-four years. Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam all have annual rates of population growth above 2 percent a year. At its current growth rate of 2.7 percent a year, the population of the Philippines will increase by half (25 million people) by 2000. Even in China, with an annual increase of __ percent, population will continue to grow rapidly for a long time because of the momentum of past growth. Assuming continued mortality decline and constant replacement fertility, China's population will not stabilize until ____, at ___ billion people. Replacement fertility is still a long way off for Indonesia, Malaysia, the Philippines, and Thailand, with total fertility rates of at least 3.9; total fertility in Korea, at 3, is also still above replacement.

8.72 Though contraceptive use is higher in East Asia than in most other developing regions, there is still considerable unmet need for contraception. Low and high estimates of unmet need are 19-49 percent of married women of childbearing age in the Philippines (1978), 20-31 percent in Indonesia (1976), 15-26 percent in Thailand (1981), and as much as 30 percent in Korea (1979). Actual family size exceeds desired family size by one child in the Philippines. More than half of eligible couples who want no more children are not using any method of birth control. And among the 39 percent of couples using a method, more than half are using less effective methods such as withdrawal and rhythm. In some countries family planning programs have not achieved complete geographic coverage. In Indonesia, for example, contraceptive use in the two groups of outer islands, where one-third of the country's population lives, is less than half the level on Java and Bali, in

some places much less. There are also marked regional disparities in access to services in the Philippines.

8.73 In addition, some countries have overlooked potentially important methods. The Indonesian program, for example, does not offer sterilization. Yet this has been very popular in South Asia, Korea, Thailand, and some Latin American countries. Injectables have been much favored in Thailand but are only recently gaining ground in Indonesia. The Korean program has emphasized sterilization; wider promotion of spacing methods might also have an impact on fertility. The potential demand for spacing methods is demonstrated by the high resort to abortion in Korea. In the Philippines, improving the effectiveness of traditional methods and promoting more effective alternatives could have a large impact.

8.74 Given the relatively advanced state of population policies, more use could be made of incentives and disincentives. Among the countries of East Asia, China, Singapore, and to a lesser extent Korea have made greatest use of measures to promote small families (Chapter 6). Sometimes they have relied on individual incentives (such as giving priority in housing schemes to parents with only two children). Some countries have also offered incentives to whole communities that reach specific targets for contraceptive use. A number of governments also penalize those who have more than a certain number of children, for example by the withdrawal of maternity benefits.

8.75 China has a complex structure of incentives, disincentives, and birth quotas to promote a one-child family (see Box 8.8). Most governments would not choose to promote such drastic measures as those in China, particularly before trying less costly alternatives. And few have the administrative control necessary to implement national schemes of deferred payments or social security to promote smaller families.

8.76 In China, the one-child policy has been challenged by an apparent preference for sons. In some cases parents have killed their baby daughters. The same bias in favor of sons exists in Korea, and has been partly responsible for keeping total fertility, now at 2.7, from declining to replacement level. To counteract this bias, governments need public information campaigns and legal reforms of inheritance, property rights, and employment. Incentives might also be offered to one- or two-child families with girls, such as lower educational and medical costs or preferred access to schooling.

Donor policies

8.77 International aid for population programs now totals nearly $500 million a year. About three-quarters is included in the figures on official development assistance, equal to about 1 percent of the sum of OECD and OPEC aid. At its peak in 1972, it was worth 2.3 percent of OECD disbursements.

8.78 In terms of per capita receipts in the developing countries, assistance for population programs was lower in 1981 than in 1974, the year of the International Population Conference in Bucharest (see Figure 8.8). The United States is the biggest supporter of population programs; its government, along with private American foundations, provides about two-fifths of all aid for population. However, its contribution has been falling in real terms since 1972. Other donors, including Japan, Norway, Sweden, the Netherlands, and the Federal Republic of Germany, have increased their share of the total. Sweden was the first country to offer aid for population programs, in 1968. By 1980 it was distributing $35 million, making it the second largest donor for population purposes.

8.79 By 1982, two other countries had overtaken Sweden in the amount of aid they provided for population programs. Japan had become the second largest donor. Much of its aid went through multilateral agencies, and it also has a successful program administered by the Japanese Organization for International Cooperation in Family Planning. Norway, the third largest donor in 1982, devoted about 10 percent of its official development assistance to population activities, a far higher share than other countries (the share of the United States was about 4 percent). Sweden, Germany, the United Kingdom, the Netherlands, and Canada were the other bilateral donors that gave $10 million or more in population assistance in 1982.

8.80 The major role of donors has been to provide supplies and training for family planning and related health programs. In 1981, the last year for which complete estimates are available, two-thirds of the $500 million of aid for population activities was devoted to family planning and related maternal and child health programs. Donors also fund basic data collection, including censuses and surveys, such as the World Fertility Survey of the International Statistical Institute; these activities absorb about 8 percent of their assistance. The remaining 25 percent supports information and education activities, policy development, institutional development, training, and research. In Asia and the Middle East, over 80 percent of assistance goes for family planning services, in Latin America and Africa about 60 percent. In sub-Saharan Africa, almost a fifth of external assistance is used to finance data collection. In addition, research on contraceptive technology in the developed countries, which approaches $150 million annually, contributes to methods available in the developing countries as well.

8.81 Donor assistance is provided both directly to country programs and through multilateral and nongovernmental organizations. The two largest organizations are:

o The United Nations Fund for Population Activities (UNFPA). More than 130 countries contribute to its budget (which peaked at $148 million in 1980, declining to a planned $125 million annually for 1984-87 period). About 100 developing countries have requested and received UNFPA assistance. To guide its programming, UNFPA has prepared needs assessments for more than seventy countries. It receives requests for assistance that far exceed the money it has available.

o The International Planned Parenthood Federation (IPPF), a nongovernmental body of more than one hundred national family planning associations. It had a 1983 program budget of $90 million, over half of which came as contributions from OECD countries. About one-third of its budget support is raised by member associations in their own countries. Countries receiving its largest grants in recent years are Brazil, Colombia, India, Mexico, and Korea.

8.82 About one-quarter of the population aid from the United States government is administered through more than twenty nongovernmental bodies in the United States, particularly universities and research institutions. They cooperate with organizations in developing countries in service delivery and training, data collection and analysis, special projects, and biomedical and operations research. Family Planning International Assistance, a branch of The Planned Parenthood Federation of America, the American affiliate of IPPF, provides population assistance in more than forty countries. The Population Council, with a budget of $16 million from both public and private sources, provides technical assistance and supports social science and contraceptive research. The Pathfinder Fund is an example of smaller nongovernmental organizations. Pathfinder manages about $7 million in public and private funds which are spent on innovative family planning services, women's

programs, and population policy development. These small programs, and similar programs in other countries, add to the flexibility and responsiveness of population assistance.

8.83 The World Bank supports population activities through IDA credits and loans to borrowers. Over a period of fourteen years, the Bank has committed $355 million for population projects, and had disbursed $215 million by the end of 1983 (including $38.4 million in 1983 itself). World Bank finance is not available on terms as easy as most population assistance; nonetheless, Bank operations grew in real terms by more than 5 percent a year between 1977 and 1983. Over the past three years the largest disbursements have gone to Bangladesh, Egypt, India, Indonesia, the Philippines, and Thailand which together accounted for more than 90 percent of Bank lending for population.

8.84 The World Bank also supports an active program of economic and sector work aimed at enhancing understanding of how population growth affects development prospects and how population programs can contribute to overall development. The World Bank cooperates with other United Nations organizations, especially UNFPA and the World Health Organization, in research and analysis requested by member governments.

8.85 One sign of the success of international assistance is that many local governments now help pay for programs that only a few years ago were supported by international grants. Colombia, Indonesia, Korea, and Thailand are picking up a progressively larger share of the costs of their population programs. India and Bangladesh have for many years paid a large share of their programs, and China has always financed all its own program. This trend toward self-financing makes it possible to reallocate aid budgets to countries that are only starting to develop their population programs. For example, the share of the UNFPA's budget going to Africa rose from about 12 percent during the 1970s to 23 percent in 1983.

8.86 Asia continues to receive the bulk of population assistance (51 percent of the total), followed by Latin America (20 percent), Africa (15 percent), and the Middle East (14 percent). Given the emerging pattern of needs described in Chapter 7, a substantial increase in assistance is needed, especially for Africa and South Asia. To meet unmet need in 1980 would have required spending of $3 billion rather than the $2 billion that was actually spent (see Table 7.6). By the same yardstick, population programs in sub-Saharan Africa and South Asia needed double the amounts spent. Since they are the poorest regions and most in need of external assistance, the bulk of additional program support would have to come from international aid.

8.87 The analysis in Chapter 7 identified two versions of public financial support for population programs by the year 2000. If developing countries are to achieve a "rapid" decline in fertility, some $8 billion (in 1980 dollars) would be needed; a "standard" decline, built into the World Bank projections, would require $5.5 billion. As foreign aid now supports about 25 percent of all family planning costs, it would therefore need to triple or quadruple from its current level. A quadrupling would take population assistance to an annual level of $2 billion (1980 dollars) by the year 2000. With no other changes in official development assistance, that would increase total aid by 4 percent, by no means an unmanageable addition to aid budgets. Assuming that official development assistance continued to be $40 billion, the share of population activities in total aid would rise to about 5 percent.

Box 8.1 Pronatalist policies

In a few countries, governments feel that fertility rates are too low. They include several European countries, such as France, Hungary, and Romania.

Hungary

Hungarian leaders have set a target of replacement fertility by 2000. They are relying on economic incentives that reduce the private costs of large families. The incentives for childbearing are wide-ranging: monthly payments for children (with a larger increase for the second child), for each child equivalent in 1981 to 11.7 percent of the average wage; five months' maternity leave at full pay and up to two and a half years at one-third of the average wage; a birth bonus equal to about one month's salary, provided the mother attends prenatal consultations; unlimited sick leave (which is always at 75 percent of salary) for child care for the first year, sixty days up to the third year, then thirty days up to the age of six; partial downpayment for a house, depending on the number of children planned; subsidies on children's clothing, milk, baby-care products, and school supplies; two additional paid holidays per year for one child under fourteen, five days for two, and nine days for three; and guaranteed job security for mothers.

Hungary placed restrictions on legal abortion in 1974, allowing it only for single, divorced, separated, and widowed women, married women over the age of forty, those who have had three children, and those without adequate housing. These restrictions occurred at a time when access to modern methods of contraception had been much improved and their use encouraged. In 1977, 74 percent of married women of childbearing age were using contraception

and 71 percent of contraceptors were using an efficient method such as the pill and IUD.

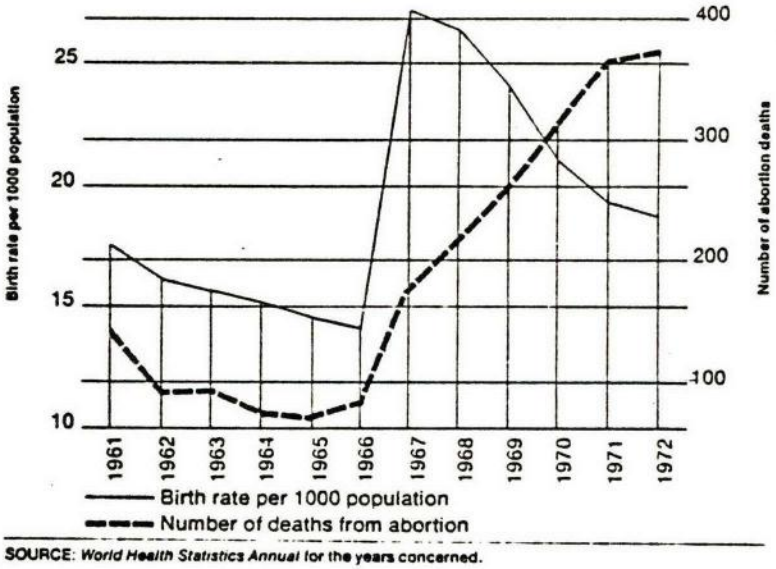
Hungary's pronatalist policies have affected the timing but not the number of births: couples are having the same number of children, but sooner. The total fertility rate increased from 1.8 in 1965 to 2.4 in 1975, the year after abortion was restricted. But it had fallen back to 1.9 by 1980. Economic incentives evidently do not offset the increased private costs--in money and time--of larger families. They have created a fiscal burden, however. In 1982, maternity payments and family allowances amounted to 2 percent of GDP.

Romania

Romania has attempted to raise fertility by placing limits on both abortion and contraception. Abortion on demand was legalized in 1957 and was an important backup to withdrawal and rhythm, the only contraceptive methods available. By 1965, there were four times more abortions than live births. In November 1966 the government limited access to abortion to women over age 45, those with four or more children, those whose life was endangered, and those whose pregnancy was the result of rape. Restricted abortion was not accompanied by improved access to contraception. Modern contraceptives are available only for medical reasons. According to the 1978 World Fertility Survey, 58 percent of Romanian couples are using a method of family planning, almost all rhythm and withdrawal. Incentives for childbearing are relatively limited. In 1979 the child allowance was about __ percent of the average wage, the maternity grant of $85 was paid only for third and later births, and maternity leave of sixteen weeks was the shortest of any country in Central or Eastern Europe. However, part-time work is being made more readily available to mothers of young children and creche facilities are being expanded.

The immediate impact of limiting access to abortion in Romania was to increase total fertility from 1.9 in 1965 to 2.9 in 1970; the birth rate rose from 14 to 27 per thousand between 1966 and 1967. Total fertility had gradually declined to 2.5 by 1980 and the birth rate to 19. Fertility is now above replacement levels, but on a falling trend. As in Hungary, pronatalist policies in Romania have not been without cost. Maternal mortality due to illegal abortion in 1977 was triple the rate of 1966 and continues to rise (see figure).

Birth rate per 1000 population and number of deaths from abortion, Rumania, 1961-1972



SOURCE: *World Health Statistics Annual* for the years concerned.

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Box 8.2 Demographic policy objectives

At least thirty-nine developing countries--comprising more than three-quarters of the total population of developing countries--have adopted official policies to reduce the rate of population growth. Some countries have quantitative targets, in terms of achieving a particular total fertility rate, crude birth rate, net reproduction rate, rate of population growth, or population size in a given year. The table summarizes current demographic targets for sixteen countries and compares them to the demographic outcomes implied by projections using World Bank estimates of standard and rapid declines in fertility (see Chapter 4). The policy targets are expressed in terms of the total fertility rate (TFR) or the crude birth rate (CBR).

Four of the countries shown have specified their targets in different ways. Bangladesh aims to achieve a net reproduction rate of 1 by the year 2000; for Ghana the goal is a population growth rate of 2.0 percent in 2000; for Uganda a growth rate of 2.6 percent in 1995; the official target in China is a population size of 1.2 billion in 2000. For these countries the TFR or CBR given in the table approximates what would be required to attain these objectives. In most countries the government's official policy objectives are comparable to or even more ambitious than those required to achieve a "rapid" decline in fertility.

	Years	Policy target		Fertility decline			
				Standard		Rapid	
		TFR	CBR	TFR	CBR	TFR	CBR
Asia							
Bangladesh	2000	2.5	...	4.9	36	2.8	23
China	2000	2.0	...	2.0	...	2.0	...
India	1996	...	21	3.5	28	2.5	21
Indonesia	1990	2.7	22	3.7	30	2.9	24
Korea	1988	2.1	...	2.6	24	2.2	20
Nepal	2000	2.5	...	5.3	38	2.9	24
Pakistan	1988	...	36	6.4	45	5.2	38
Philippines	1987	...	28	4.0	31	3.5	28
Thailand	1986	2.6	...	3.4	28	3.0	25
Africa and Middle East							
Ghana	2000	3.3	...	6.0	43	3.2	27
Egypt	2000	...	20	3.1	25	2.3	20
Mauritus	1988	2.3	...	2.7	25	2.3	21
Tunisia	2001	...	22	3.1	25	2.2	20
Uganda	1995	5.0	...	6.7	49	4.3	34
Latin America and Caribbean							
Haiti	2000	...	20	3.4	29	2.4	22
Mexico	1988	...	25	4.1	32	3.6	29

Box 8.3 Africa: how much land, how many people?

Africa is often portrayed as an underpopulated region with vast acres of untapped land. It is true that its average population density is low--less than one-fifth of Asia's. But considering the rudimentary farming practices in most of Africa, many countries are already becoming crowded. This is one of the main findings of the FAO's recently completed project, Land Resources for the Future.

The FAO reached its conclusion by comparing potential population-supporting capacities--determined by soil and climatic conditions and levels of farm technology--to actual and projected populations. (The nature and limitations of this methodology are described in more detail on p. __.) The calculations for Africa as a whole confirm the conventional wisdom: even at subsistence farming levels, there is enough land to support a population 2.7 times larger than the actual population in 1975. When the results are tabulated by country, however, a much more complex picture emerges.

Of forty sub-Saharan countries (excluding Djibouti and the smaller island nations), fourteen do not have enough land--assuming low levels of farm inputs--to support on a sustainable basis populations of a size already reached in 1975. The fourteen are Botswana, Burundi, Ethiopia, Kenya, Lesotho, Malawi, Mauritania, Namibia, Niger, Nigeria, Rwanda, Senegal, Somalia, and Uganda (see map); as a group, they account for one-third of the land area of sub-Saharan Africa and about half of its 1981 population.

Small landlocked countries like Rwanda and Burundi face particularly serious problems. Population pressure has led to more intensive farming methods, based on higher and higher labor inputs. But the remoteness of the countries and their terrain make it expensive to use advanced technologies; they also limit agricultural and nonagricultural export opportunities, and

thus the scope for importing food. Low rainfall and remoteness also create considerable problems for Sahelian countries like Niger.

On the other hand, there are eleven countries--largely in central Africa--still possessing extensive areas of underused land. According to the FAO, the land of the Congo and the Central African Republic is capable of supporting populations more than twenty times larger than they had in 1975; in the case of Gabon, the multiple reaches almost one hundred. Together, the land-abundant countries of sub-Saharan Africa take up about 30 percent of the region's land, but account for only one-fifth of its 1981 population.

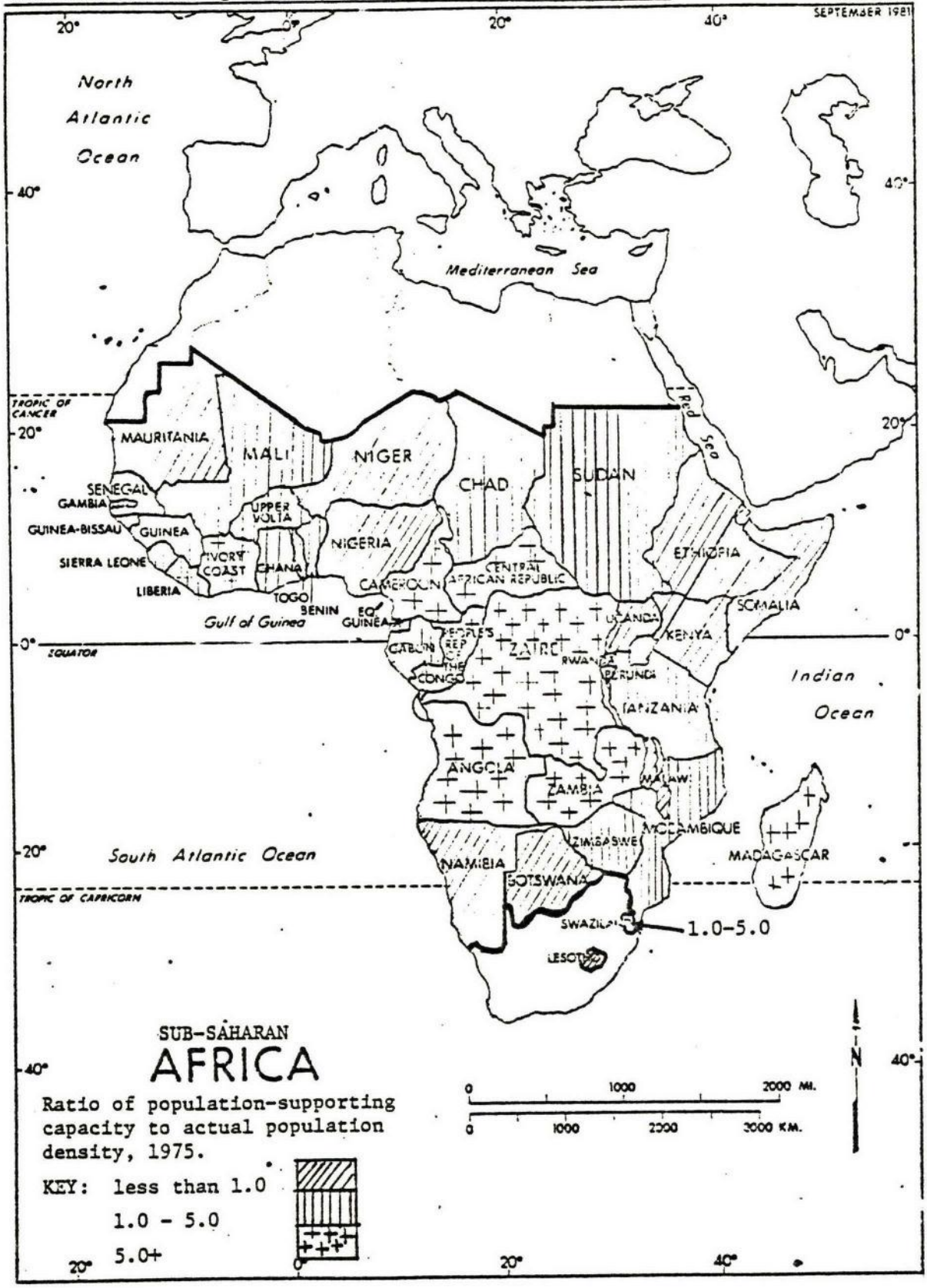
As populations increase further in the land-scarce countries of sub-Saharan Africa, the pressure for people to migrate to land-abundant countries will mount, particularly where they share a common border. Migration already brings mutual benefits to countries such as the Ivory Coast and Upper Volta. As pointed out in Chapter 5, however, the opportunities for accommodating population growth through international migration do have limits; political and social factors introduce uncertainty even where economic benefits for both sending and receiving countries could be great.

Throughout Africa, traditional methods of farming require more land per capita than in regions like Asia, where irrigation and double-cropping are more common. To avoid a fall in agricultural output per worker, land-scarce countries will require new technologies--fertilizers, improved seed, and different farming techniques--supported by pricing policies to encourage production. But such measures alone might not be enough. According to the FAO's calculations, seven sub-Saharan countries--Burundi, Kenya, Lesotho, Mauritania, Niger, Rwanda, and Somalia--would not achieve self-sufficiency in food in the year 2000 (when their combined population is expected to reach almost 80 million) even if their agricultural techniques were to match those

now found on commercial farms in Asia and Latin America. Of course, the goal of self-sufficiency in food production cannot be recommended for all countries. But those that do not manage it must generate enough foreign exchange to import food; otherwise they face the prospect of rising malnutrition.

Some countries with abundant land could theoretically support a much larger population and benefit from the resulting economies of scale in transport, communications, and delivery of water, health, and agricultural services. But plenty of land is not enough to guarantee adequate incomes for many more people. To achieve economies of scale would require heavy spending on infrastructure, technology, and human skills. According to FAO estimates, raising the growth rate of agricultural production in Africa to 3.4 percent a year in 1980-2000 (as compared to 1.6 percent in 1970-80) would need gross investments (in 1975 prices) of nearly $7 billion in 1990 and about $10 billion in the year 2000.

Ratio of population-supporting capacity to actual population density given subsistence farming techniques, sub-Saharan Africa, 1975



Source: Higgins et al., 1982.

Box 8.4 Infertility: A challenge to programs in sub-Saharan Africa

Infertility afflicts a disproportionate number of couples in sub-Saharan Africa. An average of 12 percent of women who had passed their childbearing years in eighteen sub-Saharan countries are childless, compared to a rate of 3 percent in other developing countries. Among countries for which data are available, childlessness is greatest in the Central African Republic (17 percent), Zaire (21 percent), Congo (21 percent), Gabon (32 percent), and Cameroon (17 percent). In parts of Zaire, as many as 65 percent of women aged forty-five to forty-nine are childless. In addition, large numbers of people suffer from secondary infertility--the inability to conceive within five years of a prior birth while not breastfeeding or using contraception. Men and women separately are each responsible for about 40 percent of infertility cases; in 20 percent of the cases, infertility is due to joint causes.

The consequences of infertility are particularly severe for women, who may be ostracized, abandoned, or divorced if unable to bear children. Fear of infertility makes couples reluctant to voluntarily regulate their fertility through modern contraception. Thus, although high infertility keeps fertility lower than it otherwise would be--every 9 percent increment in childlessness reduces total fertility by about 1--it also inhibits contraceptive use and eventual fertility decline.

What causes such high levels of childlessness? Malnutrition, congenital defects, genital tuberculosis, and various uterine, vaginal, and urethral infections are all possible contributors. Unhygienic and poorly performed abortion can also lead to secondary infertility. Most studies point to sexually transmitted disease, particuarly gonorrhea, as a major cause of

both types of infertility. If treated in time, gonorrhea need not cause infertility. But if left untreated it can lead to irreversible blockage of the fallopian tubes in women and of the vas deferens in men. Because the symptoms are not readily noticeable in women, it may go for several years without treatment.

In many countries the prevalence of infertility due to gonorrhea and other infections has been reduced due to the wider availability of antibiotics. But this effect has been incidental, not the result of a concerted effort to combat infertility. The number of specialists and treatment centers in sub-Saharan Africa is very small. Since 1973, infertility clinics have been set up in Kenya, Cameroon, Tanzania, and Uganda. The Association for Voluntary Sterilization has provided grants for research, treatment, training, and public education in Nigeria, Sierra Leone, and Sudan. But these clinics and programs are insufficient and suffer from underfunding. Resources are critically needed to train doctors in diagnosis and treatment, to counsel couples whose infertility cannot be treated, and to launch public informational campaigns on the causes and prevention of infertility. These informational efforts need to be aimed at men in particular, as they have been found reluctant to submit to infertility tests and treatment. Women are usually held responsible for childlessness. When the cause of infertility is sexually transmitted disease, it is critical that both partners be treated.

Resources are also needed for research into the causes and treatment of infertility, as well as for better data on its prevalence. About $4 million of a total of $6 million spent by the public sector on infertilty in 1982 went for research into unexplained causes of infertility; the bulk of this research was conducted by the Center for Population Research in the

United States. Total spending on infertility research by the World Health Organization in 1982 was only $900,000. The United Nations Development Program has proposed increasing this amount to $2-4 million a year over the next five to seven years.

Box 8.5 Adolescent pregnancy

Adolescent pregnancy has become an important problem in some developed countries and is a growing concern in developing countries. These trends are likely to continue as age of marriage rises and increasing urbanization loosens traditional social restraints on sexual activity. In the United States, births to women younger than twenty accounted for 16 percent of all births in 1979--compared to one percent of all births in Japan in 1980. The proportion of births to adolescents exceeded 10 percent in at least thirteen developing countries in the late 1970s, including Chile, Costa Rica, El Salvador, Malawi, Brazil, Bangladesh, and Thailand.

These data understate the magnitude of the adolescent pregnancy problem because they exclude the number of pregnancies terminated by abortion and do not differentiate between births to married and unmarried mothers. Nearly 40 percent of all adolescent pregnancies in the United States in 1978 ended in abortion. And the majority of live births--65 percent--were to unmarried mothers.

Adolescent pregnancy is an issue because of its adverse consequences for mothers and children:

o Early childbirth--whether mothers are married or not--is more dangerous for the health of adolescent women and their children than for older women. Postponing the age at first birth until twenty or older would significantly reduce maternal, infant, and child mortality (see Box 7.1).

o Many adolescent pregnancies end in abortion. One study in a Bombay hospital in the early 1970s found that 12 percent of women admitted for abortions were younger than eighteen; of these, 92 percent were unmarried and 81 percent were in the second trimester of pregnancy. A five-year review of

admissions to a major Lagos hospital found an increasing number of adolescent pregnancies and abortions; 93 percent of adolescents admitted were single girls of school age. It poorly performed, abortion posed high health risks for women and may impair their future fertility.

o Early childbirth usually ends the formal education or employment of adolescent mothers and thus restricts their future opportunities. The children are also worse off. Studies in developed countries show deficits in the cognitive development of children of adolescent mothers that are partly attributable to the social and economic consequences of early childbearing. The children of teenage mothers are likely to spend a considerable part of their childhood in one-parent households, and they are more likely themselves to have children while still adolescents. Adverse consequences are most likely to occur when the teenage mother raises her child without help from the father or her own parents.

Family planning programs have traditionally emphasized spacing or limiting additional births rather than postponing first births. But growing recognition of the problems resulting from adolescent pregnancy has led to the development of new programs serving the needs of adolescents: providing proper instruction in reproduction and human sexuality, improving access to contraceptive services, and providing continuing education to pregnant adolescents to help them return to the school system. A women's centre established by the Jamaican Women's Bureau provides support and classroom instruction for pregnant women aged twelve to sixteen with the major goal of returning them to school. Of the students registered at the center between mid-1978 and end-1979, 64 percent were placed in secondary schools, high schools, or vocational training schools, and 92 percent had not become pregnant again by the end of 1981.

Box 8.6 Changing policies and attitudes toward family planning in Brazil

Official Brazilian policy on population was, until 1974, implicitly pronatalist. The traditional official view, dating from colonial times, had been that Brazil would benefit from a large growing population to complement its vast territory and natural resources.

The first perceptible change from a pronatalist to a laissez-faire stance occurred during the 1974 World Population Conference, and at about the same time in the Second National Development Plan. Official statements maintained that Brazil's 2.5 percent annual rate of population growth was not a serious threat to economic development, but they went on to recognize the responsibility of the government to provide family planning services to those who want, of their own free choice, to plan their families but are too poor to pay for the services that are available privately. Federal authorities gave tacit approval to a number of state-level family planning programs organized by the Sociedade Civil de Bem-Estar Familiar no Brasil (BEMFAM), the Brazilian affiliate of the International Planned Parenthood Federation.

In 1977 the federal government took the first step to provide family planning services for the poor. It announced that the 1978-81 plan for maternal and child health would include family planning in cases where pregnancies would involve a high health risk. Then in October 1983 the Minister of Health announced that a broad new women's health program would be implemented beginning in 1984, with family planning assistance being included as part of a full range of maternal and child health care.

Underlying this more active involvement in family planning are three trends, not entirely unrelated: growing public awareness of Brazil's population problem, including among important elites formerly opposed to

family planning programs; a growing social demand for (and practice of) family planning; and the economic recession, which has heightened social tensions because of growing unemployment and underemployment and falling real incomes.

In March 1983, Brazil's president told Congress that the country's rapid population growth was capable of causing "social, economic, cultural and political imbalances" and proposed opening a broad debate which could lead to specific policy measures to deal with this threat. Fifteen days later, a Parliamentary Commission of Inquiry on problems associated with Brazil's population growth was established in the Senate, and in mid-May the Ministry of Health sent the President a preliminary document on the proposed women's health program.

A recent military report showed that half of the young men who enrolled for military service in 1982 were rejected for medical reasons, and of these, 60 percent were likely to be unfit for service in the future because their physical and mental capacity had been permanently stunted. Statements by the Chief of Staff of the Armed Forces, in a newspaper interview in June 1983, differed from the traditional military view that Brazil needed rapid population growth to fill up its vast territory. Noting that the quality of recruits had been falling for some time, he said, "What we need in this country is a well qualified and capable population. We do not need numbers of people .... A child which is not well fed in the first year of life suffers permanent mental damage, can never again be productive, and will always be dependent on society."

The official position of the Catholic Church is that to promote responsible parenthood only by natural means. But one theologian has publicly argued that "only the couple has the right to choose the means most appropriate for practicing responsible parenthood". Increasing concern with

social justice is likely to weaken further the church hierarchy's opposition to government-supported family planning programs, as long as the state does not try to dictate how many children a couple should have or the means to be used to achieve their goal.

The taboo on public discussion of family planning in Brazil has now ended. A report on vasectomy was featured in a fifteen minute program in prime television time on a Sunday evening in December 1983. A recent poll in the city of Sao Paolo found that 75 percent of those interviewed believed that couples should plan the number of children that they have. Civilian politicians in both opposition and government parties increasingly express the strong social demand for "democratization of access to family planning" and some opposition parties have called for legalization of abortion. (It is estimated that between 3 million and 5 million clandestine (and illegal) abortions are performed every year in Brazil, or roughly one for each live birth.)

A growing number of Brazilian politicians belong to an association of legislators favoring an active family planning policy, which hosted the first "Western Hemisphere Conference of Parliamentarians on Population and Development" in Brasilia in December 1982. A private organization, Pro Familia, recently organized a three-day "First National Conference on Maternal and Child Protection and Family Planning" with some 1200 participants (80 percent of them women) in the auditorium of the federal senate. The conference recommended that family planning should cease to be a privilege of the well-to-do, and that the state, complemented by private institutions, should provide family planning information and services. The conference also recommended the creation of a new agency to coordinate a National Family Planning Program, revision of existing laws to allow the use of all means of

contraception approved by the international scientific community, and inclusion in primary and secondary school curricula of material on human sexuality and the physiology of reproduction. The closing session of the conference was attended by the President of Brazil, the Ministers of Social Welfare and the Interior, the Acting Minister of Health, a number of federal senators and deputies, and the Chief of Staff of the Armed Forces.

Box 8.7 Family planning and women's credit cooperatives in Bangladesh (summary)

In rural Bangladesh women's credit cooperatives have been set up with family planning services so as to simultaneously lower fertility and improve women's well-being. Initiated in 1974 as part of an Integrated Rural Development Programme, the cooperatives have been funded as a component of two Bangladesh population projects aided by IDA and bilateral cofinanciers, including Canada and Germany.

Box 8.8 China's one-child family policy

Birth control has been a national priority in China since 1971 when the government launched a new program to promote later marriage, longer spacing between births and fewer children. In the late 1970s it became clear that, with the large number of women entering child-bearing age as a result of past high fertility, even compliance with a two-child family norm would not reduce the rate of population growth enough to meet the national goal of 1.2 billion people by the year 2000. In 1979 the People's Congress put forward a policy advocating one child per couple. In 1980 Vice-Premier Muhua stated as specific goals that 95 percent of married couples in the cities and 90 percent in the countryside should have only one child. By 1982 most provinces and municipalities had introduced incentives and disincentives to promote the one-child norm.

Early results of the one-child compaign seem striking. The proportion of first births out of total births increased from 21 percent in 1970 to 42 percent in 1980 and 47 percent in 1981. By 1982 the proportion of first births exceeded 80 percent in each of the three large urban municipalities--Beijing, Shanghai and Tianjin--and in five other provinces.

Several factors are still working against the one-child policy remain.

o Old-age security. A compulsory pension system applies only to employees of state enterprises in urban areas, who constitute at most 15 percent of the labor force. A 1982 survey of rural production brigades in 11 provinces and municipalities found that only 1 percent of men over 65 and women over 60 received monthly pensions paid by welfare funds. For the rural majority, children remain the main source of old-age security.

o The responsibility system. The widespread introduction of the production responsibility system has given families a direct economic incentive to have more children to raise farm output. In an effort to combat this, some brigades have introduced a double contracting system under which households are required both to deliver their quota of farm output to the state and to refrain from having an unauthorized birth.

o Persistent male preference. A preference for sons is a strong cultural impediment to having only one child. A 1980 survey of one-child families in Anhui Province found that 61 percent of the children of one-child certificate holders were boys. The pressure to have one child that is a boy may have led to a revival of the practice of female infanticide. The 1982 census data on births in 1981 showed a boy-girl ratio at birth of 108.5, an abnormally high figure that has been interpreted by Chinese commentators as a reflection of some female infanticide.

o Financing incentives. Responsibility for financing incentives falls on local areas, not the central government. As a result there is great variation in the type and value of incentives. In a model county in Jilin Province in 1981 families pledging to have only one child were granted annual bonuses of almost 50 yuan--equivalent to 7 percent of average rural income--to last for fifteen years and received a double-size private plot. For their single child they received an adult grain allowance and a special health care allowance. Yet in Hofei city in Anhui province, bonuses paid to parents were much lower--a one-time payment of 10 or 20 yuan, a few towels, a thermos bottle, some toys, a wash basin, or even nothing at all.

Table 8.1 Policy and commitment on population, indicators for selected countries with 1984 population of 15 million or more a/

Country and program strength	TFR 1982	Policy indicators: Data A	Political Commitment B	Institutions C	Institutions D	Family planning E	Family planning F	Family planning G	Family planning H	Family planning I	Incentives J	Incentives K	Incentives L	Birth quotas M
Very strong b/														
China	2.9	x	x	x	x		x	x	x		x	x	x	x
Korea	3.0	x	x	x	x	x	x	x	x		x	x		
Indonesia	4.4	x	x	x	x	x	x	x	x		x			
Sri Lanka	3.5	x	x	x	x	x	x	x		x				
Colombia	3.7	x	x	x		x	x							
Strong														
Mexico	5.0	x	x	x	x	x	x	x	x					
Thailand	3.9	x	x	x	x	x	x	x	x					
India	4.8	x	x	x	x	x	x	x	x	x				
Bangladesh	6.4	x	x	x	x	x	x	x	x	x				
Philippines	4.6	x	x	x	x	x	x	x	x		x			
Malaysia	4.0	x		x	x	x	x	x	x					
Moderate														
Brazil	4.0	x	x			x	x							
Pakistan	6.4	x	x	x	x	x	x		x					
Nepal	6.4	x	x	x	x		x	x		x				
Egypt	4.8	x	x	x	x	x	x		x	x				
Morocco	6.9	x	x				x							
Weak														
Turkey	4.6	x	x			x	x							
Kenya	8.0	x	x		x	x	x							
Algeria	7.3	x				x								
Peru	5.1	x	x		x	x	x							
Tanzania	6.5					x	x							
Very weak														
Nigeria	6.9					x								
Zaire	6.3													
Sudan	6.7	x				x								
Ethiopia	6.5													

Notes:

a. The following countries with greater than 15 million population were left out for lack of information: Afghanistan, Burma, Iran, Venezuela, and Viet Nam.

b. Countries are ranked by index of program effort (see Chapter 6 and PDS, Table 5); policy indicators for each country were reviewed with technical specialists and are subject to change.

Each letter represents a policy characteristic as follows:

Demographic data

A: Published census data and data from other household surveys on fertility, mortality, and contraceptive use (such as WFS or CPS) less than ten years old.

Political commitment

B: Official policy to reduce population growth expressed by high officials and in a national development plan, sometimes including specific demographic targets.

Instutitions

C: Existence of a population planning unit which integrates demographic projections into current economic plans and considers the effect of policies on demographic parameters.

D: Existence of a high-level coordinating body, such as a population commission, to set population policy, oversee implementation, and evaluate results of multisectoral policies.

Family planning

E: Government financial support of private family planning associations.

F: Government subsidized family planning services.

G: Family planning outreach, including community-based distribution systems and fieldworkers.

H: Active use of mass media for information, education, and motivation to promote family planning and small family norms.

I: Contraceptive retail sales/social marketing.

Incentives and disincentives

J: Elimination of all explicit and implicit subsidies which encourage large families (tax reductions for each child, family allowances, free or subsidized health and education services).

K: Positive financial incentives for small families.

L: Strong disincentives to discourage more than two births per woman, such as reduced servicprovision or an income tax for third and later-born children.

Birth Quotas

M: Policy to set quotas on the number of births permitted in a community over a year, under which couples must obtain permission to have a child.

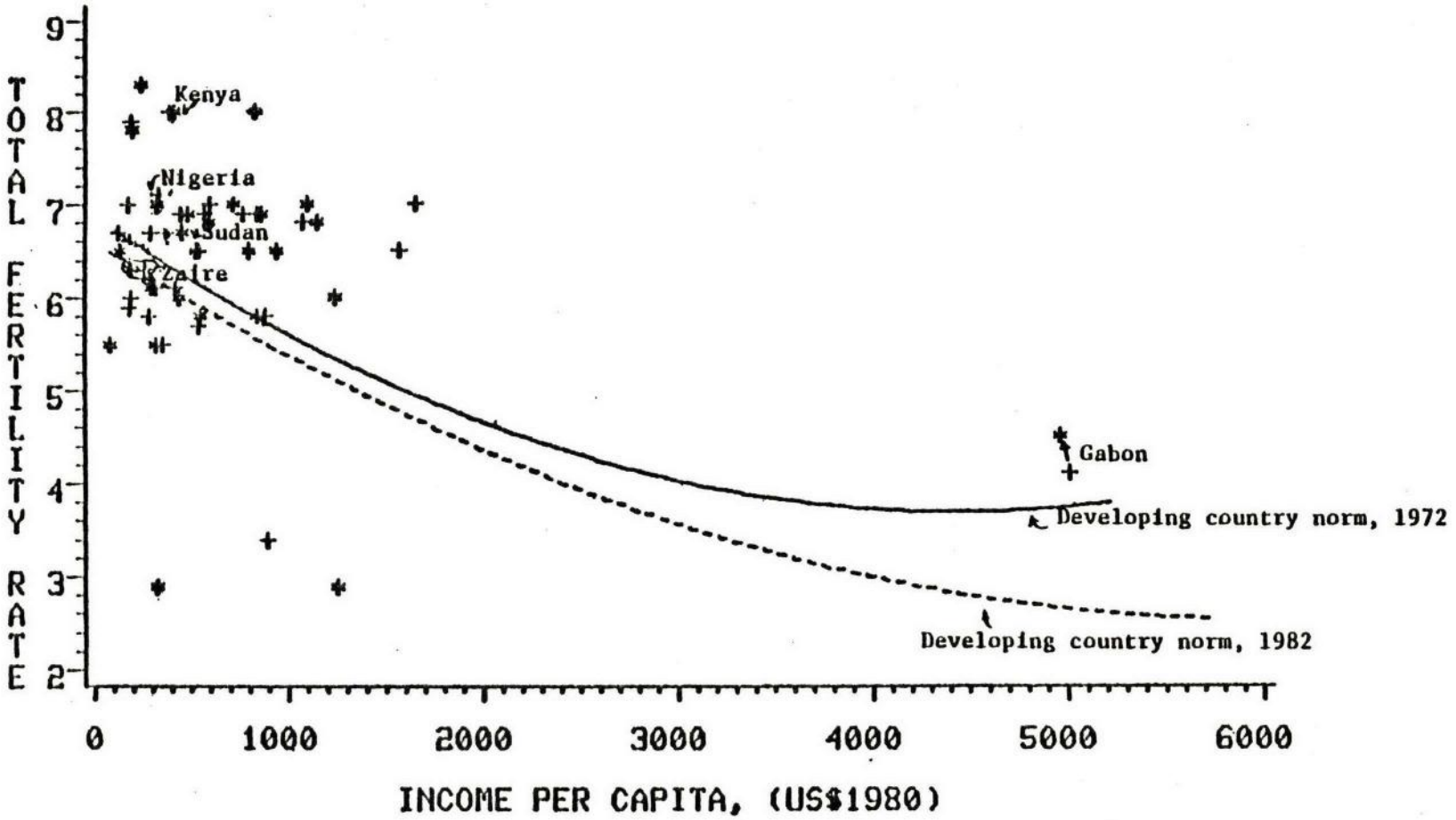
Table 8.2 Development indicators, Africa compared to all developing countries

	Per capita income, 1979 (dollars)	Adult literacy 1976 (percent)	Life expectancy 1979 (years)	Gross primary enrollment ratio, 1978 (girls) (percent)
Sub-Saharan Africa				
low-income	239	25	46	50
middle-income	649	34	49	79
All low-income countries	230	51	57	63
All middle-income countries	1,420	72	61	94

Note: Averages are weighted by 1979 population.

Source: World Bank. Accelerated Development in sub-Saharan Africa: Agenda for Action Washington, D.C., 1981.

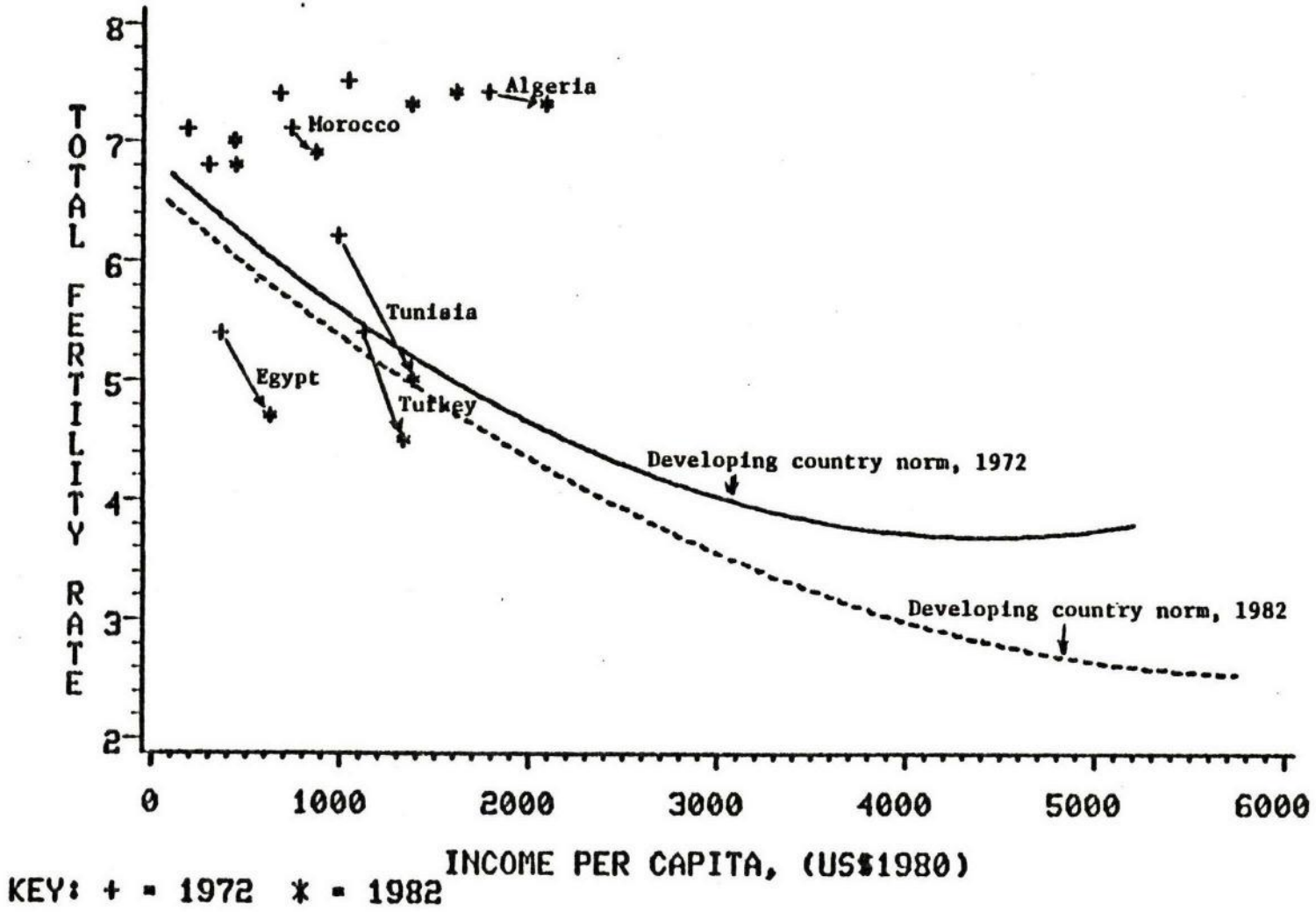
Figure 8.1 Fertility in relation to income: selected developing countries in sub-Saharan Africa, 1972, 1982



KEY: + = 1972 * = 1982

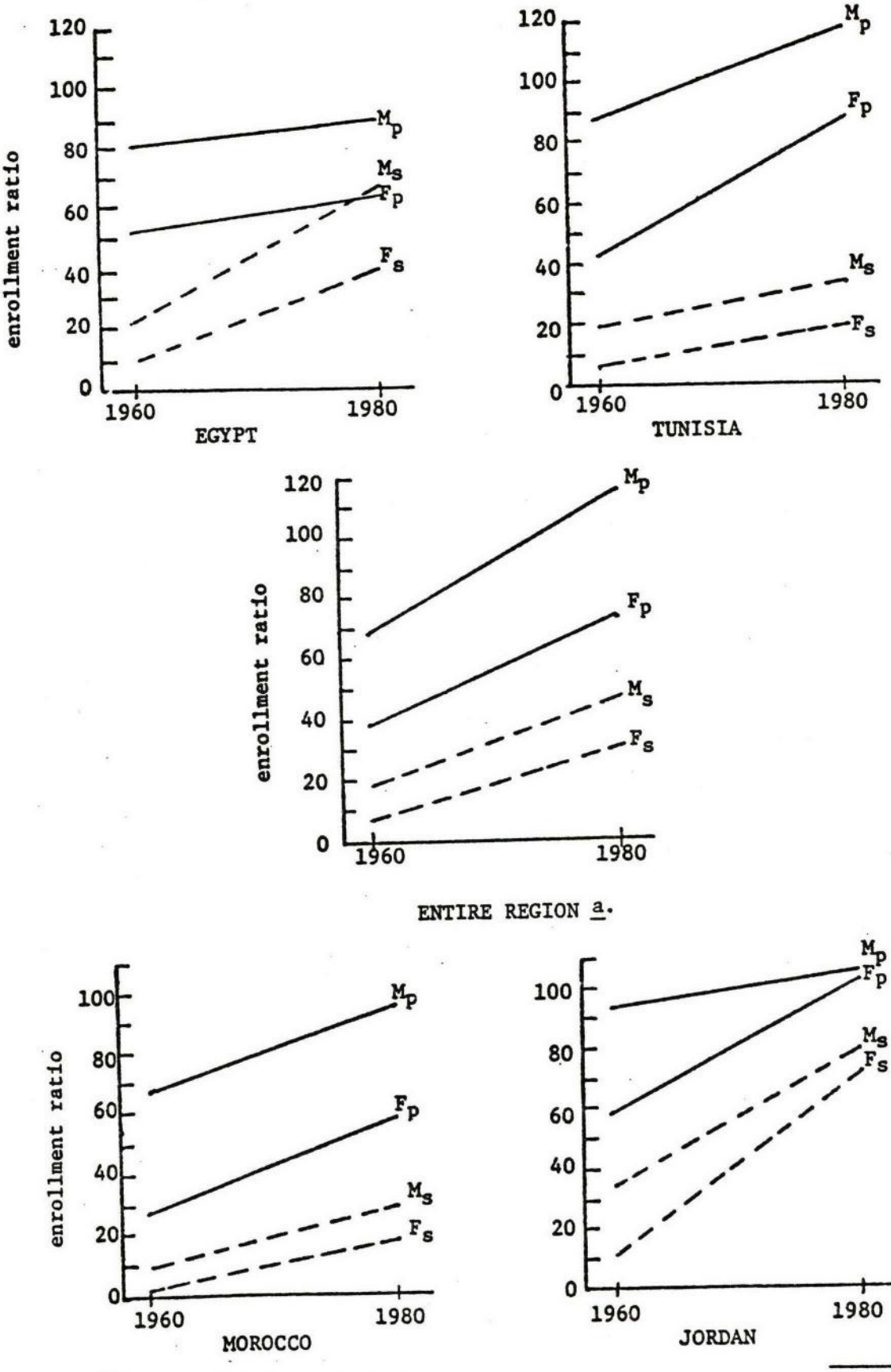
Source: EPD data files.

Figure 8.2 Fertility in relation to income: selected developing countries in Middle East and North Africa, 1972, 1982



Source: EPD data files.

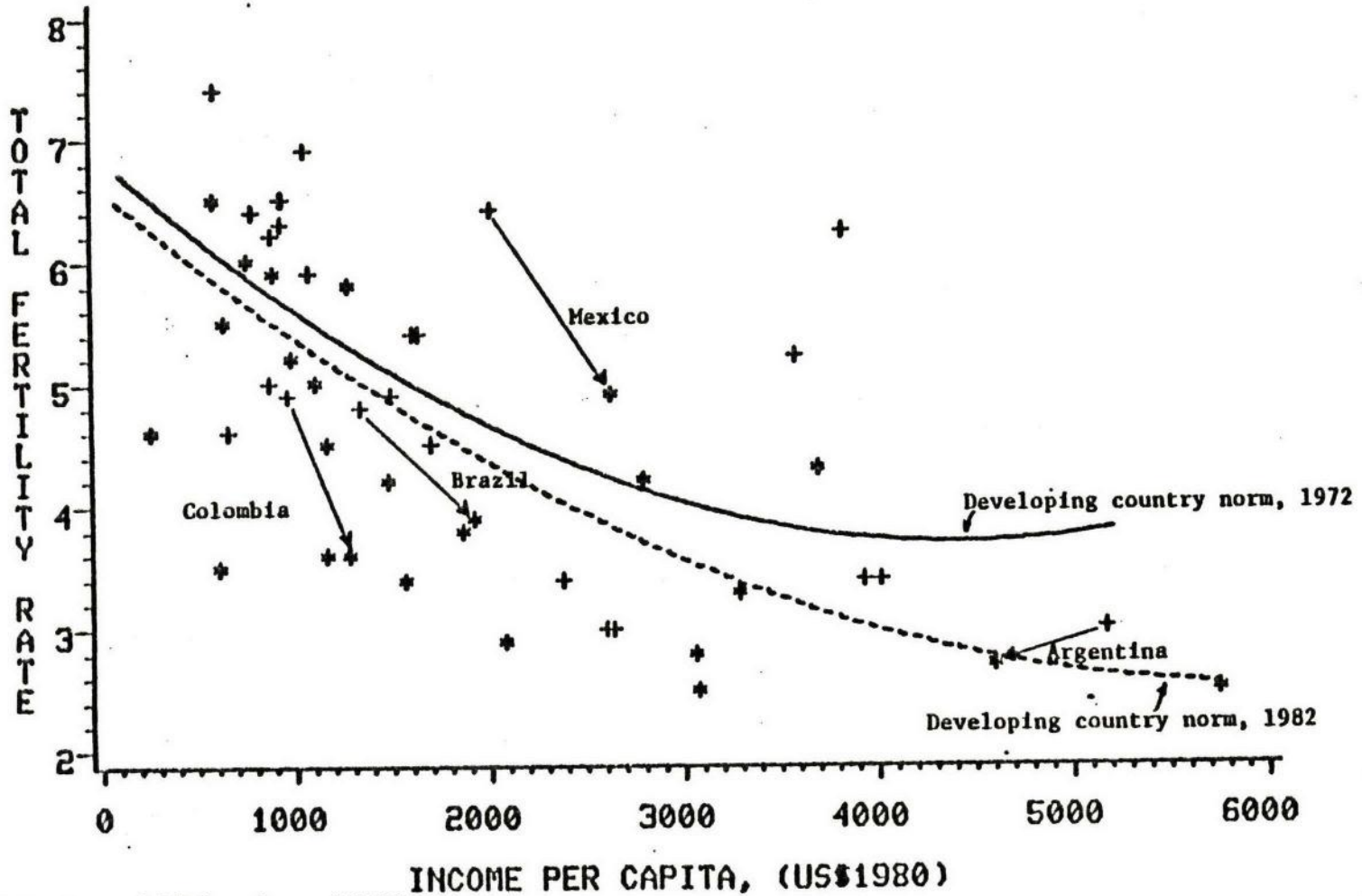
Figure 8.3 Gross enrollment ratios by sex, Middle East and North Africa, 1960 and 1980



Source: UNESCO Yearbooks.

a.- mean weighted by 1960 and 1980 populations (includes hi-income countries).

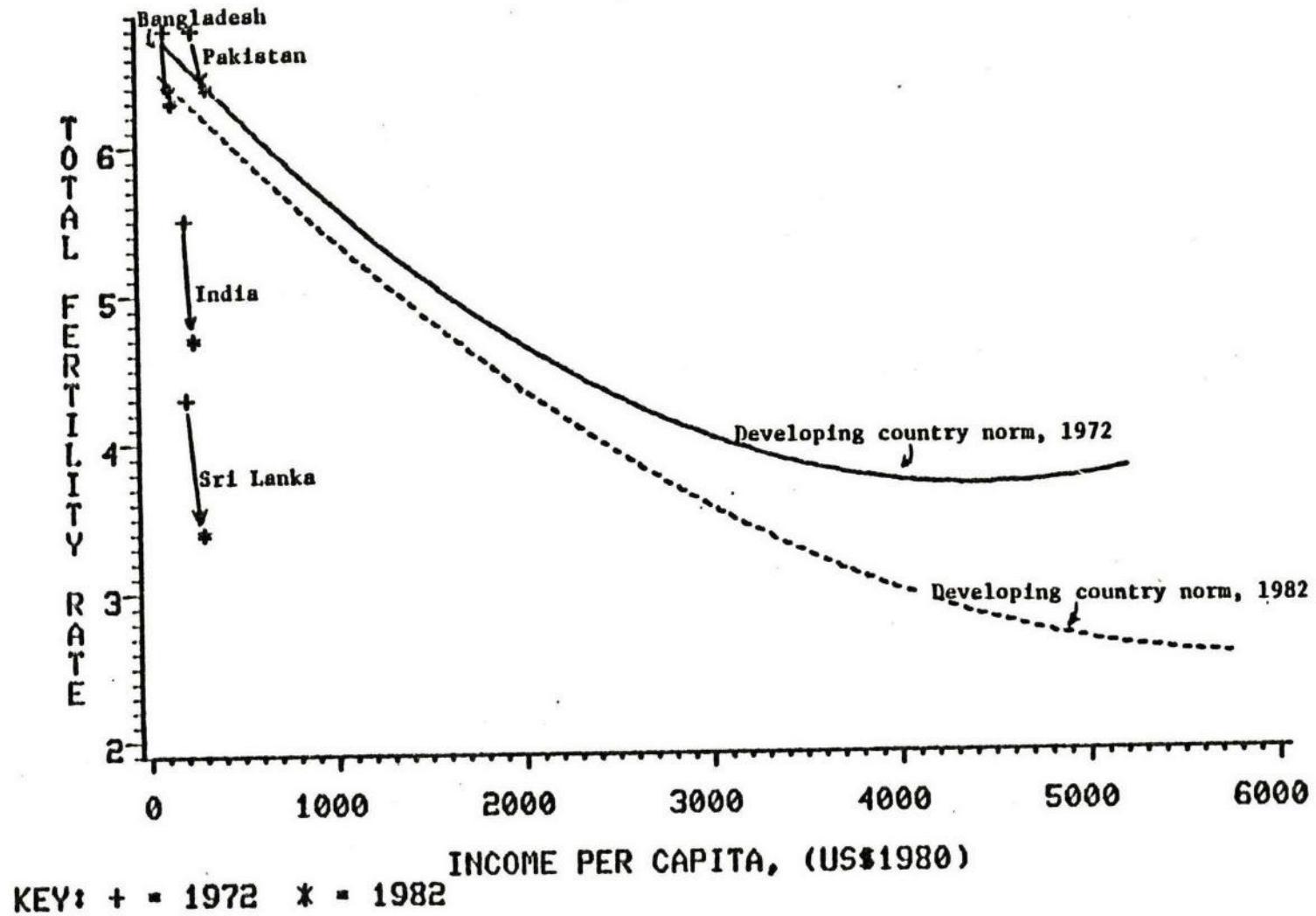
Figure 8.4 Fertility in relation to income: selected developing countries in Latin America and the Caribbean, 1972,1982



KEY: + = 1972 * = 1982

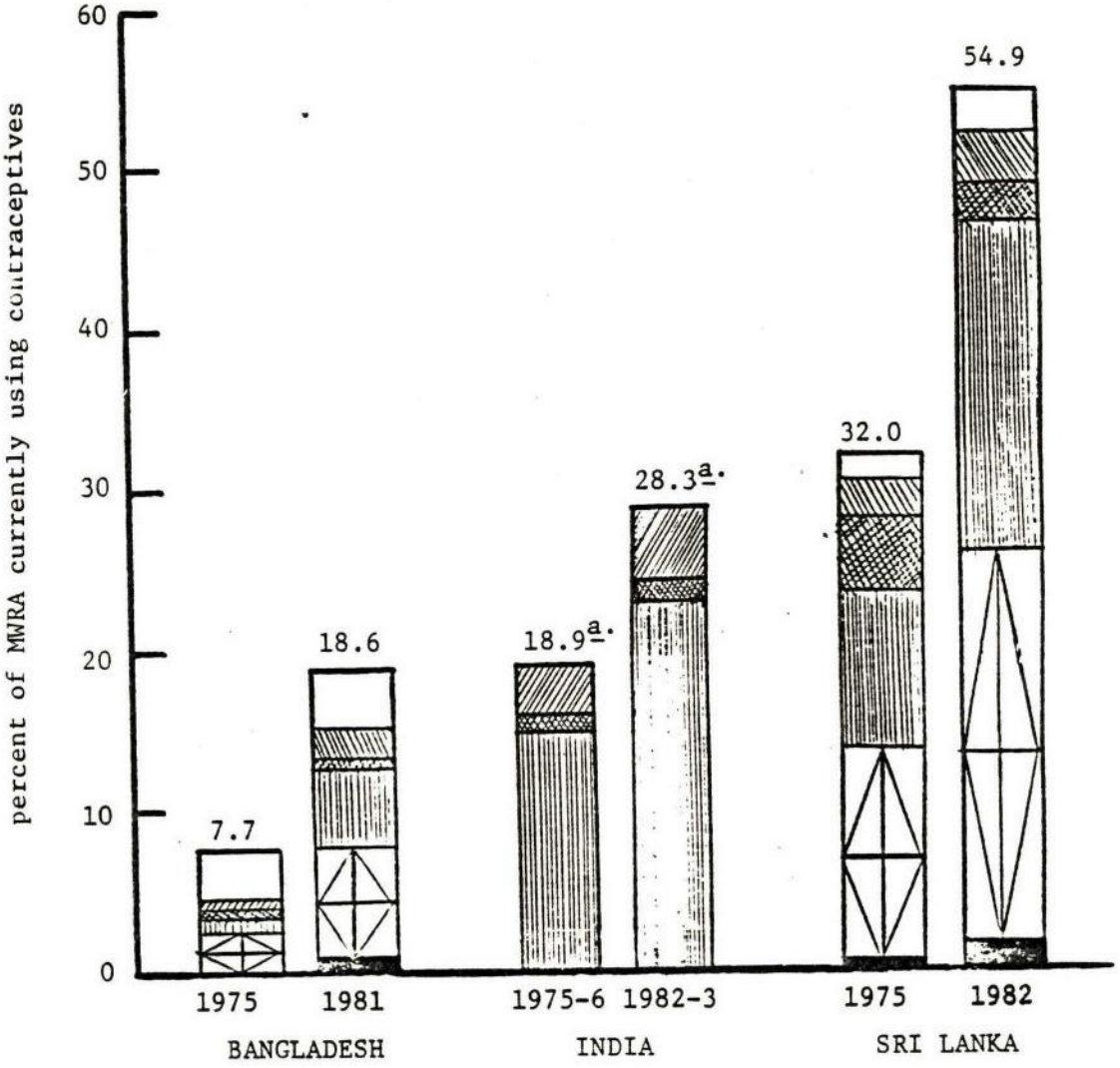
Source: EPD data files.

Figure 8.5 Fertility in relation to income: selected developing countries in South Asia, 1972, 1982



Source: EPD data Files.

Figure 8.6: contraceptive use by method, Bangladesh, India and Sri Lanka, 1975-83

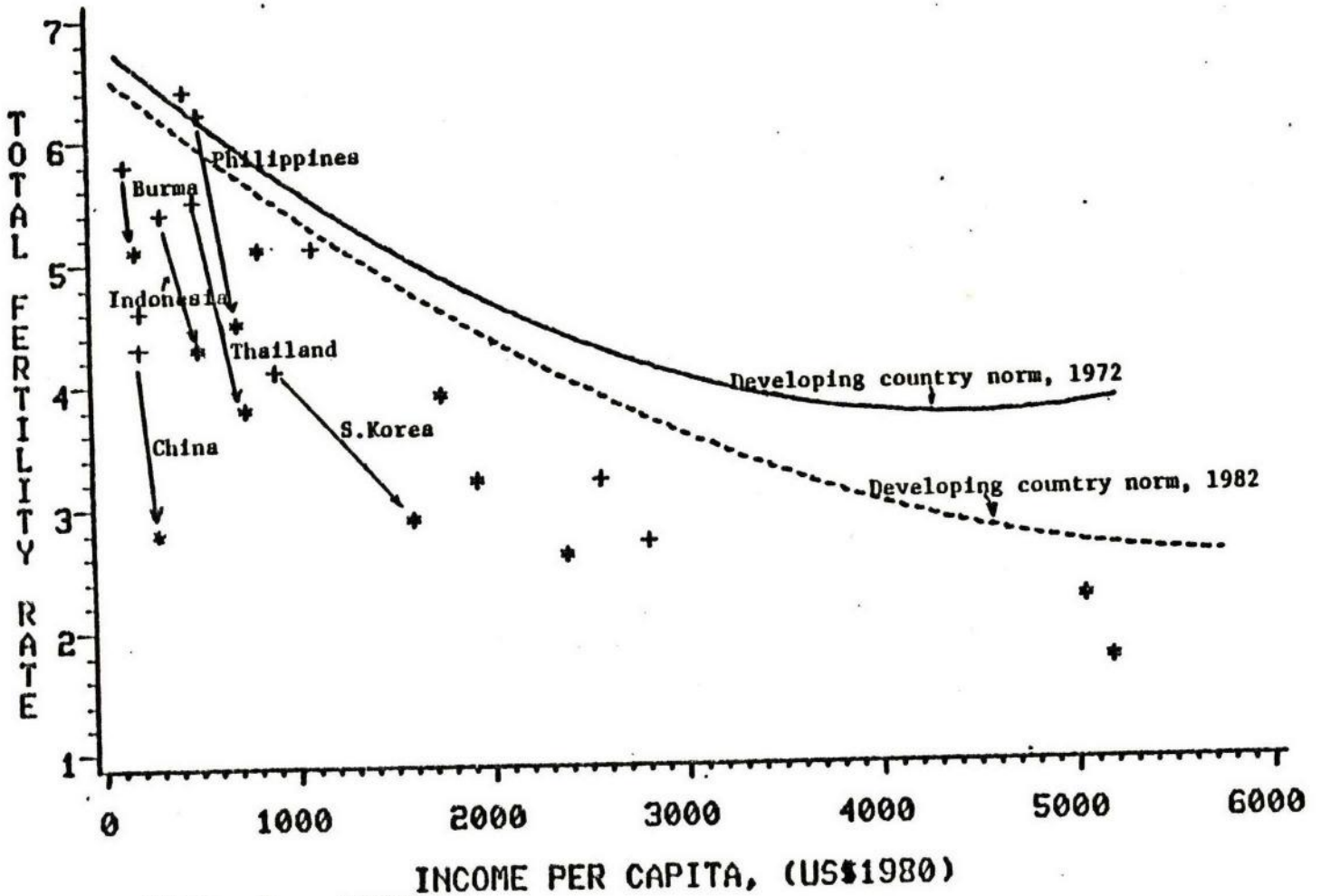


Pill
Condom
I.U.D.
Sterilization (tubectomy and vasectomy)
Traditional (abstinence, safe period, withdrawals, other)
Injectables and vaginal method

Sources: Bangladesh Contraceptive Prevalence Survey, 1981; Sri Lanka Population, Health and Sector Review, 1983; and Economic situation and Prospects of India (World Bank, February, 1984).

a. Based on government statistics. Total includes percentage using modern methods only; data on traditional methods not available. Condom category includes all conventional contraceptives, of which condoms make up the majority.

Figure 8.7 Fertility in relation to income: selected developing countries in East Asia and the the Pacific, 1972, 1982



KEY: + = 1972 * = 1982

Source: EPD data files; China: K. Hill, June 1983.

Note: China 1982 point is for 1981.

Chapter 9 Ten years of experience

9.1 The past ten years have revealed much that is new about the twin themes of this Report. In 1974, with oil prices quadrupled and the world sliding into recession, there was pessimism about the economic prospects for developing countries without oil. In 1974, at the World Population Conference in Bucharest, there was debate about the relative merits of development and contraception as alternative ways of slowing down population growth. Today, both those issues are viewed in a different light; neither economic pessimism nor the development/contraception dichotomy captures what has actually happened in developing countries. Their achievements have been much more varied. But they do point to one general conclusion of great importance: in both economic growth and population, the differences between countries are largely attributable to differences in policy.

Economic adjustment

9.2 Much attention has been paid to the difficulties of developing countries that borrowed heavily in the 1970s, but then found that they could not service their debts. Those countries have had their liquidity maintained in the past two years by the collaboration of banks and governments in rescheduling debts and arranging new credits. Most have also cut back on imports, which has improved their external accounts but at considerable cost to economic growth, investment, and employment. This has underlined the priority of their longer-term task--to redirect their economies to earn more foreign exchange, so that growth can be restored along with their external accounts. Their efforts deserve the support of the international community,

in providing aid and trade credits and, above all, in resisting any protectionist measures that would hamper the debtor countries' exports.

9.3 Prominent though they are, the problems of big debtors should not obscure the achievements of another group of middle-income countries. Many of them, principally in East Asia, have managed to maintain rapid economic growth without running into serious balance-of-payments difficulties. The most successful--[list]--had GDP growth of ____ percent a year in 1974-79, slowing down only slightly to ____ percent a year in 1980-83. Although they have increased their external debt over the past ten years, they have expanded their exports so rapidly that their debt-service ratios never rose as far as did some in Latin America.

9.4 The contrasting performance of these two groups of middle-income countries stems from their contrasting policies. East Asian countries have generally adopted policies to promote exports, largely by maintaining competitive exchange rates. This has enabled them to expand their exports rapidly, has restricted imports on the basis of price rather than by quotas, and has not made foreign loans seem attractively cheap in domestic-currency terms. East Asian countries have also tended to maintain positive real interest rates, encouraging domestic savings and ensuring that investment was directed to the areas of highest return. Their future prospects depend largely on their maintaining the same successful mix of policies. However, those policies will achieve their full potential only if the industrial countries eschew the trade barriers that would hold back exports.

9.5 A third group of developing countries has had only slow economic growth in the past ten years and its prospects look little brighter than its past. It includes many of the poorest countries in the world, mainly in

sub-Saharan Africa. They have been badly affected by slow growth in the industrial world, which has weakened the prices of the commodities on which they still depend for ____ percent of their export earnings. They have little commercial debt, but have nevertheless had difficulty in servicing it. Their capital inflows are composed largely of official aid, which has risen in real terms at only ____ percent a year in the past ten years.

9.6 The problems of sub-Saharan Africa are of a different order to those faced by the middle-income countries. Most African countries still lack the institutions and human skills that are prerequisites for rapid economic growth. They will need to be developed as a matter of urgency, and foreign assistance must play a major part in financing them. Nevertheless, African countries could do much to improve their prospects by reforming their policies. Even among the poorest countries, some have done better than others, largely by raising producer prices to farmers, by maintaining competitive exchange rates, and in general by using prices rather than government directives to allocate resources.

9.7 The need for adjustment is not confined to the developing countries. Part I of this Report argued that many of the failings in the world economy have their roots in the industrial countries, whose financial and economic weight gives them a major influence on the developing world. In varying degrees, the industrial countries have been unwilling to tackle the rigidities in their economies. They have maintained capacity in obsolescent industries, either by subsidies or by restricting imports. Their macroeconomic policies have caused, first, a rapid inflationary build-up in the 1970s and then, in the past three years of disinflation, high real interest rates resulting from the conflict between monetary restraint and relative fiscal laxity.

9.8 Until the industrial countries correct these underlying weaknesses, the prospects for the world economy will remain clouded. Some scenarios presented in Chapter 3 suggest that, without an improvement in the performance of the industrial countries, GDP in the developing world as a whole would grow at only ____ percent a year in 1985-95. Within that total, growth in sub-Saharan Africa would be as low as ____ percent a year. This is less than the likely rate of population growth, so that people in many of the world's poorest countries would get steadily poorer. Among developing countries as a group, improvement in domestic policies could raise growth to ____ per year if industrial country growth is weak, and to ____ if industrial country growth is strong. Only with faster growth in the industrial countries, and an improvement in domestic policies, would Africa's prospects brighten substantially, with GDP growth of ____ percent a year in 1985-95, enough to raise per capita incomes. At the other end of the scale, [middle-income countries in Asia] would enjoy GDP growth averaging ____ a year in 1985-95. The diversity that has been such a feature of the past ten years seems likely to persist.

Population change: success and new challenge

9.9 The accumulating evidence on population change in developing countries underscores the strong link between population and the general level of socioeconomic development, and the contribution that family planning programs make to slowing population growth. At the heart of this evidence lies an apparent paradox. On the one hand, the social costs of large families are high, and in some families children suffer directly from having many siblings. On the other hand, poor families make a reasonable choice in having many children.

A development problem

9.10 Part II of this Report dwells at length on the meaning and implications of this paradox. The reasons why poor parents want many children are clear. In rural areas especially, extra hands make life easier. High infant and child mortality mean that the parents of few children cannot feel secure about their own future until they have had four or five babies--including, in some settings, two or three sons. Birth control may be unheard of, or anyway expensive. In such a context, each individual family's decision to have another child seems rational. Yet added up together, all their decisions make all families, and especially children, worse off in the end. There is a gap between the private and social gains of large families. The gap is caused in large part by poverty--and the resulting lack of access to opportunities that would encourage smaller families.

9.11 The link between high fertility and poverty means that the mismatch between population and income-producing ability could grow worse. A decade ago that mismatch was evident between the developed and developing world. Today, there are signs of a growing mismatch among developing countries. Fertility is declining in the middle-income countries of Latin America and southeast Asia: Brazil, Colombia, Costa Rica, Indonesia, Korea, Malaysia, Mexico, and Thailand. In Indonesia, Mexico, and Thailand, public efforts at family planning have increased in the past decade, causing fertility to fall steeply. But in the poorer countries of Central America, South Asia, and Africa, fertility has declined less, or not at all. In this group also, marked differences among and within countries show that income levels are less important than education and policy effort. Sri Lanka and the Indian state of Kerala have lower fertility than most of north India; India as a whole has lower fertility than Pakistan or Bangladesh; and China, a low-income country,

has implemented a wide-ranging population policy that has drastically reduced fertility. But further fertility decline will become progressively more difficult.

9.12 The mismatch between population and income also occurs within countries. It is the poor who have many children; caught by the poverty of their parents, those children carry their disadvantages into the next generation. At the family as well as the national level, high fertility demands increased investment merely to keep up with population growth. The extra investment needed to raise future incomes--by spending more on children's education, for example--is all the harder to find. Rapid population growth in most countries--2 percent to over 4 percent per year--means up to 50 percent of populations are under the age of fifteen. Job creation for many years will be a formidable task, and those who are poorly educated will have few good opportunities. For some countries and many rural families, high fertility means extra resources must go into agriculture just to keep pace with food requirements. In Africa and South Asia, rural populations are likely to double in the next forty years--and in cities, with immigration added to high fertility, in the next fifteen years.

9.13 Population growth would not be a problem if economic and social adjustments could be made fast enough, if technical change could be guaranteed, or if rapid population growth itself inspired technical change. But if anything, rapid population growth makes adjustment more difficult. There is no evidence that it brings more than the gradual adaptation that is typical of agriculture, serving just to maintain per capita output. The money and research skills needed for modern technological change are overwhelmingly in the rich countries, where population growth is slow. If anything they produce labor-saving, not labor-using, innovations.

Appropriate policies

9.14 The process of economic development itself generates new signals that lower fertility. As women have more education, as more children survive childhood disease, as children become less valuable as workers and sources of old-age security, and as information about the possibility of birth control spreads, decisions change. Parents time the births of children, have fewer of them, and spend more on their health and schooling.

9.15 In the now-developed countries, that kind of transition brought fertility down and slowed population growth without any policies designed to do so. But fertility was never as high as in developing countries, and mortality fell more slowly; so population growth rarely exceeded 1.5 percent a year. Living standards rose fast enough and improvements were shared widely enough to bring fertility down with mortality. Similar changes in signals have played a role in lowering fertility in some developing countries over the past two decades. But fertility decline has not been great enough to reduce population growth below 2 percent (except recently in China, Korea, and Singapore); and it has not come automatically. Where fertility has fallen, economic and social gains have not been confined to a small minority, and public programs--especially to spread family planning services--have been critical.

9.16 The gap between the private and social gains from high fertility provides an additional justification for government action to do many of the things governments do anyway. This Report has emphasized policy measures that increase people's welfare as well as, and as a way to, reduce fertility: education (particularly for girls) and more primary health care for mothers and children. But it has also shown that measures to raise living standards take time to lower fertility. This implies the need to act now in education,

mortality reduction, and programs to improve women's opportunities, so as to bring a sustained decline in fertility over the long run. But it also means that actions with an immediate payoff are possible and desirable. Virtually no developing country is yet doing all it might to inform people of the health and fertility benefits of breastfeeding, and to promote later marriage. And in countries where parents are having as many children as they want, financial incentives may well be needed to bring fertility down further. Through incentives--including, for example, schemes for security in old age--government policy provides an additional mechanism for people to make a social contract with each other: each couple will have fewer children knowing that others will do the same.

9.17 As for contraception, many people have more children than they would otherwise want, because information about birth control is scarce or the costs--social and psychological as well as financial--are high. This is clearer today than ever: the success of public efforts to reduce the costs of using contraception, in Colombia, India, Indonesia, Mexico, and elsewhere, itself bears testimony to that. At the same time new data on fertility and contraceptive use show that many couples still do not benefit from adequate services. The gap between actual and desired family size means a public policy to provide family planning information and services will bring fertility closer to socially desirable levels at the same time as it helps couples have only the children they want. Though the private sector might be expected to fill this need, and has done so to some extent in urban areas, it cannot make much progress in rural areas, where backup health systems are poor and information about birth control spreads only slowly.

9.18 As Chapter 7 showed, increasing by 50 percent the public sums currently spent on family planning in developing countries would make it

possible to meet the needs that more than 60 million couples now have for family planning services. Quadrupling the funds by the year 2000 is necessary to bring the "rapid" fertility decline described in Chapter 4. These targets are ambitious, yet not hugely expensive: for example, quadrupling the foreign aid spent on population programs would require an extra $1.5 billion (in 1980 dollars), equivalent to only 3 percent of all aid programs in 1982.

9.19 It is hard to imagine another development program that could prompt a recommendation to quadruple its funding. But on family planning programs the evidence is clear: they have hastened a fall in fertility at low cost, reduced infant and maternal mortality, contributed to improving women's lives, and given many couples a new awareness of their ability to control their own and their children's wellbeing.

9.20 But there is also evidence that family planning services alone can go only so far in reducing fertility. In many countries where fertility has fallen, the change in average family size is from six or more children to four; four children is the number couples say they want. The desired number of children is still larger than four in much of Africa; in rural areas and among the less educated, it is larger than four almost everywhere. Where fertility now seems to have stalled (India with total fertility over 4 and Sri Lanka and Costa Rica with total fertility over 3.5), part of the reason may be that desired family size remains high. Without sustained improvements in living conditions, desired family size is likely to remain around 4--implying population growth rates at or above 2 percent.

9.21 That prospect does not augur well for development. This Report has shown that economic and social progress helps to slow down population growth; but it has also emphasized that rapid population growth hampers economic development. It is therefore imperative that governments should act

simultaneously on both fronts. For the poorest countries, development may not be possible at all unless slower population growth can be achieved soon, even before higher real incomes would bring down fertility spontaneously. In middle-income countries, a continuation of high fertility among poor people could prolong indefinitely the period before development significantly affects their lives. No one would argue that population policy alone can solve the development problem. But because poverty and rapid population growth reinforce each other, efforts to slow population growth are a critical part of the overall development effort.

Population data
Supplement

Population data supplement

This section provides demographic information additional to that contained in the World Development Indicators. Many data already appear in the Indicators: population size in Table 1; population growth and projections in Table 19; birth and death rates in Table 20; labor force in Table 21; urbanization in Table 22; and life expectancy and infant and child mortality in Table 23. The supplementary information contained here is organized in a similar manner to the indicators and has been obtained through similar methods, though with slightly more reliance on sample surveys. It is subject to the same cautions regarding margins of error, differences in statistical systems, and difficulties of comparisons across economies.

Table 1. Population projections

Population projections for this table, as well as those for succeeding tables, for Tables 19 and 21 in the World Development Indicators, and for Chapter 4, were carried out using a computer program developed for the World Bank. The program uses a modified cohort-component method, simulating the effects of various fertility, mortality, and migration assumptions on future population size and age structure in successive five-year periods. Births for each period are calculated by applying a schedule of age-specific fertility rates, scaled to agree with the given total fertility rate, to the female population for the period classified by age group. These births enter as the youngest cohort, and age in accordance with assumed mortality conditions. The fertility assumptions are entered in the form of total and age-specific fertility rates, either period by period or only for specific periods, in which case the program allows the use of various interpolation methods to obtain rates for other periods. Mortality assumptions may be

entered in the form of expectations of life at birth or alternative life tables. Migration assumptions are entered in the form of net migration in each period by sex and age; the age distribution of migrants may also be obtained from a model on the basis of their overall sex ratio.

Individual judgments were made by the Demographic Unit, Population, Health, and Nutrition Department, about what future path in immigration and emigration to assume for each country. These assumptions are invariant across alternative fertility and mortality scenarios.

The future path for fertility is based on subjective judgments about the most likely year by which each country will reach replacement fertility. Some systematization of these judgments was obtained through the following sequence of steps. First, using only the countries about which more solid judgments could be made, the estimated year for replacement fertility was regressed on several predictors: the current total fertility rate for each country; the change in this rate over the previous ten years; the proportion using contraception; and current female life expectancy. Second, on the basis of this regression, a new replacement year was calculated for each country, constrained to fall between 2000 and 2050. (Fertility in industrial countries already below replacement was assumed to rise to replacement by 2000.) Third, different curves were fitted for the course of the total fertility rate between the current year and the year of replacement fertility. The curves were chosen to provide accelerating decline early on (in some cases after a few years of constant fertility), followed by decelerating decline as fertility approaches replacement; fertility remains at replacement level once it has been reached.

The future path for mortality was established from world data for 1965-69 and 1975-79 on the assumption that increments to life expectancy

depend on the level reached. Changes in female life expectancies between these two periods were regressed on the initial expectancies, separately for two groups of countries: those with female primary school enrollment percentages under 70 and those with percentages of 70 or more (including developed countries). Estimates of single-year increments were obtained by dividing the estimated decadal increments from these two equations by ten. Together, these fertility and mortality assumptions define the standard projection.

Alternative projections were based on more rapid fertility and mortality decline. For rapid fertility decline, an examination was made of the experience of eleven developing countries--including China, Colombia, and Thailand--with reasonable time-series data showing rapid fertility decline in the postwar period. In these countries, once fertility decline began the total fertility rate fell by a roughly constant amount--about 0.2--every year. A constant linear decline at the average pace shown by these eleven countries was taken as the model for rapid fertility decline, with the added proviso that decline ends when replacement is reached and fertility thereafter stays at replacement.

For rapid mortality decline, three steps were involved. First, a logistic curve was derived to represent the trend in life expectancy (male and female combined) across developing countries between 1960 and 1980 (see Figure 1 in Box 4.5). Second, fourteen countries with initial life expectancies above forty and more reliable data were identified that substantially outperformed this curve. Third, a second logistic curve was fitted to the life expectancy data for these countries. This second curve was taken to determine the time path for rapid mortality decline.

The rate of natural increase is the difference between births and deaths per hundred population.

The total fertility rate represents the number of children that would be born per woman, if she were to live to the end of her childbearing years and bear children at each age in accord with prevailing age-specific fertility rates. The rate for 2000 is given under the assumptions of standard and rapid fertility decline.

Table 2. Population composition

The dependency ratio is the ratio of the combined population under fifteen and over sixty-four to the population between those ages. The dependency ratio for 2000 is derived from the standard Bank projections (see below) that also produced Table 19. In addition to these ratios, the size of each age group is given for 1960 and 2000 relative to its size in 1980, which is arbitrarily assigned an index value of 100.

Table 3. Population density and population capacity

Persons per square kilometer is calculated from population and area as given in World Development Indicators Table 1.

Population capacity, or the population supportable by each country from its own agricultural resources, was calculated assuming that all potentially cultivable lands would be devoted to food production and that everyone would adopt a FAO/WHO country-specific minimum diet. Actual population in 1975 and projected population in 2000 are expressed as percentages of this supportable population, which varies depending on the level of farm technology assumed. Low technology means subsistence agriculture, with no fertilizers or pesticides, traditional seed varieties and cropping patterns, and no conservation measures. Intermediate technology

refers to rainfed cultivation with limited fertilizer application (equates very approximately to the use of 180-400 kg. of fertilizer per hectare per crop) simple extension packages (including some chemical pest, disease and weed control); improved cropping patterns, and some long-term conservation measures.

High technology is defined by reference to North American standards: full use of all modern inputs and conservation measures and cultivation of the most productive crops. The population capacity estimates are from the "Land Resources for Populations of the Future" project carried out by FAO, as reported in G. M. Higgins and others, Potential Population Supporting Capacities of Lands in the Developing World (1983).

These potential population supporting capacities were computed by matching the soil and climatic requirements of fifteen of the most widely grown food crops (plus grassland for livestock) with land inventories of 117 developing countries. Deductions from the land area were made for nonagricultural uses, for irrigation, and for fallow requirements. Land losses owing to environmental degradation were also taken into account under the low and intermediate input assumptions. Each area of the land inventory was analyzed to ascertain which crops would be most productive under the unique soil and climatic conditions in the area, and the yields in terms of calories calculated. These results were then aggregated to the country level. The final step was to convert the potential calorie production of each country (including output from present and projected irrigated areas) to potential population supporting capacity by dividing by the FAO/WHO minimum calorie intake recommended for that country.

There are a number of limitations associated with the estimates of potential population population capacity, and the results must therefore be

interpreted with caution. First, no allowance is made for the cultivation of nonfood crops or for the use of cereals as fodder. Second, the data do not provide an indication of where a given country presently stands on the farm technology scale, and there is no attempt to quantify the investment needed to move from one level of technology to another. Third, no allowance is made for inequality in the distribution of food within a country. Finally, and most importantly, the data do not take into account the role of international trade, loans, and food aid which may enable food-deficit countries to obtain adequate supplies from foreign sources.

Table 4. Determinants of fertility

Average number of living children is the mean across all currently married women of reproductive age (fifteen to forty-four, though in a few cases the data include women forty-five to forty-nine). These data are from the World Fertility Survey (WFS), except in the cases where data from Contraceptive Prevalence Surveys were used, namely: [list of countries]. The same sources were used for the other data in this table.

Desired family size is based on a direct question regarding total number of children desired, and is a mean across all female respondents, who are usually married women of reproductive age.

The percent of married women of reproductive age (MWRA) wanting no more children includes in both the numerator and the denominator those who report themselves as infecund.

Women are counted as having unmet need if they want no more children, are exposed to the risk of pregnancy (i.e., are not pregnant, do not consider themselves infecund, and are breastfeeding a child under one year), and are not contracepting (see also Box 7.3).

For the percent of women fifteen to nineteen in union, not only legal marriages but also common-law and consensual unions were counted.

The expected duration of breastfeeding for surviving children is the number of months a woman would breastfeed, on average, if she followed current practice. It is derived from survey information on current breastfeeding status: for each duration y, the proportion breastfeeding was calculated by dividing the number breastfeeding y months since birth by the number with a child y months old. The mean was obtained by summing person-months spent breastfeeding across durations, as with life-table rates.

Under contraceptive use, sterilization includes both female and male sterilization; other effective methods include pills, injectables, IUDs, condoms, and diaphragms; and ineffective methods include rhythm, withdrawal, abstinence, douches, and traditional methods, all of which are low in use-effectiveness, though some of them may be theoretically quite effective.

Table 5. Status of women

The male and female adult literacy rates are the percentages of persons of each sex aged fifteen and over who can read and write.

The singulate mean age at marriage is calculated by summing the proportions single across ages zero to forty-nine, subtracting fifty times the proportion single at ages forty-five to fifty-four, and dividing the result by the proportion ever married at ages forty-five to fifty-four. [Possible alternatives to SMAM are the mean ages of brides and grooms in the past year. This number is more "current" than the singulate mean, but does not take account of proportions never marrying.]

The percent economically active includes the armed forces and the unemployed, but excludes housewives, students, and other inactive groups.

Table 6. Population policy indicators

Support for family planning exists if a country has an official policy supporting such activities. Countries are classified as officially providing no support; providing support for nondemographic reasons, principally to serve health and other objectives, including human rights objectives but excluding any explicit antinatal goals; and providing support for demographic objectives, i.e., to reduce population growth. Countries in the third group may also support family planning for reasons of health and as a human right.

This classification as well as the year official family planning program started is from Dorothy Nortman and Joanne Fisher, Population and Family Planning Programs: A Factbook, 11th ed. or from Watson [citation].

Family planning program effort scores for 1972 were obtained from W. Parker Mauldin and Bernard Berelson, "Conditions of fertility decline in developing countries, 1965-75," Studies in Family Planning, vol. 9 (1978), pp. 89-147. Scores for 1982 were obtained through questionnaires to key informants in each country by Robert J. Lapham and W. Parker Mauldin in background work for this Report. In the few cases indicated, informants actually rated programs as of 1983. Each score is based on whether or not the following actions were taken in regard to population by the stated date: making fertility reduction a part of official plans; political leaders making public statements favorable to fertility reduction; making contraception readily and easily available, publicly and commercially, throughout the country; allowing importation of contraceptives not manufactured locally; making vigorous efforts to provide family planning services to all married women of reproductive age; setting up an adequate administrative structure for family planning services; establishing and using training facilities;

employing full-time field workers for home visits; providing postpartum education and services; making abortion legally and openly available; making male and female sterilization legally and openly available; making substantial use of the mass media; providing a substantial part of the family planning budget out of government resources; keeping records at the clinic level for clients and at all levels for program evaluation; and making a serious and continuous evaluation effort.

[Explanations for other indicators and sources for all data will be added.] [The data in the tables themselves are at present only illustrative, and will be updated; the empty columns will eventually be filled in.]

Births in 1983 and the total fertility rate

Countries in this map are drawn proportional to number of births in 1982. [The sample map currently enclosed does not do this, but merely illustrates the idea of proportionality.] They are colored from light to dark based on the total fertility rate in the same year:

Under 3.0	very light
3.0 to 4.4	light
4.5 to 5.9	medium
6.0 and over	dark

A pie chart, to be added below the map, will show how total births are distributed by income level (low-income, middle-income, high-income oil exporters, industrial market, East European nonmarket). A separate bar chart will give weighted mean total fertility rates for each of these income groups.

Contraceptive prevalence

Countries are colored from light to dark on this map to show contraceptive prevalence rates. These are the most recent estimates, though they are for a variety of years. Not all of them correspond to the numbers in Table 4, because Table 4 is restricted to World Fertility Survey and Contraceptive Prevalence Survey data.

The bar chart below shows the distribution of contraceptive methods in different regions.

3. The State by Population

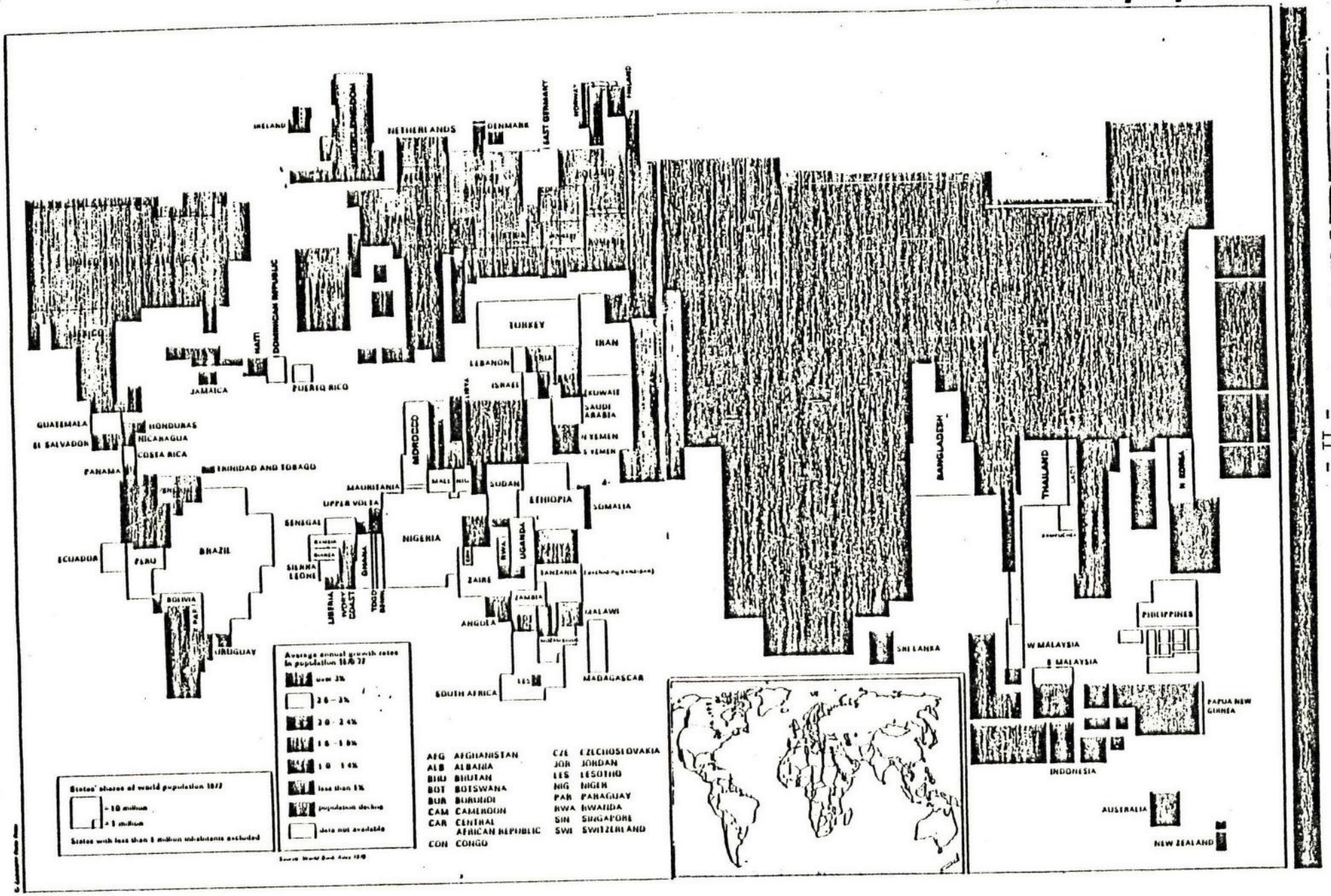


Table 1 Population projections

Projected population Standard projection		Projected population Rapid fertility decline only		Projected population Rapid fertility and mortality decline		Natural rate of increase, 2000		Total fertility rate, 2000	
2000	2050	2000	2050	2000	2050	Under standard projection	Under rapid fertility decline	Under standard projection	Under rapid fertility decline

Table 2 Population composition

	Dependency ratio			Index numbers for relative sizes of age groups (age group size in 1980=100)					
				Ages 0-14		Ages 15-64		Ages 65 and over	
	1960	1980	2000	1960	2000	1960	2000	1960	2000
Low-income economies									
China and India									
Other low-income									
Kampuchea, Dem.	0.89	-	-	-	-	-	-	-	-
Bhutan	0.79	0.80	0.67	66	137	70	169	73	172
Laos, PDR	0.77	0.93	0.70	61	135	78	194	64	215
Chad	0.76	0.85	0.76	64	145	71	165	66	173
Bangladesh	0.90	0.83	0.70	62	158	58	190	74	183
Ethiopia	0.87	0.91	0.78	63	167	66	198	88	184
Nepal	0.74	0.83	0.71	59	147	68	178	75	205
Burma	0.69	0.81	0.66	61	135	70	170	47	185
Afghanistan	0.82	0.90	0.76	58	143	66	175	81	183
Mali	0.86	0.97	0.85	56	164	64	193	57	103
Malawi	0.92	1.03	0.94	56	193	59	202	35	135
Zaire	0.89	0.91	0.76	61	167	62	202	67	218
Uganda	0.86	0.94	0.76	55	175	60	219	53	212
Burundi	0.83	0.90	0.77	67	163	71	190	66	199
Upper Volta	0.84	0.91	0.78	65	160	70	188	69	199
Rwanda	0.89	0.94	0.93	55	203	56	199	56	218
India	0.84	0.74	0.57	66	119	62	166	99	209
Somalia	0.87	0.87	0.83	58	160	57	166	58	189
Tanzania	0.84	0.97	0.82	51	178	59	212	55	212
Viet Nam	-	0.84	0.64	-	133	-	185	-	175
China	0.78	0.58	0.41	81	75	64	141	64	204
Guinea	0.81	0.88	0.77	54	158	59	185	55	207
Haiti	0.81	0.86	0.69	68	128	75	167	81	163
Sri Lanka	0.84	0.65	0.55	77	118	61	157	58	202
Benin	0.87	0.96	0.93	56	193	61	199	55	206
Central African Rep.	0.73	0.82	0.75	62	150	69	164	59	173
Sierra Leone	0.82	0.90	0.77	59	161	65	189	63	193
Madagascar	0.81	0.89	0.78	60	169	65	196	61	201
Niger	0.90	0.98	0.90	50	182	54	196	54	211
Pakistan	0.93	0.96	0.75	53	155	57	203	87	189
Mozambique	0.78	0.90	0.78	50	179	58	207	51	217
Sudan	0.88	0.89	0.77	59	165	60	192	67	208
Togo	0.87	0.97	0.80	55	169	61	206	57	214
Ghana	0.89	0.98	0.81	56	188	62	230	57	239

Table 2 Population composition
(page 2)

	Dependency ratio			Index numbers for relative sizes of age groups (age group size in 1980=100)					
				Ages 0-14		Ages 15-64		Ages 65 and over	
	1960	1980	2000	1960	2000	1960	2000	1960	2000
Middle-income economies									
Oil exporters									
Oil importers									
Lower middle-income									
Kenya	1.01	1.12	1.04	47	231	51	245	53	229
Senegal	0.84	0.91	0.85	59	171	63	184	66	203
Mauritania	0.87	0.96	0.90	61	162	67	173	62	184
Yemen Arab Rep.	0.84	0.91	0.71	55	146	63	199	60	210
Yemen, PDR	0.91	0.93	0.71	61	154	65	212	72	242
Liberia	0.92	0.97	0.81	52	180	53	214	54	258
Indonesia	0.78	0.74	0.62	66	126	64	160	65	202
Lesotho	0.76	0.83	0.73	61	164	67	185	68	188
Bolivia	0.83	0.88	0.71	59	140	64	179	65	187
Honduras	0.91	1.00	0.76	50	152	56	210	42	226
Zambia	0.90	1.00	0.93	54	193	59	207	54	213
Egypt	0.83	0.75	0.58	65	122	59	168	54	205
El Salvador	0.92	0.91	0.66	55	135	57	202	55	227
Thailand	0.90	0.77	0.54	62	108	55	173	51	208
Philippines	0.91	0.86	0.60	57	122	56	187	56	188
Angola	0.80	0.89	0.78	60	160	67	185	59	200
Papua New Guinea	0.77	0.82	0.69	62	131	66	162	57	176
Morocco	0.90	0.94	0.71	56	162	60	229	47	226
Nicaragua									
Nigeria									
Zimbabwe	0.93	1.00	0.80	50	208	54	262	56	279
Cameroon	0.75	0.84	0.69	67	163	71	190	62	171
Cuba	0.64	0.62	0.51	77	97	74	138	50	157
Congo People's Rep.	0.79	0.91	0.88	54	192	63	202	59	221
Guatemala	0.96	0.85	0.68	58	140	52	184	49	221
Peru	0.92	0.84	0.68	60	136	56	175	72	178
Ecuador	0.92	0.90	0.67	53	141	53	199	55	196
Jamaica	0.85	0.83	0.60	77	115	76	177	54	156
Ivory Coast	0.86	0.89	0.77	41	166	42	194	55	302
Dominican Rep.	1.03	0.88	0.63	59	127	53	192	61	217
Mongolia	0.84	0.84	0.54	54	115	57	197	70	224
Colombia	0.99	0.66	0.52	78	118	51	163	54	218
Tunisia	0.91	0.78	0.56	69	117	63	186	75	227

Table 2 Population composition
(page 3)

	Dependency ratio			Index numbers for relative sizes of age groups (age group size in 1980=100)					
				Ages 0-14		Ages 15-64		Ages 65 and over	
	1960	1980	2000	1960	2000	1960	2000	1960	2000
Costa Rica	1.02	0.69	0.53	67	115	46	169	45	224
Korea Dem. Rep.	0.89	0.76	0.59	63	126	55	175	53	196
Turkey	0.81	0.74	0.56	65	118	61	174	49	203
Syrian Arab Rep.	0.93	1.02	0.75	47	177	54	253	52	196
Jordan	0.94	0.95	0.69	50	167	53	240	80	253
Paraguay	0.97	0.89	0.66	62	127	58	180	59	192
Upper middle-income									
Korea, Rep. of	0.86	0.59	0.49	82	106	57	149	56	213
Iran, Islamic Rep. of	0.96	0.90	0.62	55	144	54	220	74	195
Iraq	0.94	0.95	0.71	52	162	53	228	51	260
Malaysia	0.95	0.76	0.51	65	107	54	180	63	210
Panama	0.93	0.77	0.57	66	117	55	173	62	206
Lebanon	0.87	0.78	0.60	72	120	67	168	83	175
Algeria	0.91	1.02	0.78	53	174	61	232	62	180
Brazil	0.86	0.80	0.64	65	123	60	165	46	209
Mexico	0.96	0.91	0.65	54	130	53	196	52	197
Portugal	0.59	0.58	0.54	99	105	90	120	72	131
Argentina	0.57	0.58	0.55	81	103	75	125	48	171
Chile	0.77	0.59	0.49	82	105	62	147	55	194
South Africa	0.81	0.83	0.80	61	178	60	182	62	196
Yugoslavia	0.58	0.50	0.51	102	102	78	115	59	158
Uruguay	0.56	0.60	0.59	91	105	89	121	66	157
Venezuela	0.95	0.81	0.62	56	128	48	179	42	236
Greece	0.53	0.55	0.57	100	102	88	108	56	127
Hong Kong	0.78	0.52	0.53	88	114	52	126	27	190
Israel	0.69	0.71	0.58	59	112	55	146	32	143
Singapore	0.83	0.50	0.46	100	106	56	131	30	197
Trinidad and Tobago	0.89	0.58	0.51	93	107	61	144	60	216
High-income oil exporters									
Libya	0.90	0.96	0.73	42	171	47	235	80	298
Saudi Arabia	0.85	0.94	0.74	43	170	48	219	42	225
Kuwait	0.59	0.93	0.72	16	143	26	195	33	423
United Arab Emirates	-	0.87	0.69	-	135	-	178	-	148

Table 2 Population Composition
(page 4)

	Dependency ratio			Index numbers for relative sizes of age groups (age group size in 1980=100)					
				Ages 0-14		Ages 15-64		Ages 65 and over	
	1960	1980	2000	1960	2000	1960	2000	1960	2000
Industrial market economies									
Ireland	0.73	0.70	0.56	87	105	85	135	87	110
Spain	0.55	0.57	0.56	85	102	83	118	63	140
Italy	0.52	0.53	0.55	100	99	91	107	64	123
New Zealand	0.71	0.57	0.51	86	103	67	127	69	134
United Kingdom	0.54	0.55	0.57	103	104	95	104	75	110
Japan	0.56	0.47	0.49	103	92	76	111	54	178
Austria	0.52	0.54	0.52	99	99	96	107	74	100
Finland	0.60	0.47	0.49	137	102	85	108	58	128
Australia	0.63	0.53	0.51	82	101	67	120	65	144
Canada	0.70	0.48	0.49	105	107	66	118	63	149
Netherlands	0.64	0.49	0.49	108	100	75	113	65	127
Belgium	0.55	0.52	0.54	106	100	92	103	80	112
France	0.61	0.54	0.53	100	101	82	113	74	114
United States	0.67	0.51	0.49	107	104	72	115	67	125
Denmark	0.56	0.53	0.51	107	98	89	108	68	108
Germany, Fed. Rep.	0.47	0.49	0.52	101	99	92	101	66	108
Norway	0.59	0.57	0.53	101	99	87	111	68	105
Sweden	0.51	0.55	0.53	100	97	92	104	68	102
Switzerland	0.51	0.49	0.51	99	99	84	106	64	119
East European nonmarket economies									
Albania	0.86	0.72	0.53	64	111	66	175	62	179
Hungary	0.52	0.53	0.53	111	97	93	103	64	116
Romania	0.57	0.56	0.55	93	101	83	116	58	145
Bulgaria	0.51	0.51	0.56	105	101	89	105	57	143
Poland	0.65	0.52	0.51	115	105	76	116	49	142
USSR	0.60	0.52	0.53	100	107	77	117	58	149
Czechoslovakia	0.56	0.57	0.53	100	107	77	117	58	149
German Dem. Rep.	0.53	0.54	0.52	109	102	105	107	88	94

Table 3 Population density and population capacity

	Persons per square kilometer		Actual or projected population as a percentage of supportable population					
			Assuming low technology		Assuming medium technology		Assuming high technology	
	1975	2000	1975	2000	1975	2000	1975	2000
Low-income economies								
China and India								
Other low-income								
Kampuchea Dem.	41	59	38	51	10	14	5	7
Bhutan	25	42	74	128	26	45	14	25
Laos, PDR	13	24	37	64	11	20	4	8
Chad	3	5	29	50	6	10	1	2
Bangladesh	548	1084	223	129	78	104	49	84
Ethiopia	24	42	168	245	41	71	9	16
Nepal	91	172	107	103	38	61	25	44
Burma	44	77	52	79	16	28	8	15
Afghanistan	22	40	120	165	94	136	68	104
Mali	5	10	79	121	17	32	3	7
Malawi	44	100	59	121	16	37	7	16
Zaire	11	23	9	19	2	4	1	2
Uganda	47	107	86	190	21	50	6	14
Burundi	134	264	393	851	75	161	33	71
Upper Volta	20	40	102	180	21	40	4	8
Rwanda	165	395	571	1411	117	299	52	133
India	185	305	119	94	52	54	27	37
Somalia	6	11	292	366	146	219	53	91
Tanzania	17	38	42	89	10	23	3	7
Viet Nam	145	267	113	149	38	66	21	38
China	97	125					..	..
Guinea	19	38	31	63	9	18	3	5
Haiti	165	270	174	187	74	106	40	66
Sri Lanka	206	325	120	138	41	62	28	45
Benin	27	61	48	110	11	24	3	7
Central African Rep.	3	6	5	8	1	2	0	1
Sierra Leone	42	86	59	114	11	22	6	13
Madagascar	13	27	16	29	4	8	1	3
Nigeria	4	8	373	830	186	415	11	24
Pakistan	88	184	98	71	90	69	82	67
Mozambique	11	29	23	59	6	15	2	4
Sudan	6	13	27	42	7	13	2	3
Togo	40	86	58	118	12	27	4	10
Ghana	42	102	47	105	11	26	4	10

Table 3 Population density and population capacity
(page 2)

	Persons per square kilometer		Actual or projected population as a percentage of supportable population					
			Assuming low technology		Assuming medium technology		Assuming high technology	
	1975	2000	1975	2000	1975	2000	1975	2000
Middle-income economies								
Oil exporters								
Oil importers								
Lower middle-income								
Kenya	23	68	391	679	112	283	24	75
Senegal	25	52	110	133	26	46	5	10
Mauritania	1	2	132	249	66	83	16	28
Yemen Arab Rep.	31	63	240	351	164	263	80	137
Yemen, PDR	5	11	168	266	126	266	72	152
Liberia	14	33	17	39	3	8	1	3
Indonesia	68	112	46	62	13	21	9	15
Lesotho	39	78	218	433	87	173	38	76
Bolivia	4	8	6	11	2	3	1	1
Honduras	28	60	34	65	13	28	4	9
Zambia	6	15	10	23	2	5	1	1
Egypt	37	64	60	56	60	56	60	56
El Salvador	187	371	194	253	78	140	25	53
Thailand	81	134	70	66	24	34	11	18
Philippines	140	255	89	105	25	43	16	29
Angola	5	11	12	25	2	5	1	1
Papua New Guinea	6	10	..	..	..	..	..	..
Morocco	38	90	137	140	63	95	37	66
Nicaragua	17	37	14	26	5	10	2	4
Nigeria	81	183	137	305	34	81	10	24
Zimbabwe	15	42	56	123	12	32	3	9
Cameroon	16	31	10	19	4	7	1	2
Cuba	79	106	81	43	43	33	11	14
Congo People's Rep.	4	9	3	8	1	2	0	1
Guatemala	57	111	80	106	28	47	8	16
Peru	11	20	19	29	8	13	2	4
Equador	25	51	27	41	6	12	4	8
Jamaica	186	297	130	148	48	70	22	35
Ivory Coast	21	47	14	31	4	9	2	4

Table 3 Population density and population capacity
(page 3)

	Persons per square kilometer		Actual or projected population as a percentage of supportable population					
			Assuming low technology		Assuming medium technology		Assuming high technology	
	1975	2000	1975	2000	1975	2000	1975	2000
Dominican Rep.	96	182	78	99	35	55	17	31
Mongolia	1	2						
Colombia	21	34	17	25	5	9	2	4
Tunisia	34	62	229	151	90	100	46	65
Costa Rica	39	68	33	44	10	17	4	7
Korea, Dem. Rep.	134	236						
Turkey	51	87	89	72	51	55	33	42
Syrian Arab. Rep.	40	104	139	192	58	124	38	89
Jordan	28	68	395	761	251	489	197	428
Paraguay	6	11	8	14	2	4	1	2
Upper middle-income								
rea, Rep. of	358	530						
Iran, Islamic Rep. of	20	44	119	174	88	141	61	109
Iraq	25	60	121	284	56	145	32	88
Malaysia	37	64	14	23	5	8	5	9
Panama	21	36	18	29	5	9	5	9
Lebanon	266	381	397	356	238	267	203	243
Algeria	7	16	224	322	67	134	34	77
Brazil	13	21	18	28	4	6	2	2
Mexico	30	58	60	63	25	36	10	17
Portugal	102	124						
Argentina	9	12	18	21	6	8	3	4
Chile	13	20	79	59	40	39	23	27
South Africa	21	43						
Yugoslavia	83	101						
Uruguay	16	20	15	19	5	6	2	3
Venezuela	14	26	16	26	5	9	2	3
Greece	69	79						
Hong Kong	4231	6180						
Israel	166	250	260	294	162	226	112	183
Singapore	3859	5267	*	*	*	*	*	*
Trinidad and Tobago	211	307	201	201	40	55	24	35

Table 3 Population density and population capacity
age 4)

	Persons per square kilometer		Actual or projected population as a percentage of supportable population					
			Assuming low technology		Assuming medium technology		Assuming high technology	
	1975	2000	1975	2000	1975	2000	1975	2000
High-income oil exporters								
Libya	1	3	138	87	69	70	35	58
Saudi Arabia	3	8	337	820	337	820	169	273
Kuwait	57	134	5651	*	5651	*	5651	*
United Arab Emirates	8	19	773	947	773	947	773	947
Industrial market economies								
Ireland	44	58						
Spain	71	86						
Italy	182	200						
w Zealand	11	15						
United Kingdom	228	239						
Japan	300	352						
Austria	89	94						
Finland	14	15						
Australia	2	2						
Canada	2	3						
Netherlands	332	384						
Belgium	321	336						
France	96	108						
United States	23	28						
Denmark	117	125						
Germany, Fed.Rep.	249	252						
Norway	12	14						
Sweden	18	19						
Switzerland	155	163						
East European nonmarket economies								
Albania	84	138						
Hungary	113	119						
Romania	89	107						
Bulgaria	79	86						
Poland	109	132						
USSR	11	14						
Czechoslovakia	116	133						
German Dem. Rep.	156	161						

Table 4 Determinants of fertility

	Av. no. of living children for MWRA*	Family size preferences: Desired family size	Family size preferences: Percent of MWRA wanting no more children	Family size preferences: Percent of MWRA with unmet need	Factors influencing fertility: Percent of women 15-19 in union	Factors influencing fertility: Median duration of breast-feeding	Contraceptive use: Percent of MWRA regulating births by: Sterilization	Contraceptive use: Other effective methods	Contraceptive use: Less effective method	Total fertility rate among women with: no schooling	Total fertility rate among women with: Seven or more year schooling
Low-income economies											
Bangladesh, 1979	3.0	4.1	50.1	21.3	71	33.3	3	6	4	5.96	5.10
Nepal, 1981	2.4	3.9	41.1	11.8	59	29.1	5	2	0		
Haiti, 1977		3.4	50.3	12.7		17.2	0.4	5	14	5.70	2.65
Sri Lanka, 1975	3.5	3.8	66.6	17.5	7	22.4	10	9	13		
Benin*, 1981/82	2.5	...					.1 a/	.6 a/	20 a/		
Pakistan, 1975	3.2	4.2	49.7	17.3	38	20.8	0.5 (80)	2 b/(80)	4 c/(80)	6.49	3.15
Sudan, 1978/79	3.4	6.3	26.9	5.5		17.1	0.4	3.8	1.0		
Ghana, 1979/80	2.9	5.7	20.0	4.8		0.5	5.3	4.1			
Middle-income economies											
Lower middle-income											
Kenya, 1977/78	3.7	6.8	25.0	5.9		16.8	1	4	3		
Senegal, 1978	2.3	8.0	8			20.5	0	0.6	3.4	7.14	3.87
Indonesia, 1976	2.8	4.1	49.2	10.0	37	26.2	0.3 e/(80)	22.4 e/(80)	3.1 e/(80)		
Lesotho, 1977	2.2	6.0	26.0			21.6	1	2	3	5.46	4.34
Egypt, 1980			58.0	12.3			n.s.	20.6	n.s.		
Thailand, 1975	3.4	3.7	67.5 (81)	10.3 (81)	16	20.0	22 (81)	32 (81)	3 (81)		
Philippines, 1978	4.1	4.4	59.4	11.1	7	13.6	5	10	20	5.31	3.84
Nigeria * 1981/82	2.5				44					5.80	6.85
Cameroon, 1978	2.7	8.0			52		0	0.5	1.5	7.00	5.00
Peru, 1977/78	3.7	3.8	74.6 (81)	9.2 (81)		14.2	4 (79)	13 (79)	24 (79)	7.09	3.11
Jamaica, 1975/76	3.3	4.0	66.6	21.4		8.4	10 (79)	45 (79)	1 (79)	5.47	4.38
Ivory Coast, 1980/81	2.8	8.4	12.2	1.8			0 a/	1 a/	3 a/		
Dominican Rep., 1975	3.5	4.3	55.5	11.8		9.3	21 (80)	14 (80)	7 (80)	6.69	2.87
Colombia, 1976	3.7	3.5	69.2 (80)	12.2 (80)	15	9.7	11 (80)	30 (80)	8 (80)	6.33	2.39
Costa Rica, 1976	3.8	4.7	54.6 (80)	5.5 (80)	15	5.2	18 (81)	38 (81)	9 (81)	4.05	2.51
Syrian Arab Rep., 1978		6.1	44.3	6.9		12.2	0.4	15	5	8.78	4.07
Jordan, 1976	4.7	6.3	48.3	7.0	19	11.6	2	16	8	9.29	4.85
Upper middle-income											
Paraguay, 1979		4.5	38.5	8.5		11.9	2	22	12	7.46	2.82
Korea, Rep., 1974	3.2	3.2	77.3 (79)	17.8	3	16.9	21 h/	12 h/	12 h/	5.65	3.33
Malaysia, 1974	3.8	4.4	50.5	14.7	11	5.9	4	20	9	5.25	3.19
Panama, 1976	3.7	4.2	65	9.3		7.5	31 i/	26 i/	4 i/	6.19	2.64
Mexico, 1976/77	4.0	4.2	60.8	11.6 (78)		7.5	9 h/	24 h/	6 h/	7.71	3.21
Venezuela, 1977		3.6	56.4	10.4		7.7	7	29	12	6.61	2.57
Trinidad & Tobago, 1977		3.8	58.2	14.3		8.3	4	42	6	4.43	3.09

Years are given in parenthesis if they do not correspond to those in the first column.
* Married women of reproductive age.
a/ "Exposed" women.
b/ Pills and injectables only.
c/ Includes all methods except sterilization, pills and injectables.
e/ Java and Bali.
i/ Excluding douche, abstinence, and folk methods.

Table 5 Status of women

	Adult literacy		Enrollment in secondary school as percentage of age group		Percent completed primary among married		Mean age at marriage		Percent economically active among ages 15 and up urban	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Low-income economies										
Bangladesh	37	13	23	7	42	22	24	16	74	6
Nepal	33	5	33	9	21	4	21	17	-	-
Mali									61	8
Malawi									69	23
Upper Volta									66	74
Sri Lanka	86	68	50	52	92	78	28	25	-	-
Niger									83	11
Pakistan	29	10	*22*	*8*	41	11	25	20	-	-
Middle-income economies										
Lower middle-income										
Kenya	60	34	23	15	-	-	-	-	-	-
Liberia									54	12
Indonesia	69	44	33	22	66	38	24	19	63	25
Lesotho	44	67	*13*	*29*	-	-	-	-	-	-
Bolivia									65	25
Honduras									64	26
Thailand	87	70	-	-	86	81	25	22	66	46
Philippines	84	80	58	68	95	94	26	25	73	45
Cameroon									56	22
Peru	83	61	62	52	91	74	26	23	-	-
Ecuador									70	23
Jamaica	95	96	*54*	*60*	94	98	-	19	-	-
Ivory Coast									64	20
Dominican Rep.	94	89	*32*	*33*	76	84	25	21	-	-
Colombia	88	79	*43*	*49*	84	84	26	22	72	38
Costa Rica	88	88	45	52	91	92	26	23	71	31
Turkey	77	43	*49*	*24*	-	-	-	-	-	-
Syria	59	20	*57*	*35*	-	-	-	22	-	-
Jordan	81	54	*81*	*66*	78	49	26	22	-	-
Upper middle-income										
Korea, Rep. of									74	36
Iran, Islamic Rep.									64	9
Iraq									62	8
Malaysia	-	-	52	49	85	64	27	23	-	-
Panama	85	84	61	69	94	93	26	21	-	-
Mexico	-	-	39	46	78	78	24	22	-	-
Israel									63	34

Figures in italics [now underlined] are for years or periods other than those specified.

Table 6 Population policy indicators

	Support of family planning			Year official family planning program started	Family planning program effort score	
	No Support	Health and other objectives	Demographic objective		1972	1982
Low-income economies						
China and India						
Other low-income						
Kampuchea, Dem.	x			n	0	0
Bhutan				1979		
Lao, PDR					0	0
Chad					0	7
Bangladesh			x	1971	10	58
Ethiopia		x		1981	0	6
Gambia		x		1969	-	26
Nepal		x	x	1966	20	39
Burma	x			n	0	3
Afghanistan		x		1970	10	14
Mali		x		1972	0	10
Malawi	x			n	0	6
re		x		1973	10	14
Uganda		x		1972	0	18
Burundi				1979	0	11
Upper Volta	x			n	0	3
Rwanda		x		1981	0	23
India			x	1951	63	63
Somalia					0	8
Tanzania		x		1970	10	22
Viet Nam			x	1977	67	48
China			x	1962	83	84
Guinea	x			n	0	2
Haiti		x		1971	10	37
Sri Lanka			x	1965	40	68
Benin		x		1969		
Central African Rep.				1978	0	3
Sierra Leone		x		1978	0	15
Madagascar	x			1976	0	8
Niger	x			n	0	6
Pakistan			x	1960	27	41
Mozambique		x		1977	0	14
Sudan		x		1970	10	7
Togo		x		1974	0	11
Ghana			x	1969	10	18

Table 6 Population policy indicators
(ge 2)

	Support of family planning			Year official family planning program started	Family planning program effort score	
	No Support	Health and other objectives	Demographic objective		1972	1982
Middle-income economies						
Oil exporters						
Oil importers						
Lower middle-income						
Botswana		x		1970	-	29
Kenya			x	1967	20	29
Senegal			x	1976	0	19
Mauritania			x	n	0	3
Mauritius				1965	67	71
Yemen Arab. Rep.	x			1973	0	7
Yemen, PDR				1975	0	17
Liberia		x		1973	10	23
I nesia			x	1968	47	73
Lesotho		x		1974	0	13
Bolivia	x			n	0	8
Honduras		x		1966	23	22
Zambia		x		1974	0	13
Egypt			x	1965	27	38
El Salvador			x	1974	43	63
Thailand			x	1970	37	59
West Samoa					-	28
Philippines			x	1970	53	53
Angola	x			n		
Papua New Guinea		x		1968	0	25
Morocco			x	1968	13	38
Nicaragua		x		1967	0	18
Nigeria		x		1970	7	15
Zimbabwe		x		1968	10	28
Cameroon		x		n	0	7
Cuba	x			1960	50	53
Congo, People's Rep.		x		1976	0	18
Guatemala			x	1975	30	28
Guyana					-	25
Peru		x		1976	0	22
Ecuador		x		1968	20	42
Jamaica			x	1966	77	53
Ivory Coast	x			n	0	3
Dominican Rep.			x	1968	47	54
M golia					0	0

Table 6 Population policy indicators
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	Support of family planning			Year official family planning program started	Family planning program effort score	
	No Support	Health and other objectives	Demographic objective		1972	1982
Colombia			x	1970	53	68
Tunisia			x	1964	40	58
Costa Rica		x		1968	70	33
Korea, Dem. Rep.		x				
Turkey			x	1965	20	30
Syrian Arab Rep.	x			n	0	6
Jordan				1976	0	16
Paraguay		x		1972	10	9
Upper middle-income						
Fiji			x	1962	73	46
Korea, Rep. of			x	1961	80	81
[illegible]a, Islamic Rep. of			x	1967		
Iraq		x		1972	0	3
Malaysia			x	1966	60	52
Panama		x		1969	63	48
Lebanon				1970	0	35
Algeria		x		1971	10	25
Brazil		x		1974	0	42
Mexico			x	1974	13	66
Argentina						
Chile	x			n	53	43
South Africa		x		1966		
Cyprus					-	33
Uruguay						
Venezuela		x		1968	23	30
Hong Kong			x	1973	77	69
Israel						
Singapore			x	1965	87	80
Trinidad and Tobago			x	1967	50	46
Barbados			x	1967		
High-income oil exporters						
Libya					0	0
[illegible]di Arabia	x			n		
[illegible]wait					0	5
United Arab Emirates						

n = no official family planning program.