Profiles for Family Planning and Reproductive Health Programs
116 COUNTRIES

Profiles for Family Planning and Reproductive Health Programs
116 COUNTRIES

Ross • Stover • Willard

John Ross • John Stover • Amy Willard

Contents

Contents

Foreword

Any compilation of information that covers numerous topics and many countries incurs a corresponding degree of indebtedness. We wish first to express our gratitude to the David and Lucile Packard Foundation for underwriting the work that produced this volume, and our special appreciation to Dr. Martha Campbell for her sustaining interest and initiative in advancing the project from first to last. We also thank the Rockefeller Foundation for a period of uninterrupted concentration on the work at the Bellagio Study and Conference Center. We are grateful to a number of institutions that freely shared data, including Macro International, The United Nations Population Division, The United Nations Children Fund (UNICEF), the World Health Organization, and the World Bank. Our appreciation also goes to Rodolfo Bulatao, Robert McKinnon, Diane Bernier, Erin Croughwell, and Kate Abel for their assistance with the project, and to Cathy Johnson for manuscript preparation, layout, and production.

This volume was conceived as a way to assist action programs by bringing together much of the comparative data that bear upon family planning and reproductive health. A matrix for 116 countries was constructed to embrace time trends for each of numerous data sets. The object was to provide both reference information through supporting tables, and basic analyses through textual presentation. The body of the text comments on the chief patterns and trends of each feature, usually by region. The topics chosen embrace a continuum from the demographic context to past and future contraceptive use, to service burdens and, finally, to a selection of alternative action objectives. Twenty-two large countries are given special attention, particularly for alternative projections of contraceptive use to 2015.

Chapter 1 provides an overview of the disparate geographic pattern of reproductive health problems as a backdrop to the rest of the volume. Chapter 2 uses over 220 national surveys to describe contraceptive use, including trends by method and source. Chapter 3 introduces a special projection method to anticipate future contraceptive use, again by method, with estimates of commodity needs. Chapter 4 summarizes demands on services due to growing population numbers, regarding safe motherhood services and the burdens of maternal mortality, abortion, and HIV/AIDS. Finally, Chapter Five considers four action goals, including full access to contraception, satisfaction of unmet need and intention to use a method, achievement of the desired fertility level, and attainment of replacement fertility. A full set of appendix tables supports these various topics.

The intended audience encompasses the many international agencies active in family planning and reproductive health programs. It also includes officials and researchers in individual countries, who can find here a convenient source of information on their own situation, as well as comparative data within their region. We hope also that the text discussions will lead to a deeper understanding of some of the dynamics that bear on each topic.

Chapter 1
GEOGRAPHIC PATTERNS OF REPRODUCTIVE HEALTH PROBLEMS

The distribution of people and events are cast heavily into a relatively few countries, with the remainder spread thinly over about a hundred others. The "size of the problem" is a complex topic: no matter what one considers, whether people, pregnancies, or deaths, a few countries dominate the globe; a few countries also dominate within each region.

We have chosen 116 countries as the subject of this report. These are restricted to those having over one million population, covering 98% of the developing world. Included are countries in Latin America, Asia, sub-Saharan Africa, and North Africa/Middle East, together with the five Central Asian Republics, the three Caucasus countries, and the set of Russia, Ukraine, and Moldova.

Twenty-two large developing countries are treated individually in certain sections below as ones of particular interest to regional planners and international donors.

The 116 countries contain 5 billion people in the UN 2000 estimates. A convenient breakdown is as follows (in thousands):

The developing world:	4,774,059
China	1,277,558
India	1,013,662
Rest of Asia	1,023,548
Latin America	515,826
Sub-Saharan Africa	608,038
North Africa/Middle East	335,427
The set of Russia, Ukraine, and Moldova	201,770
The five Central Asian Republics	55,887
The three Caucasus countries	16,221
Grand total	**5,047,937**

As another overview:

➤ China has 27% and India has 21% of the developing world, for nearly half (see Figure 1.2).

➤ The top 8 countries (including those) contain two-thirds of the total.

➤ The top 14 countries contain three-fourths of the total.

➤ Another 91 countries make up the final fourth.

While China and India dominate the whole developing world, a similar imbalance exists within each region (see Figure 1.1).

➤ In the rest of Asia the next largest country, Indonesia, has only 6% of the region's total; however it has one-fifth (21%) of the rest of Asia after the two giants are removed. It is also the world's fourth largest country, since the breakup of the USSR.

➤ In Latin America, Brazil contains one-third of the total (34%) and Mexico has one-fifth (19%), for over one-half together. The next two, Columbia and Argentina, have only 8% and 7%. Eight of the 24 countries each contains less than 1% of the region's total.

➤ In sub-Saharan Africa, Nigeria has 18% of the total. Next is Ethiopia with only 10% and Zaire with only 8%. The top five, including South Africa and Tanzania, dominate the 40 members of the region. With 49% of the total population they contain about one-half of all births, infant deaths, and maternal deaths in the region, with the other half spread over the other 35 countries. Sixteen countries each have less than 1% of the region's population.

➤ In the Middle East/North Africa region, Egypt and Turkey together have 40% of the total, with 20% each. The next largest, Algeria, has only 9%. Sudan and Morocco have similar shares; all together these five (of 17) countries contain two-thirds (67%) of the region's total.

The number of women of childbearing age (15-49) is distributed very much as the total population. Concentration is heavy in China and India, and then within 2-5 countries within every region. The picture is similar for married/cohabiting women. The number of women aged 15-49 is growing by 10% from 1995 to 2000, and will grow by 9% from 2000 to 2005, totaling a one-fifth increase over 10 years. (Outside China the figures are higher since its growth is slower than the average.) Growth for married/cohabiting women is essentially similar. Overall, 69.5% are married/cohabiting and while this may decline somewhat the percentage is not expected to change substantially over the planning period to 2005. See Appendix Tables A.6 and A.7.

There is also a vast range among developing countries in the pattern of deliveries, infant and child mortality, and maternal mortality. Figure 1.2 depicts the uneven geographic distribution of some of these features, as follows.

Deliveries follow much the same geographic pattern as populations, except that China's share is much smaller and sub-Saharan Africa's share is much larger, reflecting their especially low and especially high fertility rates in relation to the rest of the world.

However for *attended* deliveries, the pattern changes sharply. China has 29% of all attended deliveries, whereas it has only 17% of all deliveries. Sub-Saharan Africa's share drops from 22% of deliveries to only 14% of attended deliveries.

Not surprisingly, infant and child deaths reverse that pattern.

Maternal deaths reverse it even more: sub-Saharan Africa's 37% nearly equals the total for all other regions together outside of India.

Figure 1.1. Population in Developing Countries

Populations of the 15 Largest Developing Countries

Egypt 2%
Philippines 2%
Turkey 2%
Iran 2%
Thailand 2%
Vietnam 2%
Ethiopia 2%
Mexico 3%
Nigeria 3%
Bangladesh 3%
Pakistan 4%
Brazil 5%
Indonesia 6%
China 36%
India 27%

Populations of Asia

Bangladesh 4%
Pakistan 4%
Vietnam 2%
Indonesia 6%
Other Asian Countries 14%
China 39%
India 30%

Populations of Latin America

Peru 5%
Venezuela 5%
Argentina 7%
Colombia 8%
Brazil 34%
Mexico 19%
Other Latin American Countries 23%

Populations of Sub-Saharan Africa

Tanzania 5%
Kenya 5%
South Africa 8%
Zaire 8%
Other Sub-Saharan African Countries 43%
Ethiopia 10%
Nigeria 18%

Populations of the Middle East/ North Africa

Iraq 6%
Morocco 9%
Sudan 9%
Other Middle East/ North African Countries 28%
Algeria 9%
Turkey 20%
Egypt 20%

Figure 1.2.

1999 Population

- Middle East/North Africa 7%
- China 27%
- India 21%
- Rest of Asia 21%
- Sub-Saharan Africa 13%
- Latin America 11%

Infant Deaths

- Latin America 5%
- Middle East/North Africa 6%
- China 10%
- Rest of Asia 23%
- India 23%
- Sub-Saharan Africa 32%

Deliveries

- Middle East/North Africa 8%
- Latin America 10%
- China 17%
- India 21%
- Sub-Saharan Africa 22%
- Rest of Asia 23%

Child Deaths

- Latin America 4%
- Middle East/North Africa 6%
- China 8%
- Rest of Asia 22%
- India 24%
- Sub-Saharan Africa 35%

Deliveries Attended

- Middle East/North Africa 10%
- Latin America 14%
- Sub-Saharan Africa 14%
- India 14%
- Rest of Asia 19%
- China 29%

Number of Maternal Deaths

- Latin America 4%
- China 4%
- Middle East/North Africa 6%
- Rest of Asia 24%
- India 26%
- Sub-Saharan Africa 37%

Chapter 2
PAST TRENDS IN CONTRACEPTIVE USE

Chapter 2 presents past trends in contraceptive use for (1) total use, (2) use by method, and (3) use by source by method. Chapter 3 presents total use, for 22 countries, at four future dates under high, medium, and low assumptions, all in the context of past survey results.

Total Contraceptive Use

The rich body of national surveys now available, encompassing some 221 surveys in 90 countries taken since 1980 (Appendix Table A.1), and many others prior to 1980, documents the revolution in family planning that has swept much of the developing world since the 1960s. The 1965 average was about 10% of couples using a method; now it is well over 50%. The upward trends in most individual countries that dominate Figure 2.1 testify to this revolution. The patterns by region follow.

Sub-Saharan Africa. Change has permeated most countries, but mainly outside of Sub-Saharan Africa. Even there certain countries are impressive exceptions, enough so to undermine early fears that African cultures were nearly immune to contraceptive adoption. Moreover, clear evidence has appeared of fertility declines in numerous African countries (Cohen, 1998; Kirk and Pillet, 1998).

However, prospects are fundamentally different between Anglophone and Francophone Africa (Figures 2.1a and 2.1b). Contraceptive use is rising in Anglophone countries and has reached significant levels in some, as in Kenya, Zimbabwe, Botswana, South Africa, and Namibia. Other trends are also up, though at lower levels, and Nigeria, the largest of all, is flat at a very low level.

Francophone countries give a far different picture, one of very low use levels and only modest suggestions of change. All but two countries fall below 20% of couples using a method, even including traditional methods, and any upward slopes are quite gentle. The largest country, Zaire, had only 8% using as of 1991.

Latin America. Both South America and the Central America and Caribbean regions show patterns of steady rises in use, to substantial levels for many countries (Figures 2.1c and 2.1d). Brazil, with its population of partly European extraction; Mexico, with a strong government program; and Colombia, with a strong private sector, show high values, along with Costa Rica, Cuba, Dominican Republic, Jamaica, Peru, and Puerto Rico. Low values appear for Haiti, Guatemala, and Bolivia, though all three have risen somewhat.
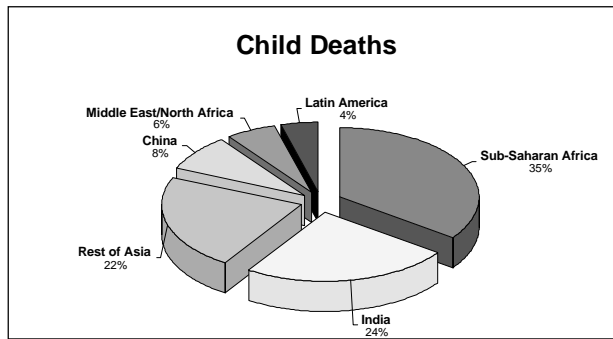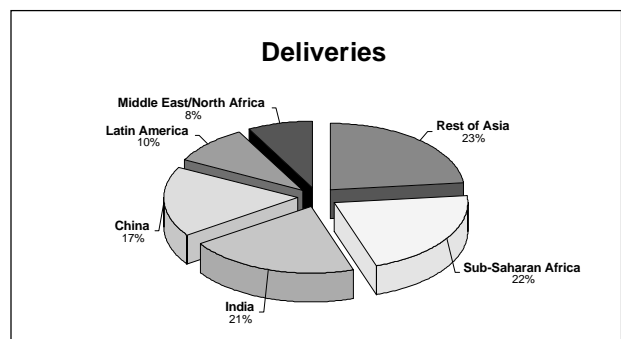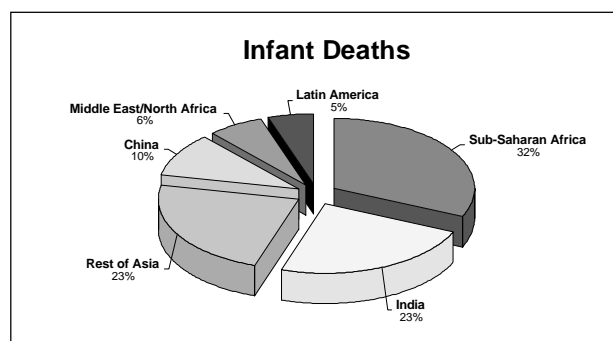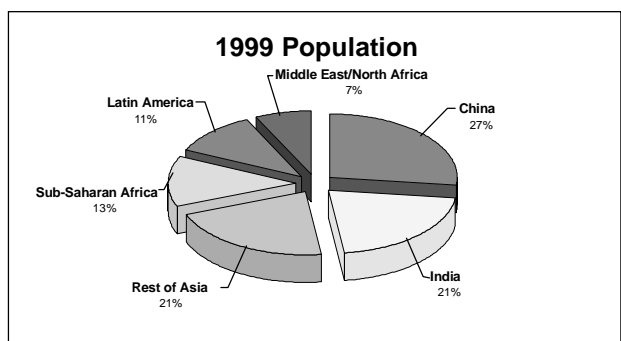
The Middle East/North Africa. Contraceptive use has risen steadily over the years in most countries surveyed (Figure 2.1e). The longest series are for Morocco, Jordan, and Egypt, they and several others are at or above 50% of couples using a method: Algeria, Tunisia, Turkey, and Iran. However, Sudan, Oman, and Yemen are at very low levels, although the latter two have risen recently.

Asia. The immense continent of Asia is divided here into three subregions (Figures 2.1f–2.1h). East Asia has the fewest members and the highest use levels, in China, Taiwan, Hong Kong, and South Korea. Considerable diversity is present elsewhere. In Southeastern Asia, the wide spread in use is accompanied by differences in slope: the Philippines trend is nearly flat, while Myanmar and Vietnam are sharply up. Thailand and Indonesia are also relatively level though at quite different levels.

South Asia also presents a diverse picture, from Pakistan at a remarkably low level to Bangladesh's impressive rise over the years, to Sri Lanka with the highest level in the area. India is at 40-45% but is exceedingly diverse internally. (Information for eight India states appears as an appendix.)

In summary, contraceptive use has risen historically in much of the developing world. It is already at ceiling levels in some countries, and it continues to rise in many others. However, the pattern is uneven: a few of the largest countries, such as India, Pakistan, Nigeria and others, have far to go, and much of sub-Saharan Africa still registers low levels of use. Appendix Table A.1 provides the full results in surveys from 1980 on, and Appendix Table A.3 gives the projected level for 116 countries at four dates from 2000 to 2015.

Use by Method

Current use of each contraceptive method reflects the history of its past adoptions together with its continuation pattern. This is far different for resupply methods such as the pill or condom, where use can cease at any moment, than it is for sterilization, where protection continues automatically for many years. This is one reason why sterilization use has risen to substantial levels in some countries even though rather few couples adopt it in each year.

The time trend for each method in each of 22 large countries appears in Figure 2.2). Note that the vertical scales differ, to better clarify the method patterns. The outstanding feature in most countries is the dependence upon only two or at most three methods (and only one method in India and Algeria). However in some countries the sum of all other methods, in the aggregate, protects an appreciable proportion of couples.

Seven modern methods of contraception have been available for enough time to reveal the emergent international patterns. These are immediately evident in Appendix Table A.1. Overall, the pill and female sterilization are the front runners. For family planning, the condom is not dominant in any country, but HIV/AIDS campaigns in some countries have substantially increased its distribution. Except for a few countries, the injectable and vasectomy are unimportant. The IUD is important in some countries but not in most. Vaginal applications have won only trivial use, and the new implant methods are of significant use thus far mainly in Indonesia. Each of the methods is now discussed in more detail.

Sterilization stands out in Asia, with high figures in the group of China, Taiwan, South Korea, Hong Kong, and Singapore, and also in Thailand, Sri Lanka, Nepal, Bangladesh, and India. Major exceptions, with little sterilization use, are Indonesia, Vietnam, and Myanmar. Most Asian sterilization is for females, but male sterilization is substantial in China, South Korea, and Nepal (and historically in India and Bangladesh, although less so now).

Latin America has also seen extensive use of female sterilization, in the two largest countries of Brazil and Mexico, and in Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Panama, and Puerto Rico. Little use is made of male sterilization.

An exception to the extensive use of female sterilization is the group of Muslim countries in the Middle East/North Africa region. In Appendix Table A.1, 13 of 15 countries are at or well below 5% of couples using sterilization. Iran is an exception at 12%. Tunisia is also an exception; there women with at least a few children have been able to obtain sterilization, and 12% were using it by 1988. On the other hand, Egypt has very little sterilization activity and follows what amounts to an informal policy against it. Interestingly, however, the IUD is exceptionally prominent in Egypt, as it is in Jordan.

Sub-Saharan Africa has registered only small figures for sterilization, except for 18% of couples using it in South Africa (as of 1998 national survey). The trend is up however, in Kenya at 6%, Mauritius at 7%, and Namibia at 8%. The other 31 countries with surveys show nearly negligible levels of use.

The pill accounts for more use than any other method except sterilization; it is prominent in countries in all regions. Among the 22 large countries in Figure 2.2, it plays an important role (10% or more couples using it) in Brazil and Colombia in Latin America (only 8% in Mexico); Bangladesh, Indonesia, Philip-

pines, and Thailand in Asia; Algeria, Egypt and Iran in Middle East/North Africa; and South Africa in sub-Saharan Africa. Among smaller countries, at above 10% are Hong Kong; Libya, Morocco, United Arab Emirates; Botswana, Mauritius, Zimbabwe; Costa Rica, Dominican Republic, Ecuador, Honduras, Jamaica, Nicaragua, Panama, Paraguay, and Trinidad and Tobago. In a number of other countries pill use is below 10% of couples but still serves an appreciable share of users. All in all, the pill plays a considerably wider role across many countries than does the IUD or injectable.

The IUD's pattern is one of minor use in most countries but with major exceptions – most notably in China, where one-third of all couples use it. It is the number one method in Egypt, where 30% of couples rely on it; 23% do so in Jordan, 17% in Tunisia, 11% in Libya, 16% in Syria, and 19% in Turkey. Vietnam has always stressed use of IUD, especially in the North, and nearly 40% of couples use it nationwide. In Taiwan 22%, and in South Korea 11% do so. In a 1987 Cuban survey 33% of couples used the IUD, and 15% did so in Mexico in 1995. The IUD is also prominent within the Central Asian Republics: 38% of couples use it in Kyrgyzstan, 40% in Kazakstan, and 46% in Uzbekistan, for the highest figure recorded.

However, apart from these remarkable instances of heavy reliance on the IUD, most countries fall below the 10% level and many are below 5%. A glance down the IUD column in Appendix Table A.1 shows the patterns.

The injectable is used less than the IUD, but is similar in being especially prominent in certain countries – above 10% in Indonesia, Jamaica, Kenya, Myanmar, South Africa, Namibia, and Thailand. However, its use is nearly negligible in most countries.

The condom sees relatively little use by married couples nearly everywhere. The only recent surveys of married couples reporting more than 10% using it are in Hong Kong (26%), Singapore (24%),

South Korea (14%), Taiwan (18%), Costa Rica (16%), Jamaica (17%), and Mauritius (14%). All other countries are around the 5% level of use, or close to zero. (One qualification is that information on methods comes chiefly from female respondents, who may underreport condom use.) Also, special programs for HIV/AIDS have raised condom use in some countries.

Traditional methods of withdrawal and rhythm are still very important. They account for a substantial share of all use in many countries. Appendix Table A.1 provides figures for the percentage of couples (not users) relying on traditional methods.

In summary, most countries are quite selective in their use, or non-use, of the seven principal modern methods. Most use only two or three to any appreciable degree. Sterilization and the pill have emerged as the favorites, but with some irregularity, since most Muslim countries shy away from sterilization (in favor of the IUD) and certain large countries make little use of the pill. The IUD is prominent in selected countries both in the Middle East and elsewhere; the injectable in fewer. Condoms are used least (although some HIV/AIDS campaigns are increasing its use).

Use by Source by Method

The available cross-national information on the sources of contraceptive supply/services appears in Figure 2.3 for 16 of the 22 large countries depicted above, and for all available countries and surveys in Appendix Table A.2. These data come from all past national surveys after 1980, as compiled previously (Ayad, Wilkinson, and McNiff, 1994; Curtis and Neitzel, 1996; Ross, Mauldin, and Miller, 1993) and as supplemented by recent DHS and other surveys.

Cautions are in order regarding data on both levels and trends for sources. The four categories used in the figures – government, pharmacy, NGOs (non-government organizations), and other-private –

are the only workable ones across multiple surveys and time periods. Definitions of *government* or *private* have varied, sometimes even in successive surveys in the same country. Also, the boundaries between government and private are sometimes unclear to the respondent, often justifiably so where they are truly mixed, as in some social marketing outlets. Therefore, as a partial safeguard the following figures repeat the qualifications to definitions found in each survey report.

A further caution is to use source information only in light of the numerical importance of each contraceptive method. For example, the source of the injectable may apparently shift toward the government in Pakistan, but only 1% of all users rely on it. Or the source of condom supply may apparently shift in the Philippines, but only 1.6% of users there rely on condoms. At such tiny figures, sampling error is bound to enter in, disguising the real trend. One way to give proper weight to each method appears in Table 2.1, which combines all modern methods.

By far most contraceptive users in the developing world rely upon the government for their supplies or services. Considering only large countries that contain a substantial body of users, government supply dominates in China, India, Bangladesh, Pakistan, Indonesia, Thailand, Vietnam, Mexico, Kenya, Tanzania, and the Philippines. Most of these appear in the source figures. By merging all modern methods, Table 2.1 shows the overall reliance upon government sources in many countries. Appendix Table A.2 gives the full detail for source by method, for all countries with past surveys.

Since most users in the developing world rely either on sterilization or the pill, it follows that government is heavily involved. Most sterilization users reside in China and India, as well as Mexico and a few other countries of substantial size, and government generally dominates those services there.

Unlike sterilization sources, pill sources are mixed. When the pill became inexpensive due to mass production in the late 1960s, governments began to add it to their method mix, and soon afterward private companies extended its use in countries where ministries of health permitted its sale under prescription or where informal practices flourished. In the source figures government is responsible for most pill supply (restricted to countries where pill use is significant) in the Philippines, Thailand, and Tanzania. However, the private sector is the major source in Brazil, Colombia, Mexico, Egypt, Turkey, and Indonesia. In Kenya, public and private sources have equal shares of pill supply.

The IUD is next in total use, after sterilization and the pill. China has by far the largest body of IUD users, over 70 million or over three-fifths of all IUD users in the developing world. Government also provides most IUDs in Indonesia, Pakistan, Philippines, Thailand, Vietnam, Kenya, Tanzania, Morocco, Turkey, Mexico, and a number of smaller countries. (Appendix Table A.4 projects users by method for each country.)

The various education and residence groups obtain their methods from somewhat different sources, especially since commercial outlets and private medical personnel exist chiefly in the urban sector; also, the education level is higher there. Age also matters, since older and higher parity women tend toward the longer, automatic-continuation methods of the IUD and sterilization more than younger women do. A summary of these differentials appears in Curtis and Neitzel (1996).

Trends in the source mix. A leading question is whether a shift in contraceptive supply is occurring in favor of the private sector. That would relieve some of the burden on government and international donors, especially as populations grow and prevalence of use rises. However, in surveys to date there is only the most limited evidence that such a shift is occurring, and that evidence pertains to just a few countries for the pill and perhaps for the condom. That can reduce public costs for the pill, which is used extensively, but less so for the condom, which sees little use. (Qualifications to this unfortunate picture may exist in recent efforts in particular countries not caught adequately in the available surveys.)

For the pill, the private sector has gained in Kenya, Bangladesh (between 1989 and 1993), and Indonesia (at least until the economic collapse, which has depressed purchases by the poor). This counts only three countries, excluding those where any trend is based upon trivial levels. For the condom, survey figures in most countries (not all) are too low to know the trend reliably.

Indonesia historically provides the chief example of a successful effort by government to expand the role of the private sector. Its share has grown for the pill, injectable, and IUD, each one important in the method mix. To some extent this has occurred through a blended public-private effort, due to government assistance in mass media and labeling of products.

References

Ayad, Mohamed, Marilyn Wilkinson, and Melissa McNiff. *Sources of Contraceptive Methods*. DHS Comparative Studies No. 11. Calverton, Maryland: Macro International Inc. 1994.

Cohen, Barney. "The Emerging Fertility Transition in Sub-Saharan Africa." *World Development* 26(8):1431-61. August 1998.

Curtis, Sian L. and Katherine Neitzel. *Contraceptive Knowledge, Use, and Sources*. DHS Comparative Studies No. 19. Calverton, Maryland: Macro International Inc. 1996.

Kirk, Dudley, and Bernard Pillet. "Fertility Levels, Trends, and Differentials in Sub-Saharan Africa in the 1980s and 1990s." *Studies in Family Planning* 29(1): 1:22. 1998.

Ross, John A., W. Parker Mauldin, and Vincent C. Miller. *Family Planning and Population: A Compendium of International Statistics*. New York: The Population Council. 1993.

Chapter 2

Table 2.1. Contraceptive Use According to Source: Government and Private, All Modern Methods

Country	Year	Government	Private			
			All Private	**Pharmacy**	**NGO**	**Other**
Asia						
Bangladesh	1993	80	20	8		12
Bangladesh	1996	74	26	14	1	11
China	1988	100	0	0	0	0
India	1993	79	21	2		19
Indonesia	1991	76	24	2		22
Indonesia	1994	49	51	2	2	47
Indonesia	1997	43	57	3	2	52
Korea, Republic of	1991	57	43	0	0	43
Nepal	1996	79	21	4	6	11
Pakistan	1990	64	36	15		21
Pakistan	1994	67	33	31	1	1
Philippines	1993	71	29	7		21
Philippines	1998	72	28	8	0	20
Sri Lanka	1987	87	13	3	0	10
Vietnam	1994	89	11			11
Latin America						
Bolivia	1989	16	84	35		49
Bolivia	1994	33	67	21	2	44
Bolivia	1998	42	58	24	2	32
Brazil	1996	43	57	36	1	20
Colombia	1990	23	77	29	32	16
Colombia	1995	27	73	33	29	11
Dominican Republic	1986	15	85	33	39	13
Dominican Republic	1996	36	64	15	13	36
Guatemala	1995	27	73	12	42	19
Mexico	1987	62	38	21	0	17
Paraguay	1995	25	75	12		63
Peru	1986	54	46	5	7	34
Peru	1991-2	48	52	19	6	27
Peru	1996	70	30	15	3	12
Middle East/North Africa						
Egypt	1988	23	77	53	1	23
Egypt	1992	36	64	29	1	34
Egypt	1995	26	74	34	15	25
Egypt	1997	41	59	20	6	33
Jordan	1990	24	76	15	31	30
Jordan	1997	28	72	14	29	29
Morocco	1995	63	37	33	1	3
Sudan	1989-90	61	39	24	0	15
Tunisia	1988	77	23	14	0	9
Turkey	1993	72	28	26	0	2
Sub-Saharan Africa						
Benin	1996	44	57	17	7	33
Botswana	1988	95	5	1	0	4
Burkina Faso	1993	77	23	11	0	12
Cameroon	1998	32	68	26	7	35
Central African Republic	1994	49	51	15	5	31
Chad	1996	61	39	7	0	32
Cote d'Ivoire	1994	26	74	34	18	22
Eritrea	1995	78	22	12	4	6
Ghana	1988	43	57	28	21	8
Ghana	1993	26	75	44	2	29
Kenya	1989	71	29	1	10	18
Kenya	1993	68	32	1	17	14
Kenya	1998	58	42	3	17	22
Madagascar	1992	39	61	7	32	22
Madagascar	1997	52	48	4	20	24
Malawi	1992	70	30	6	1	23
Malawi	1996	59	41	1	5	35
Mali	1995	54	46	22	11	13
Mozambique	1997	83	17	7		10
Namibia	1992	88	12	3	0	9
Niger	1992	93	7	3		4
Niger	1997	84	16	13	0	3
Nigeria	1990	40	60	13	5	42
Rwanda	1992	97	3	0	0	3
South Africa	1989	72	28			28
Tanzania	1991-92	78	22	2	0	20
Tanzania	1994	71	29	5	11	13
Tanzania	1996	74	26	6	8	12
Togo	1988	49	51	27	10	14
Togo	1998	48	52	7	6	39
Uganda	1995	47	53	6	2	45
Yemen	1997	51	49	21		28
Zaire	1984	64	36			
Zambia	1996	60	40	4	7	29
Zimbabwe	1994	85	15	3	1	11
Central Asia Republics						
Kazakstan	1995	68	32	0		32
Kyrgyzstan	1997	97	3	0		3
Uzbekistan	1996	98	2	0		2

Figure 2.1. Percentage Using Contraception

Figure 2.1a

Anglophone Africa

Legend: Angola, Botswana, Ghana, Kenya, Malawi, Mauritius, Namibia, Nigeria, South Africa, Tanzania, Uganda, Zambia, Zimbabwe

Figure 2.1b

Francophone Africa

Legend: Benin, Cameroon, Congo, Cote d'Ivoire, Eritrea, Gabon, Guinea, Guinea-Bissau, Madagascar, Mali, Niger, Rwanda, Senegal, Togo

Figure 2.1c

Central America and Caribbean

Legend: Costa Rica, Cuba, Dominican Rep., El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Puerto Rico, Trinidad & Tobago

Figure 2.1d

South America

Legend: Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru

Figure 2.1e

Middle East/North Africa

Legend: Algeria, Egypt, Iran, Jordan, Morocco, Oman, Sudan, Tunisia, Turkey, Yemen

Figure 2.1f

East Asia

Legend: China, Hong Kong, Korea, Rep., Taiwan

Figure 2.1. Percentage Using Contraception (cont.)

Figure 2.1g

Southeastern Asia
Indonesia / Myanmar / Philippines / Thailand / Vietnam

Figure 2.1h

Southern Asia
Bangladesh / India / Nepal / Pakistan / Sri Lanka

Figure 2.2. Time Trends in for Percent of Married Women using Each Contraceptive Method

Figure 2.2a

Algeria
pill / iud / inject / vaginals / condom / fster / mster / trad

Figure 2.2b

Bangladesh
pill / iud / inject / vaginals / condom / fster / mster / trad

Figure 2.2c

Brazil
pill / iud / inject / vaginals / condom / fster / mster / trad

Figure 2.2d
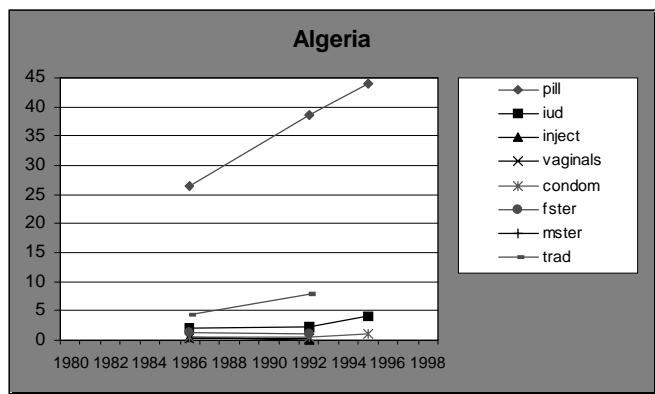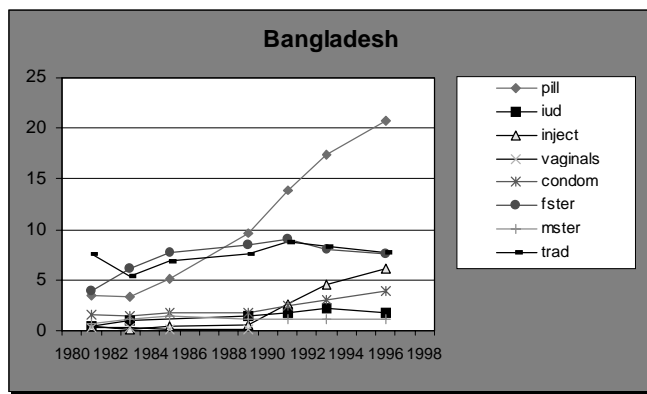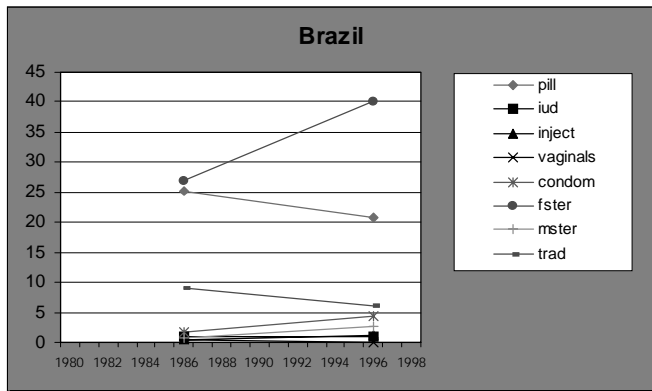
Colombia
pill / iud / inject / vaginals / condom / fster / mster / trad

Figure 2.2. Time Trend for Percent of Married Women Using Each Contraceptive Method (Cont.)
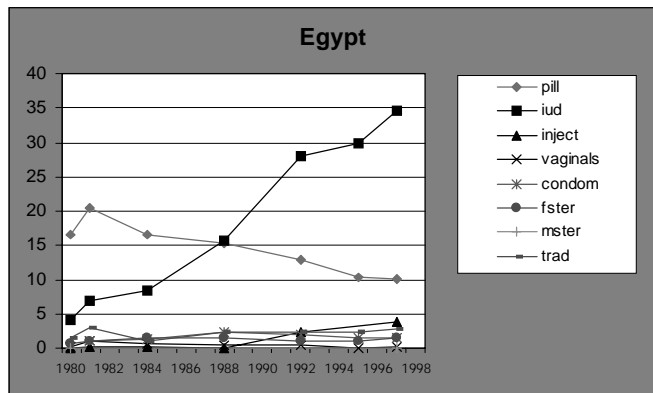
Figure 2.2e

Figure 2.2f
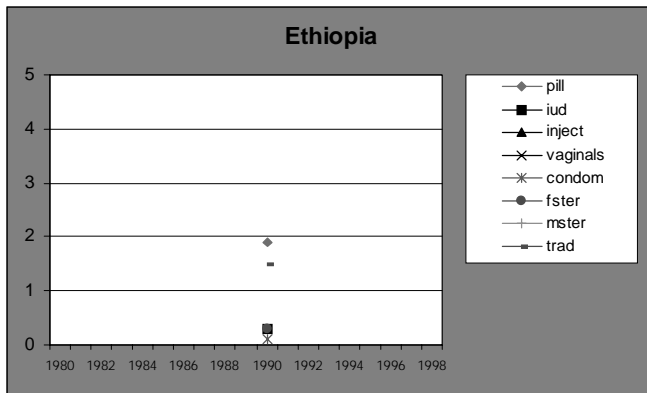
Figure 2.2g
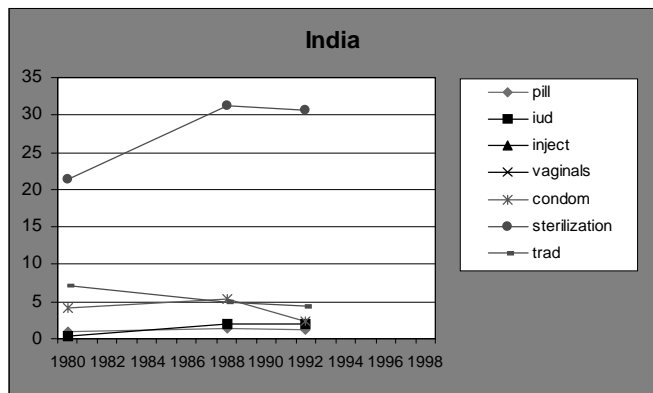
Figure 2.2h
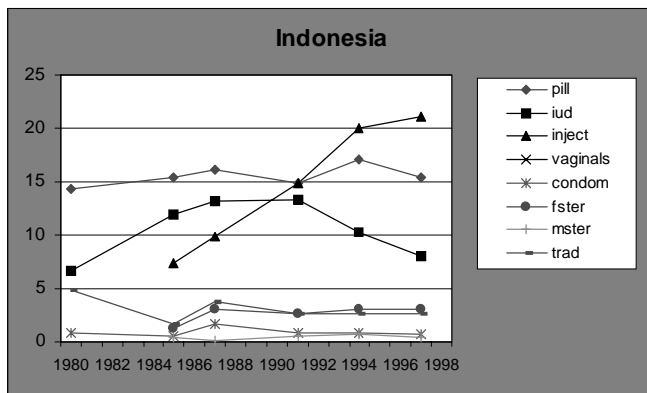
Figure 2.2i
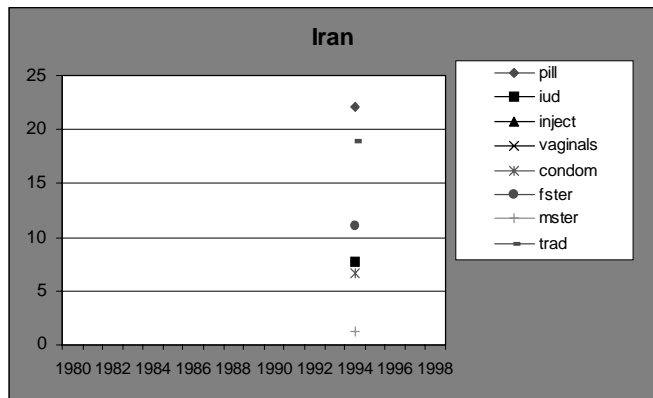
Figure 2.2j
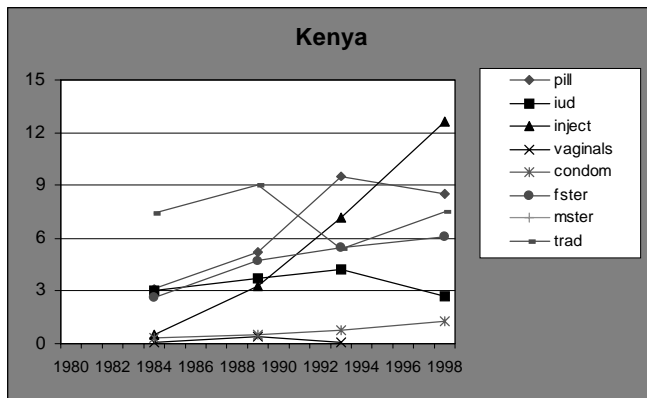
Figure 2.2. Time Trend for Percent of Married Women Using Each Contraceptive Method (Cont.)
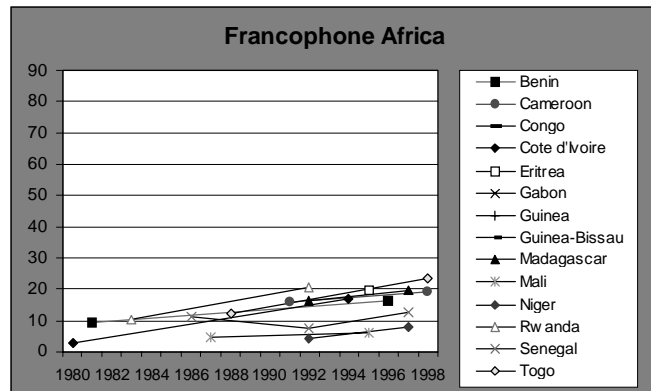
Figure 2.2k
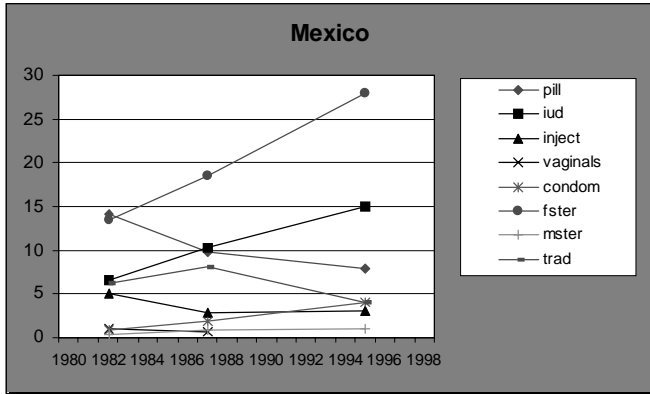
Figure 2.2l
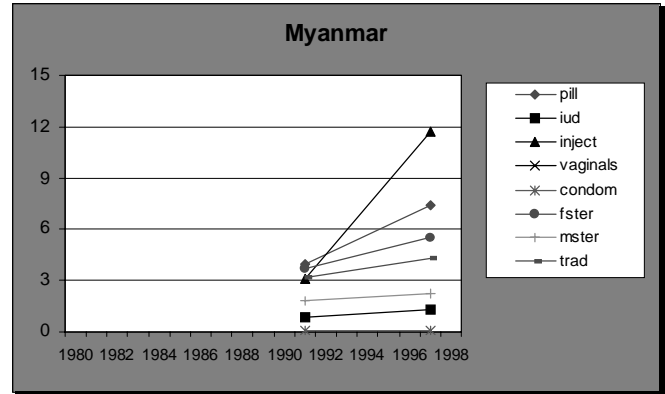
Figure 2.2m
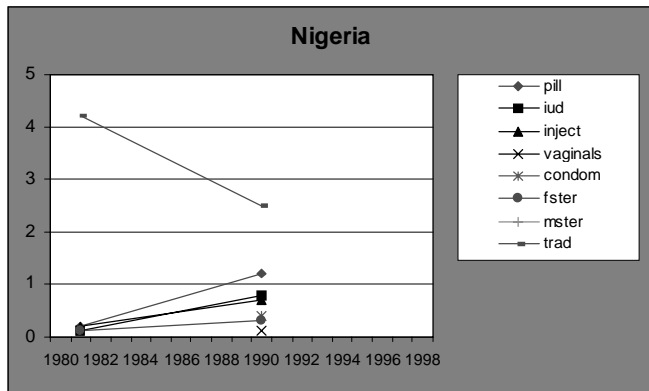
Figure 2.2n
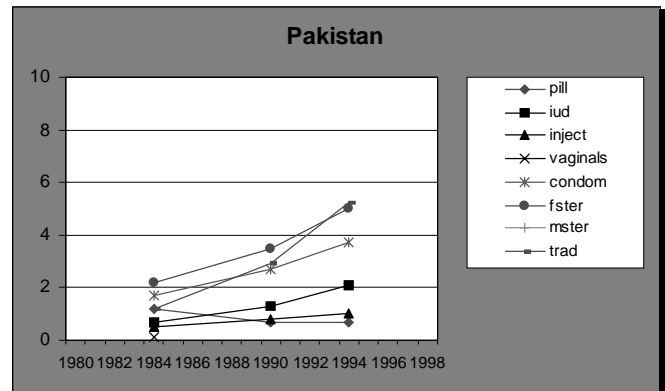
Figure 2.2o
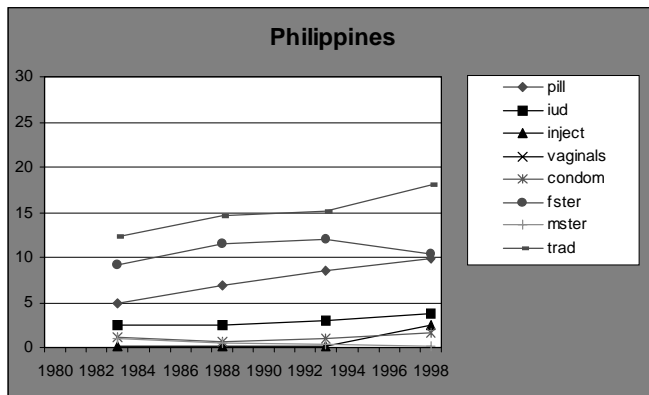
Figure 2.2p
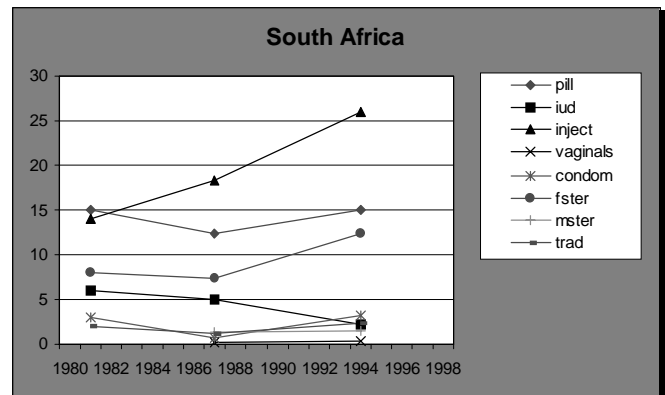
Figure 2.2. Time Trend for Percent of Married Women Using Each Contraceptive Method (Cont.)

Figure 2.2q
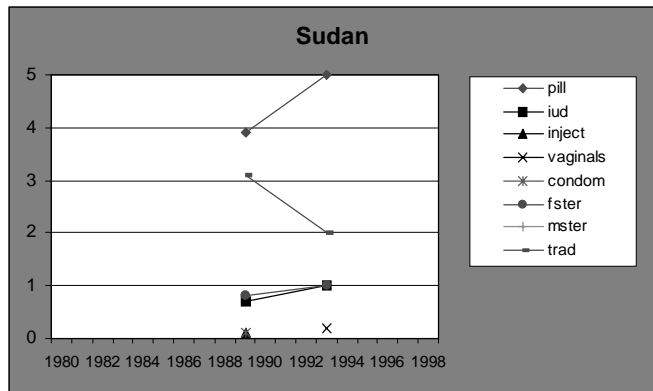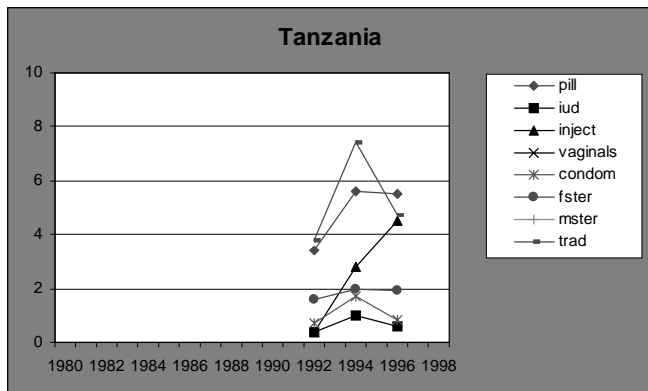
Sudan

Figure 2.2r

Tanzania

Figure 2.2s

Thailand

Figure 2.2t

Turkey

Figure 2.2u

Vietnam

Figure 2.2v

Zaire
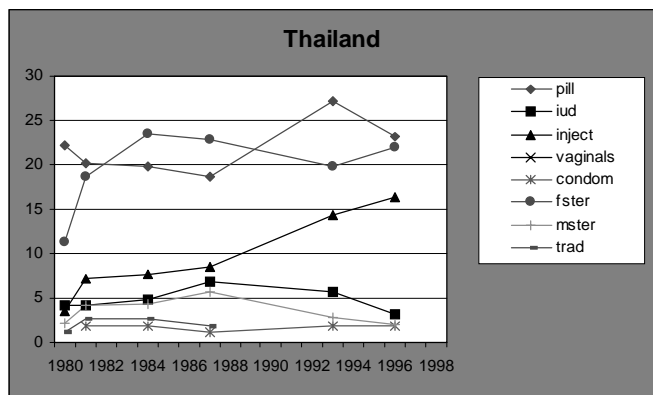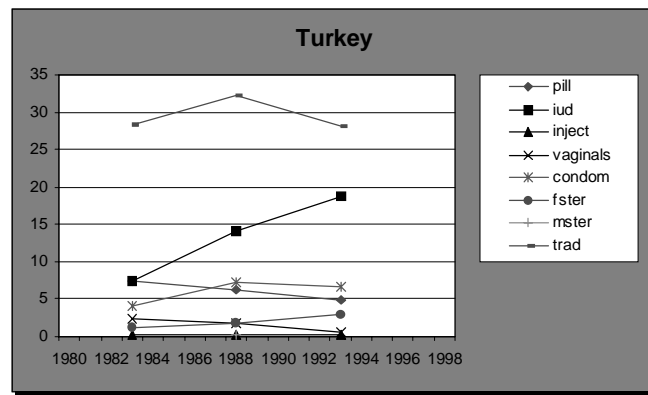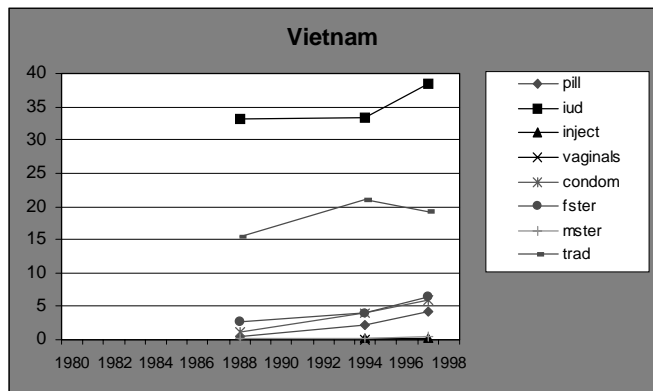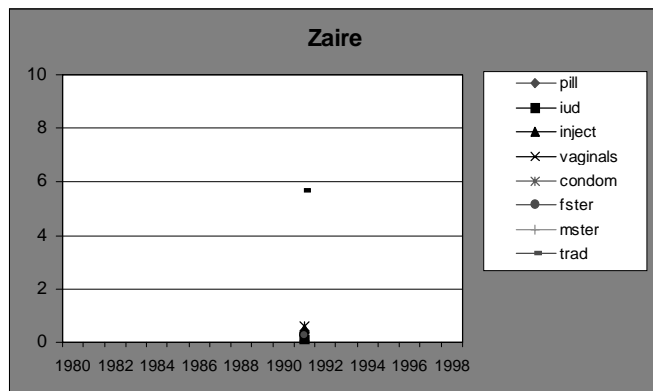
Figure 2.3. Source of Contraception

Figure 2.3a

Bangladesh
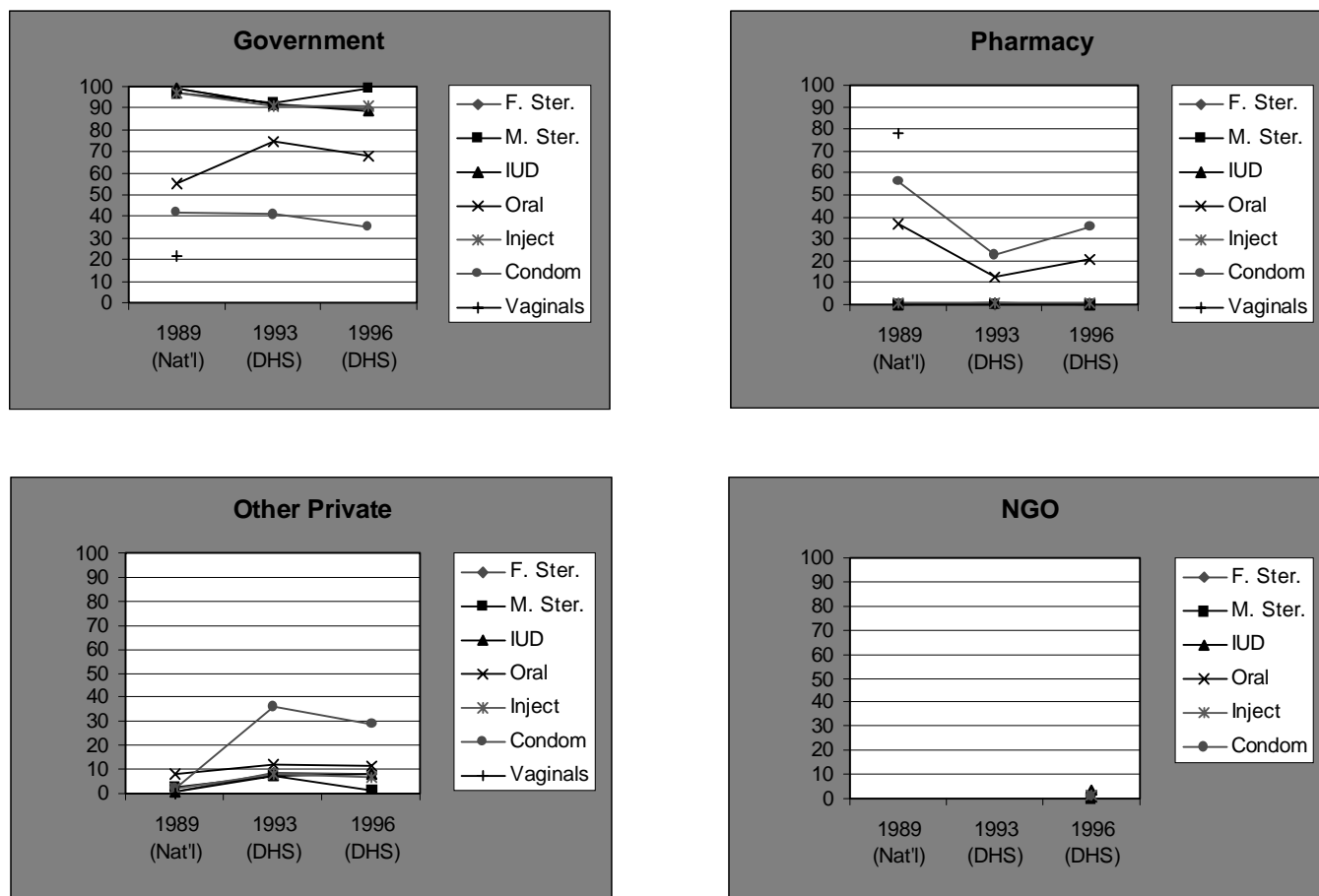
Government is defined as hospital/health center and home delivery in the 1989 survey. In the 1993/94 and 1996/97 surveys, government includes government hospital, family welfare center, Thana health complex, satellite clinics, and FWAs. Pharmacy includes contraception purchased at a pharmacy/shop in the 1989 survey, and private pharmacy in the 1993/94 and 1996/97 surveys. Other private is other in the 1989 survey, but includes other, private clinic/doctor and traditional doctor in the 1993/94 and 1996/97 surveys. No data are available for NGOs in the 1989 or 1993/94 surveys, but the 1996/97 survey includes NGO clinics.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3b

Brazil
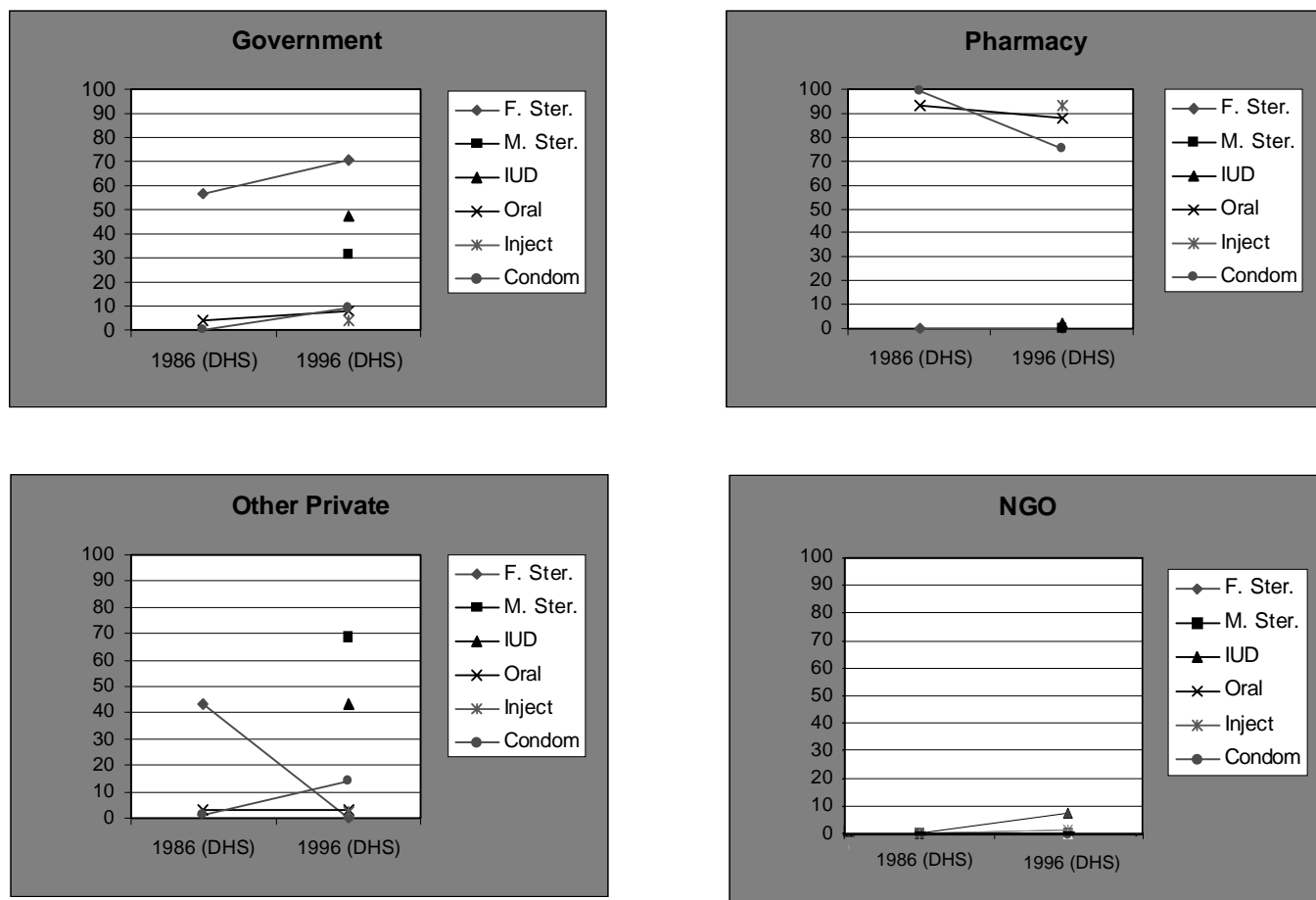
Government is defined as hospital do governo, Secretaria Estudual de Saude, and Providencia Social in the 1986 survey. In the 1996 survey, government ("setor publico") is defined as hospital publico, hospital conveniado (SUS), and centro/posto de sante. Pharmacy data are available for both surveys and defined the same way in 1986 and 1996. Other private includes medico/clinica/hospital particular, instituicoes privadas, and amigos/parentes in 1986. In 1996, other private includes hospitals and clinic particular, consultorio/medico particular, parceiro, and amigos/ parentes. NGO is defined as family planning clinic and posto communitario in 1996.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3c

Colombia
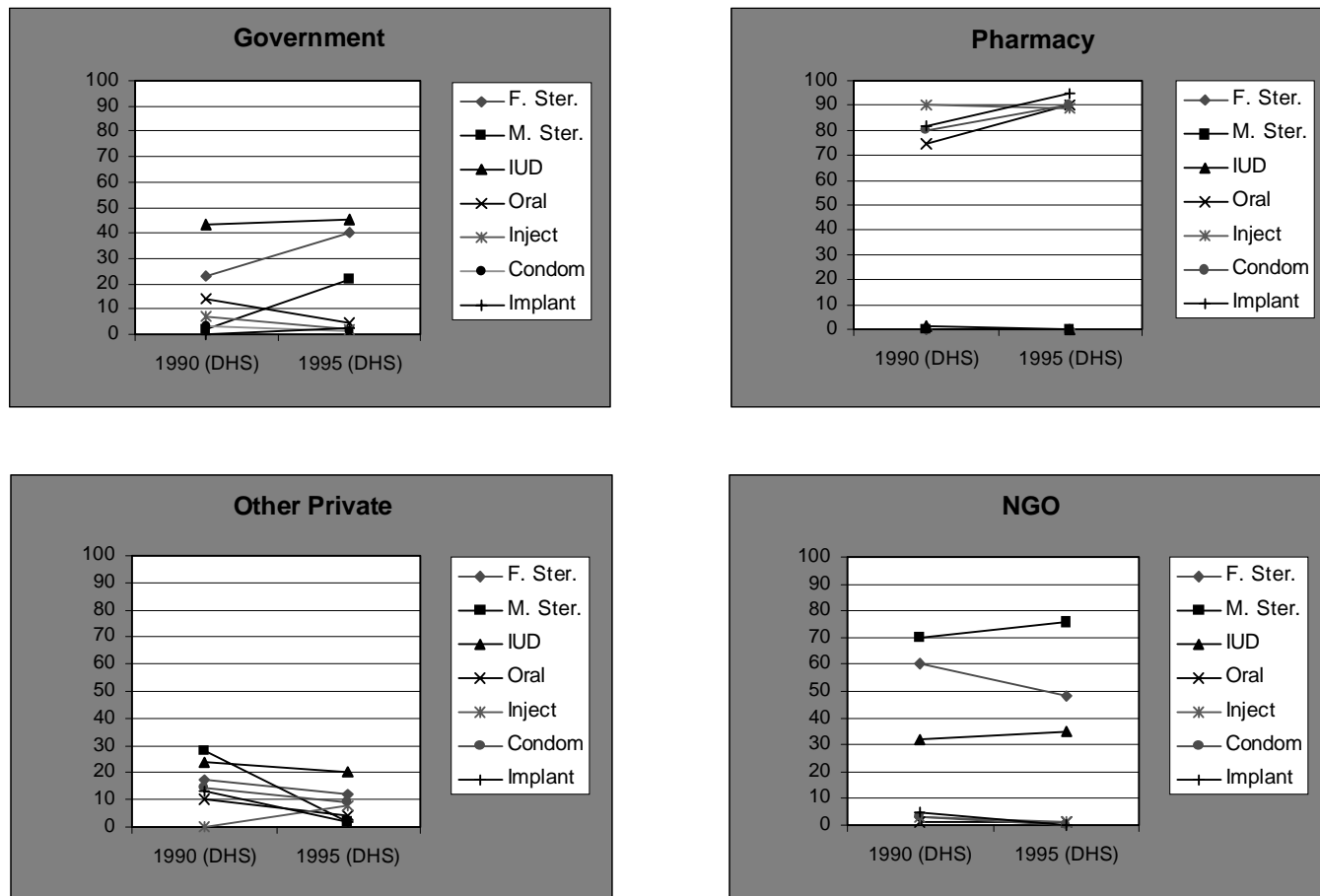
In 1990, government is defined as hospital, centros de salud, and Puestos de Salud. In 1995, the public sector includes hospital, centro de salud, promotora de salud, otra fuente del gobierno, seguros sociales, and cajas de prevision. Pharmacy data are available from both the 1990 and 1995 DHS surveys. Other private is defined as cajas de compensacion, private clinic or hospital, medico particular, seguro social (1995 only), cajanal or other private sources. NGO is defined as Profamilia, clinica and puesto for 1990; no distinction is made for 1995.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3d

Egypt
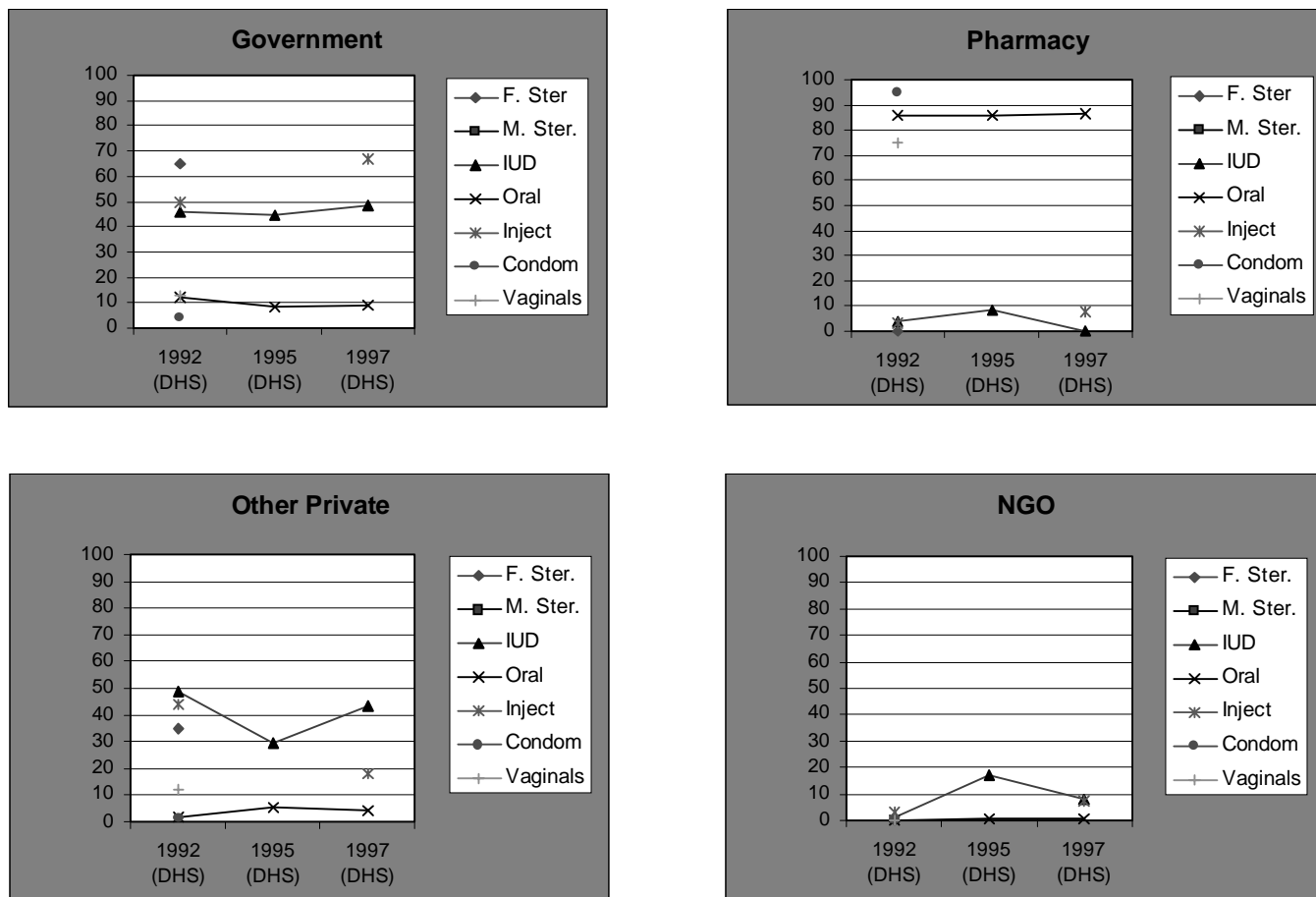
For all three surveys, government is defined as urban and rural hospitals and health units, other MOH, teaching hospitals, Health Insurance Organization, Curative Care Organization, and other government organizations. Pharmacy data are available in all three DHS surveys. Other private includes private hospitals, clinic and doctors, friends and relatives or other vendors in all three surveys. NGO is defined as home delivery agents, Egyptian Family Planning Association, Clinical Services Improvement Project, other private voluntary organizations and mosque and church health units.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3c

India
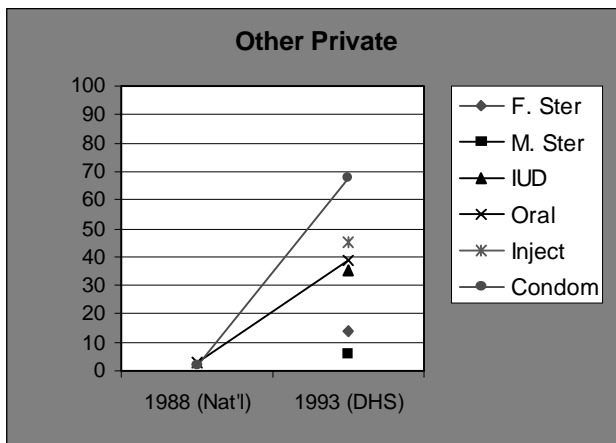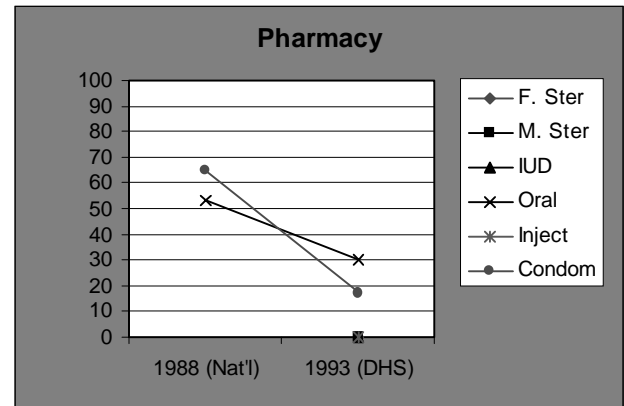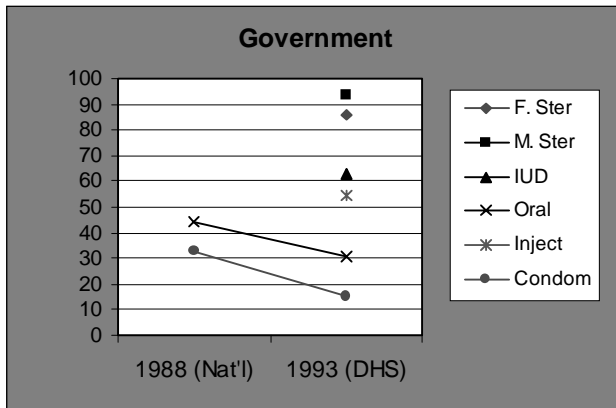
In the 1992/93 survey, government is defined as government or municipal hospital, public primary health center or sub center, family planning and public mobile clinics, camps, government paramedic and other public organizations. Pharmacy/drugstore data is included. Other private is defined as private hospitals, clinics and doctors, shops, friends, relatives, and other private sources.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3e

Indonesia
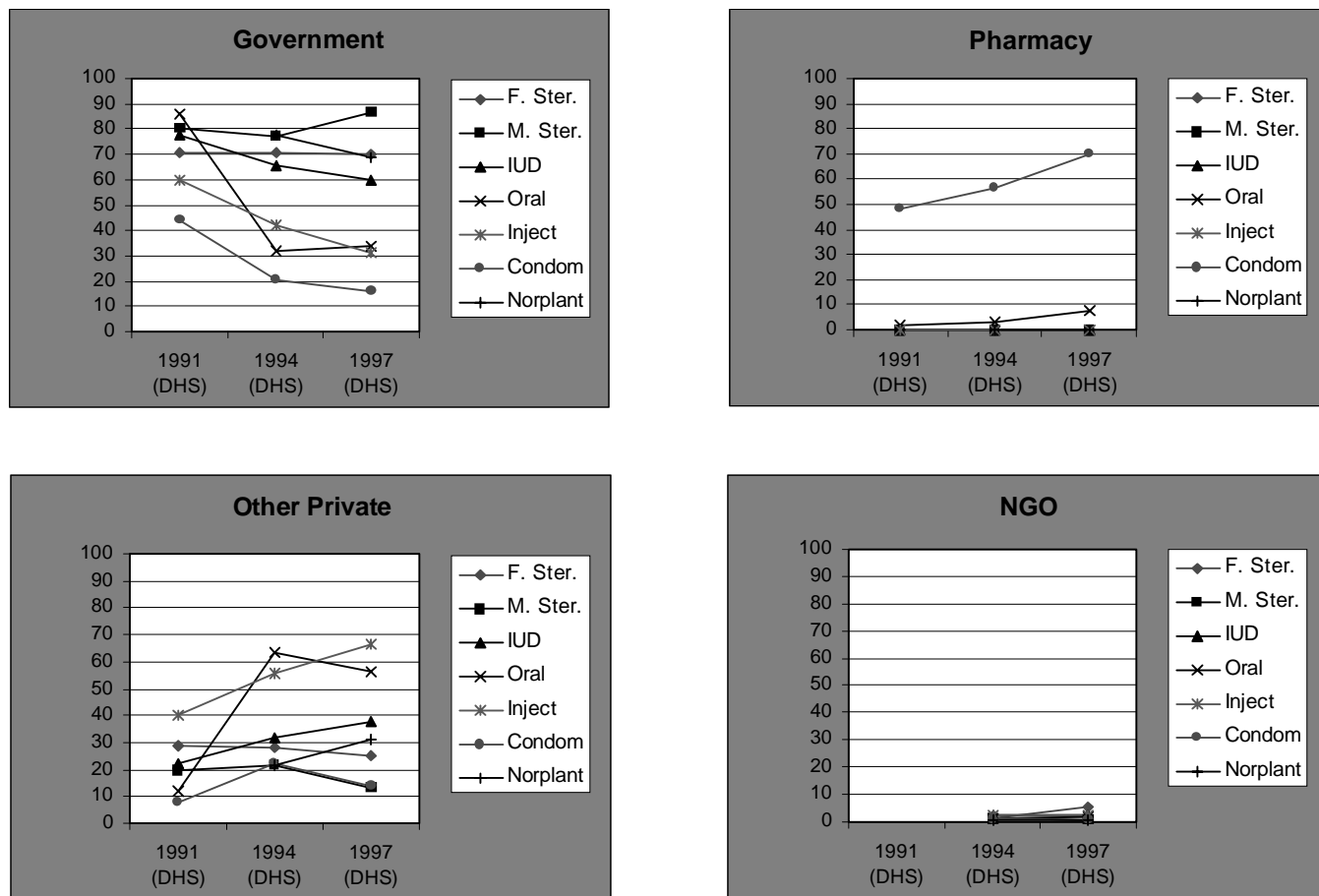
Government includes government hospital, health center (Puskesmas), health post — Posyandu (1991 only), FP Post/VCDC/Paguyu (1991 only), fieldworker — PLKB, FP mobile — TKBK/TMK, and FP safari (1991 and 1997) and village official (1997 only) in the three surveys. Pharmacy is a private source of contraception in all three surveys, and includes "drugstore" in the 1991 survey. "Other private" includes private hospitals, clinics, doctors and midwives, as well as traditional healers, friends and relatives in all three surveys. In the 1994 and 1997 surveys, "other private" also includes village delivery posts (polindes), health posts (posyandus), family planning posts, and traditional birth attendants (dukuns). NGO is defined as "private family planning clinic" in the 1994 and 1997 surveys.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3f

Kenya

Government

Pharmacy

Other Private

NGO
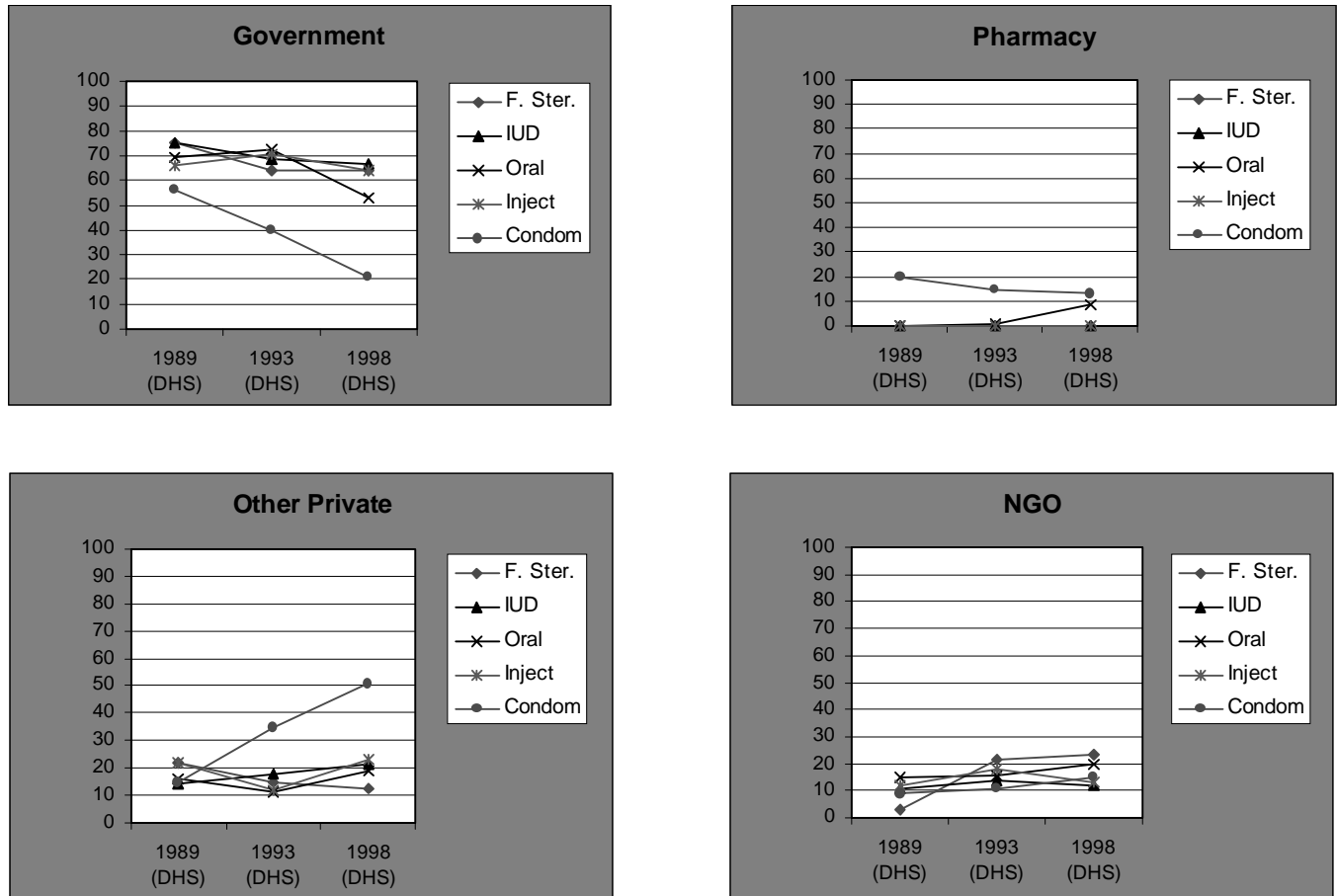
Government is defined as government hospitals, clinics, health centers, and dispensaries (1993 and 1998 only). Pharmacy data are available in all three surveys as a private source of contraception. Other private includes private hospitals, clinics, doctors and shops, and husbands, friends and relatives. NGO includes the Family Planning Association of Kenya clinics, mission churches and hospitals (1993 and 1998 only), field workers (1989 only), mobile clinics and community distribution/health workers (1993 and 1998 only).

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3g

Mexico

Government

Pharmacy
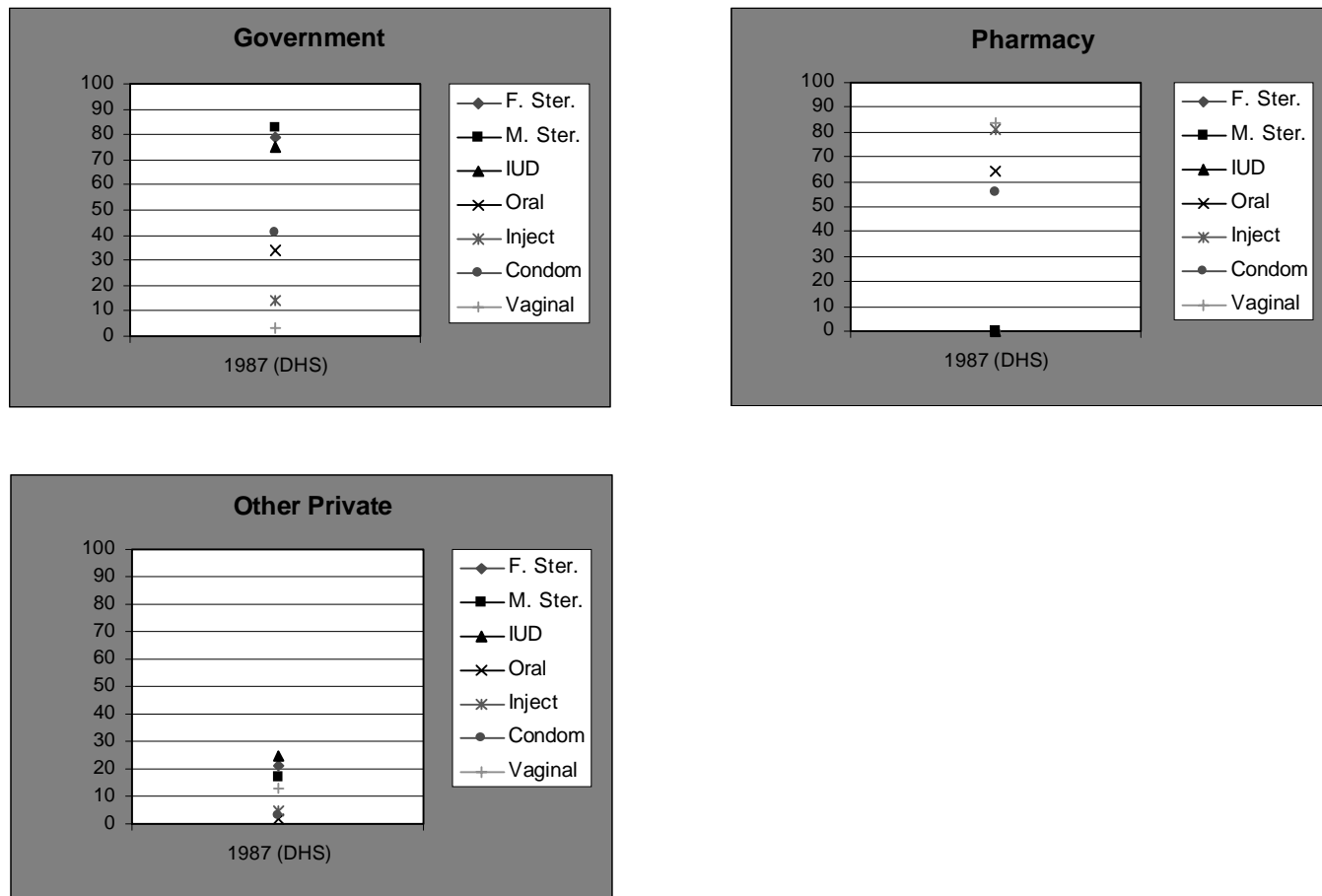
Other Private

Government is defined as IMSS, ISSSTE, SSA and other Instituciones del Gobierno. Other private is defined as consultorios and others. No data are available for NGO as a source of contraception.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3h

Nigeria

Government

Pharmacy

Other Private

NGO
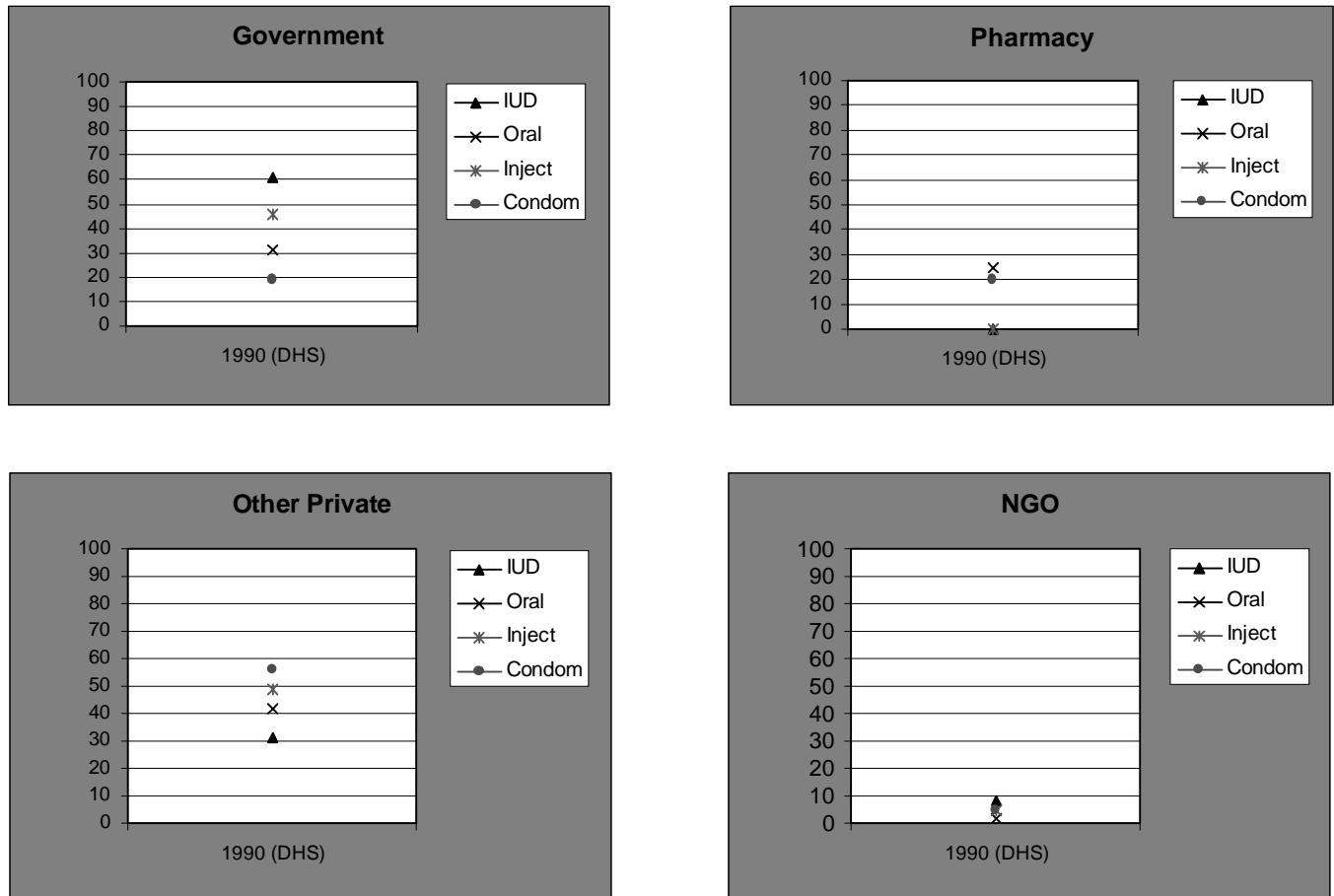
Government includes government hospitals, health centers, and doctors. Pharmacy data are available from the 1990 survey. "Other private" includes private doctors, hospitals, health centers, patient medical offices, markets and places of work, missions, and friends and relatives. NGO is defined as PPFN for Planned Parenthood Federation of Nigeria.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3i

Pakistan
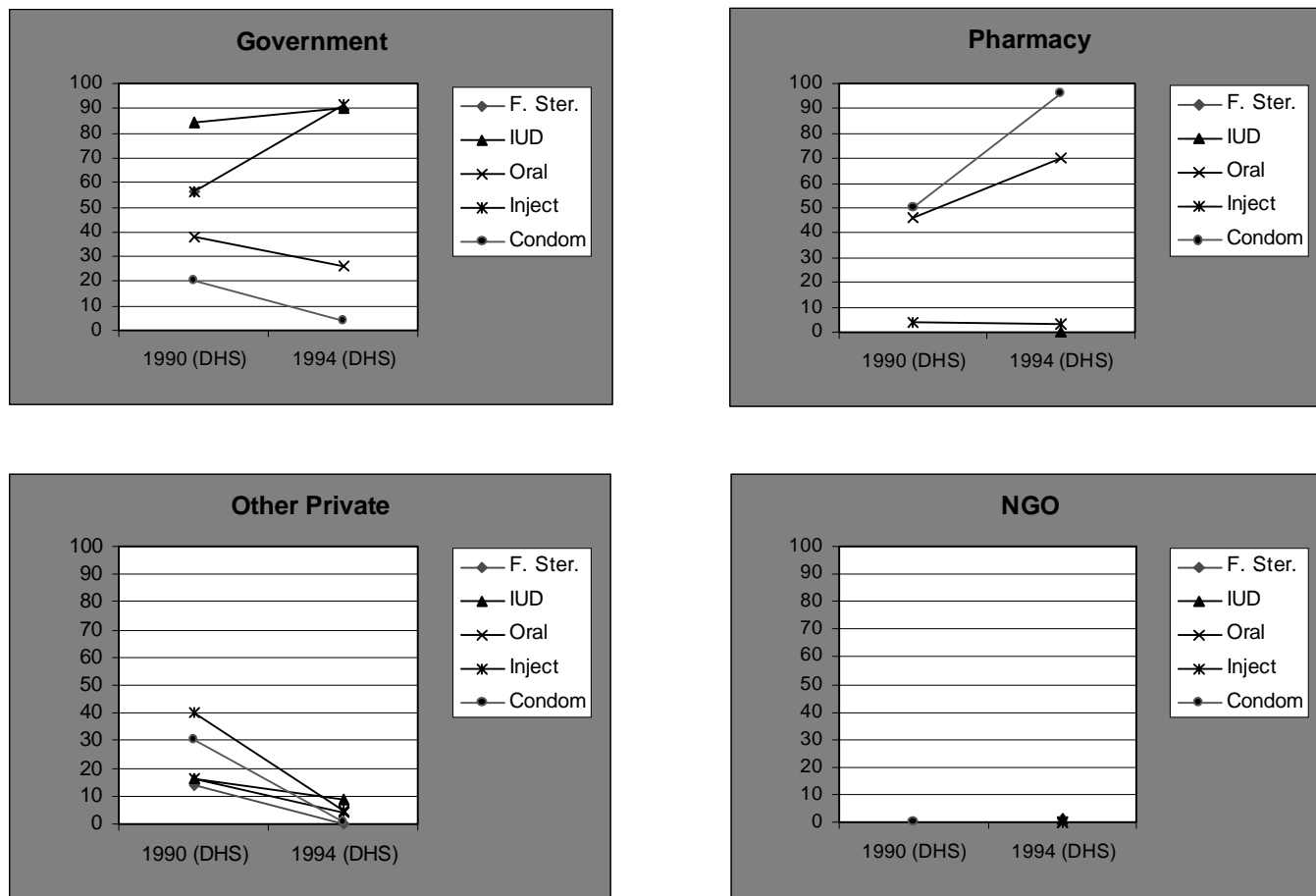
Government is defined as government hospitals, clinics (FWC in 1994/95) and the Family Welfare Center (FP worker). Pharmacy data are available in both surveys, defined as drugstore in 1990/91 survey, and drug/general store in 1994/95 survey. Other private includes private doctors, hospitals, other shops (1990/91 only), friends/relatives, TBAs (TBA/Dai in 1994/95 survey), RHC, and other sources. NGO is defined as an NGO center (1994/95 survey only), serving as a source for only IUD and female sterilization.

Chapter 2

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3j

Philippines
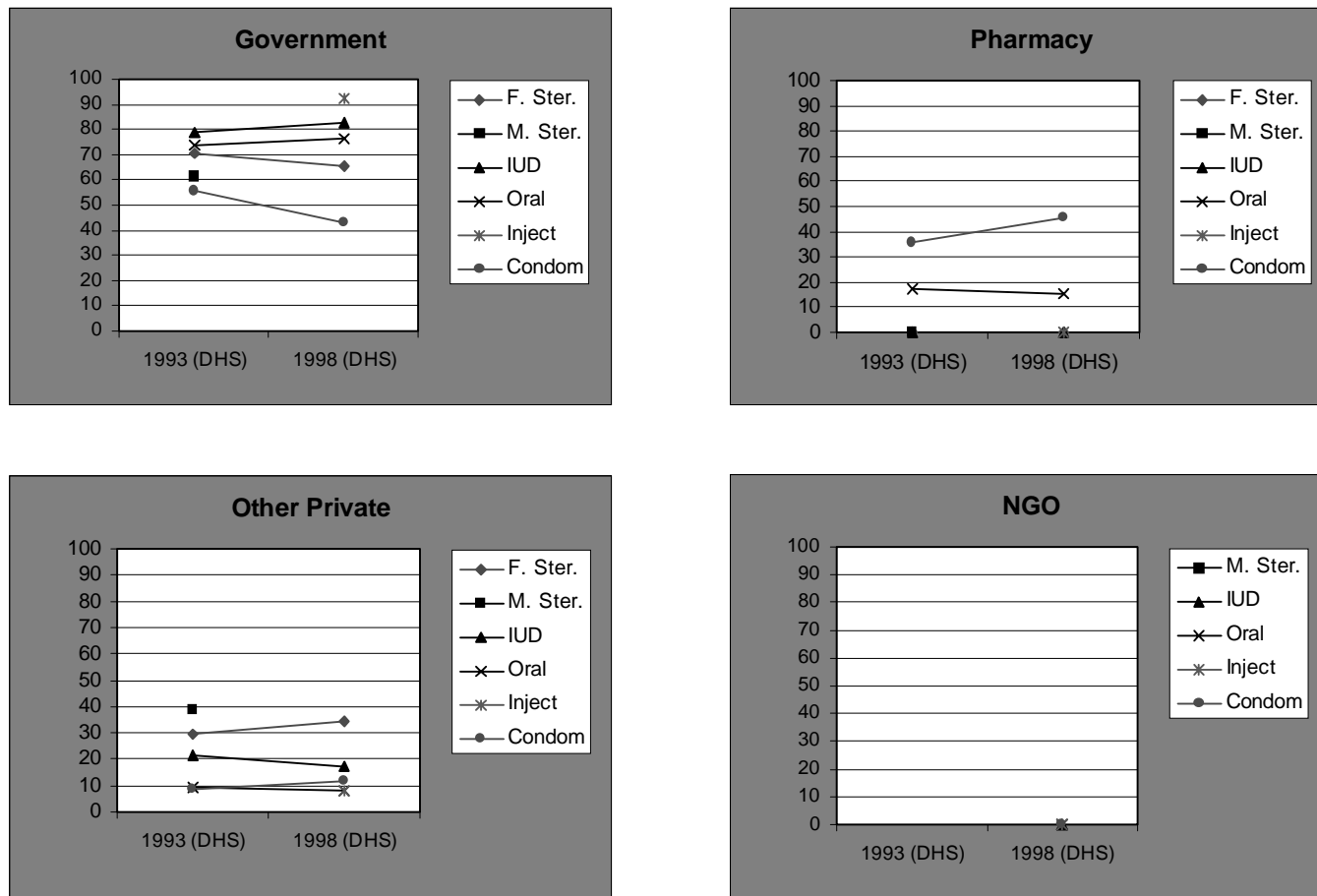
Government or public sector is defined as government hospital, barangay health station, barangay supply office, and puericulture center in the 1993 and 1998 surveys. The 1998 survey also includes other public in the category of public sector. Data for pharmacy are available in both the 1993 and 1998 surveys. Other private includes private hospital/clinic, private doctor, private nurse/midwife, store, church," and friends/relatives in both the 1993 and 1998 surveys. The 1998 survey also includes puericulture center and industry-based clinic under other private. NGO is covered only in the 1998 survey, and its role appears to be confined to the provision of oral contraception.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3k

Sudan
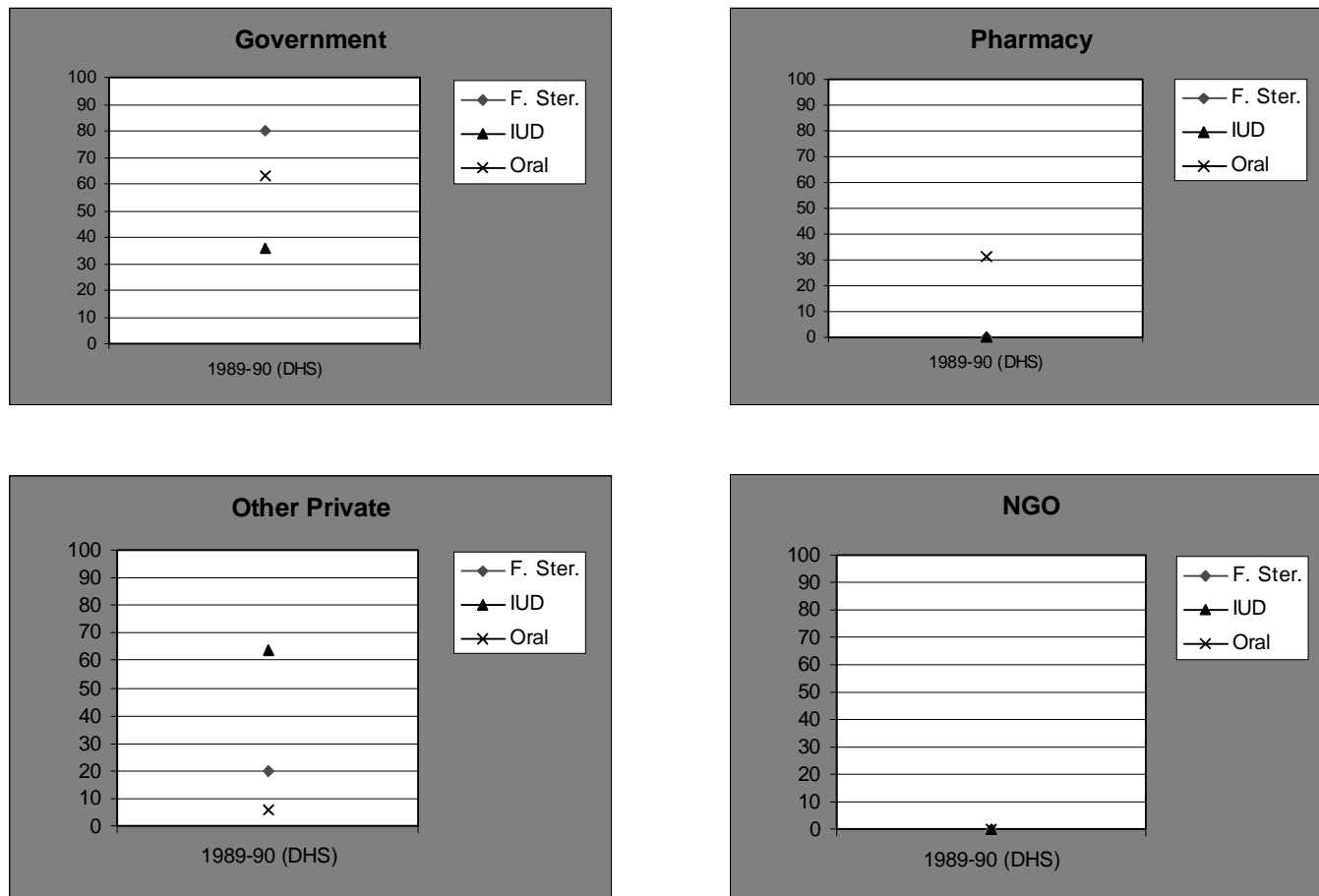
Government includes government hospital, government health center, dispensary, and family planning clinic. Pharmacy is tabulated separately as shown. Other-private includes private doctor, private hospital, friends/relatives, and other. NGO is negligible/undefined.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3l

Tanzania
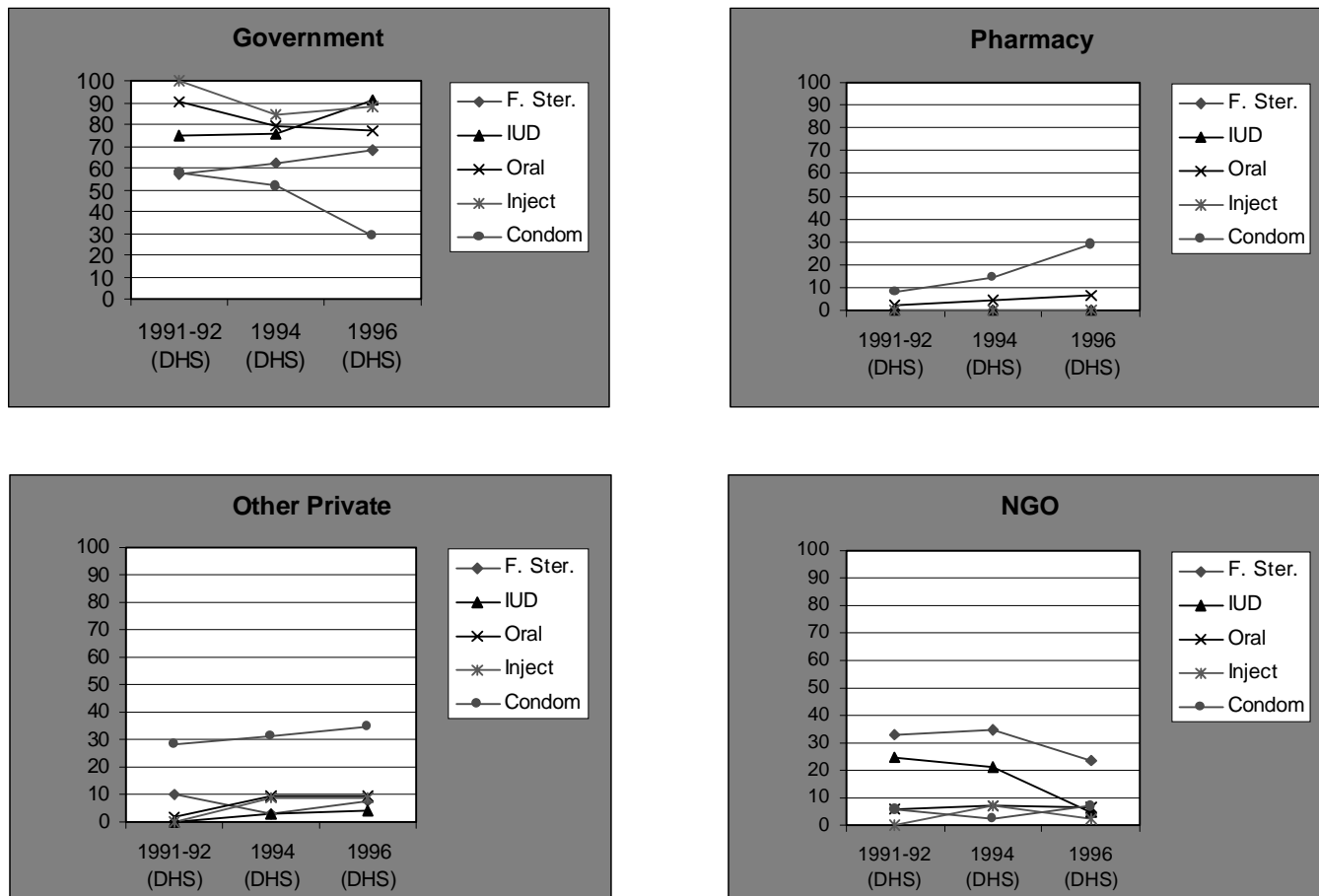
Government is defined as public, government, regional, consultant, or district hospitals, health centers, dispensaries, parastatal health facilities, village health posts, and workers. Pharmacy and medical store data are available in all three surveys. "Other private" is defined as private doctors, hospitals and clinics, shops/kiosks, churches, and friends and relatives. NGO is defined as religious organization facilities and Family Planning Association of Tanzania CBD workers.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3m

Thailand
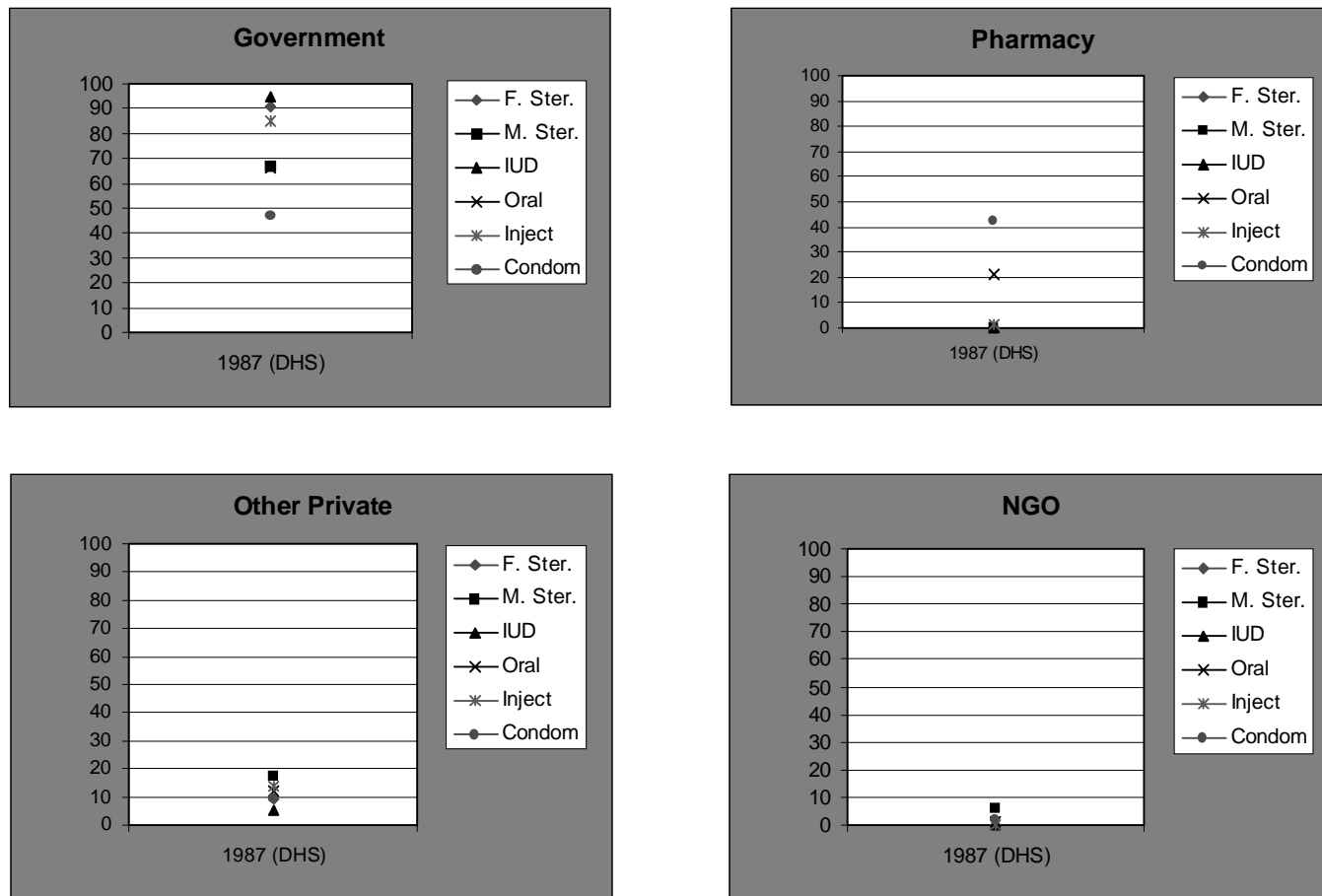
Government is defined as government hospitals and health centers. Pharmacy data are available for 1987. Other private includes family planning clinic, mobile clinic, health volunteers, private hospitals or clinics, MCH center or Bangkok health center, and friends and relatives. No data are available specifically for NGOs in the 1987 survey.

Chapter 2

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3n

Turkey

Government

1993 (DHS)

Legend: F.Ster., IUD, Oral, Condom, Vaginals

Pharmacy

1993 (DHS)

Legend: F.Ster., IUD, Oral, Condom, Vaginals

Other Private

1993 (DHS)

Legend: F.Ster., IUD, Oral, Condom, Vaginals
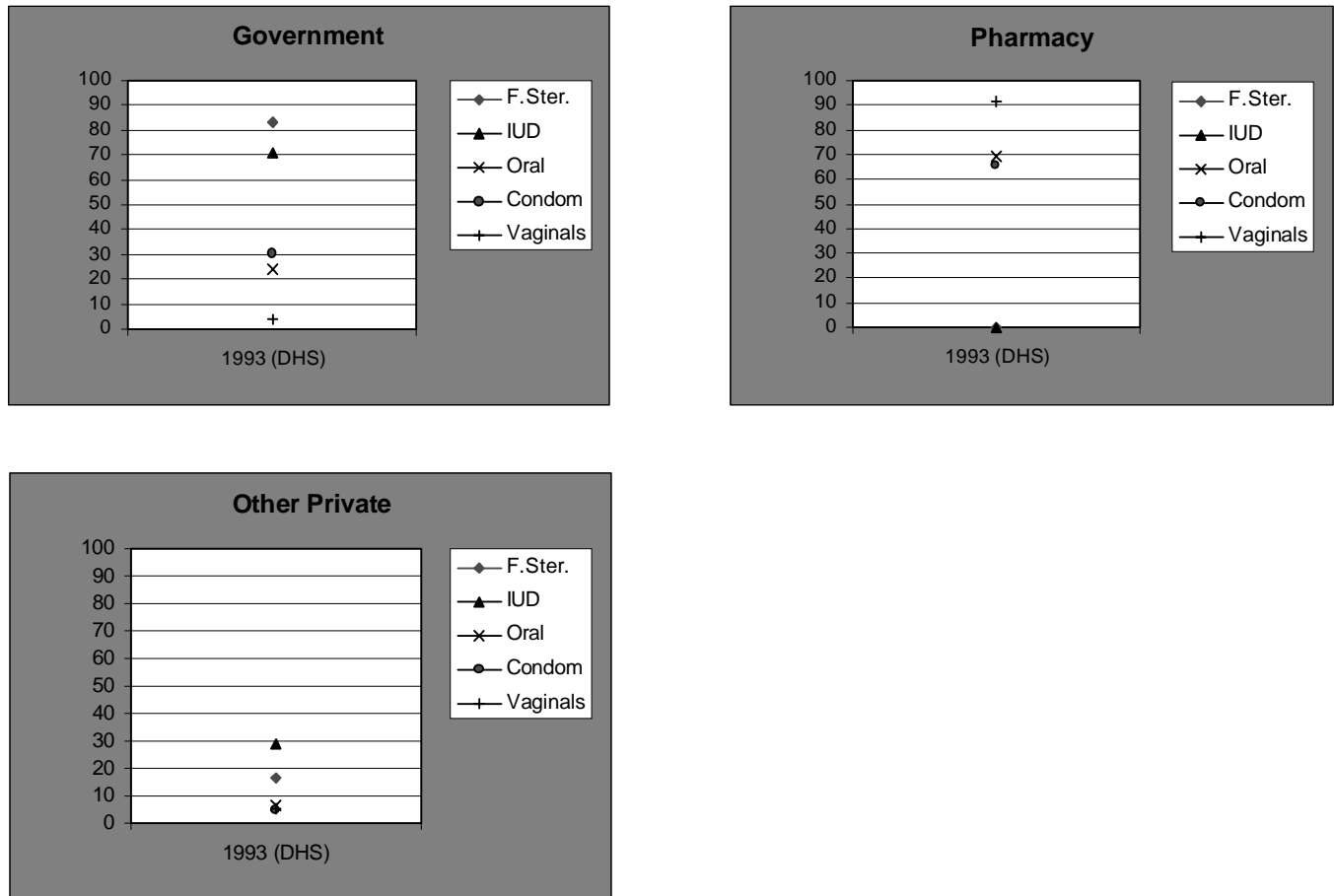
Government is defined as government hospital or health center. Pharmacy data are available in the 1993 survey. "Other private" is defined as private hospitals or clinics or private doctors. The 1993 survey has no NGO data.

Figure 2.3. Source of Contraception (Cont.)

Figure 2.3o

Vietnam
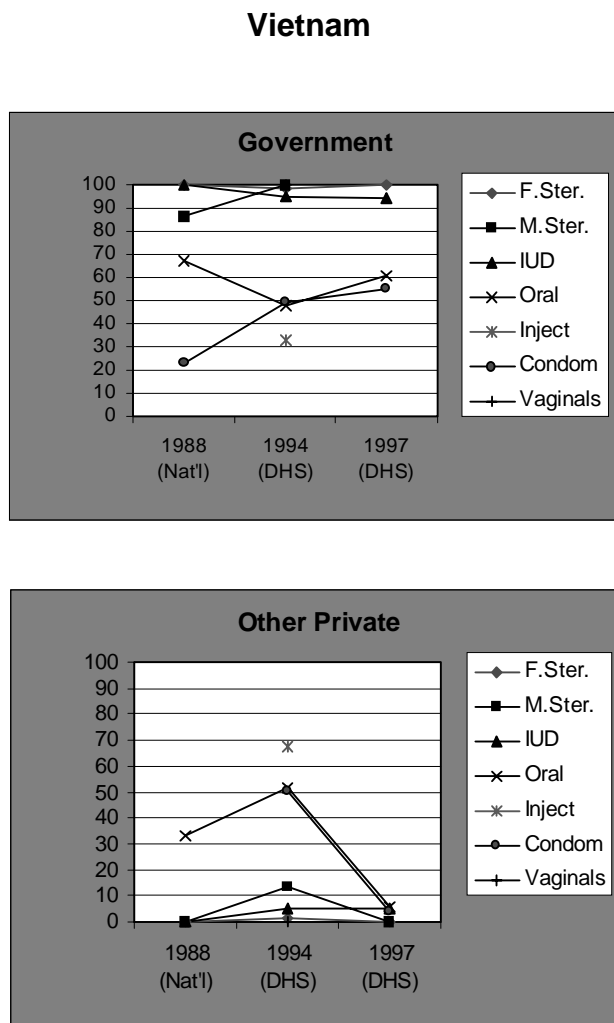
Government is defined as commune health center, district clinic, province clinic, central clinic and other health care unit. No pharmacy data appear in the 1988 or 1994 surveys, only "private market" which is included here as "other private". No NGO data appear in the 1988 or 1994 surveys.

Chapter 2

Chapter 3
FUTURE TRENDS IN CONTRACEPTIVE USE

This chapter presents, for each of 22 large developing countries, three scenarios for future contraceptive use. These projections are part of a series to 2015 that includes (1) the percent using each method, (2) the number of users by method, and (3) the commodities needed by method. Each of these is presented below. We therefore pause here to explain briefly the projection methodology; the appendix "Technical Projection Methods" gives the full detail.

The starting point of the projection is the published set of UN projections (1998) for numbers of women aged 15-49 and total fertility rates, for the 116 countries included here. The equivalent values for future years for contraceptive prevalence (from the relationship in Figure 3.1) are produced from the total fertility rates, but are adjusted at the beginning to agree with the latest survey estimates. By reference to the high, medium, and low variations in the UN materials, the alternatives for future contraceptive use are produced for the 22 large countries.

Percent using each method. To produce projections for individual contraceptive methods the body of past national surveys was used to establish the relationship of each method's use to total use. On average this changes through time, as total use rises (Figure 3.2), so the projected method mix in each country depends upon its path for total use. However the beginning method mix was adjusted to match the actual mix in the most recent survey, just as total use was. Appendix Table A.3 provides the medium estimate for 116 countries, for both total use and use by method, for the period 2000-2015.

Numbers of users by method. To produce the actual number of users of each method, the UN figures for numbers of women aged 15-49 were employed in combination with the percentage of women relying on each method. This was done for all women and also for married women, using the proportions married published by the UN, with up-

Figure 3.1. Contraceptive Prevalence and Total Fertility Rate
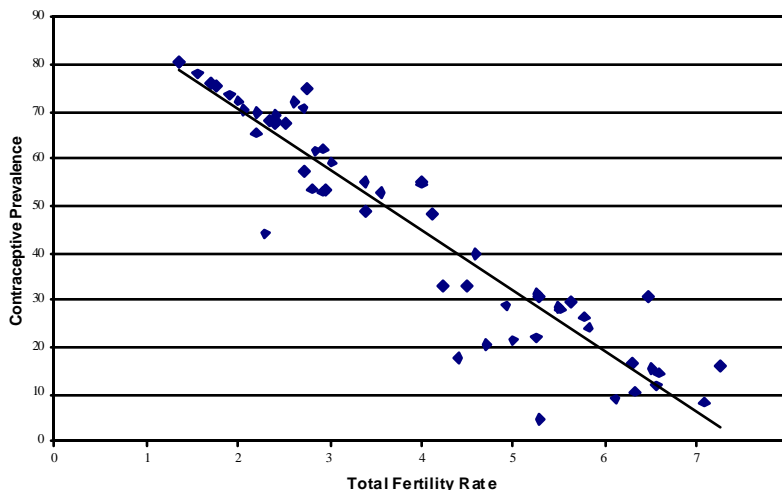
Figure 3.2. Model Method Mix Pattern
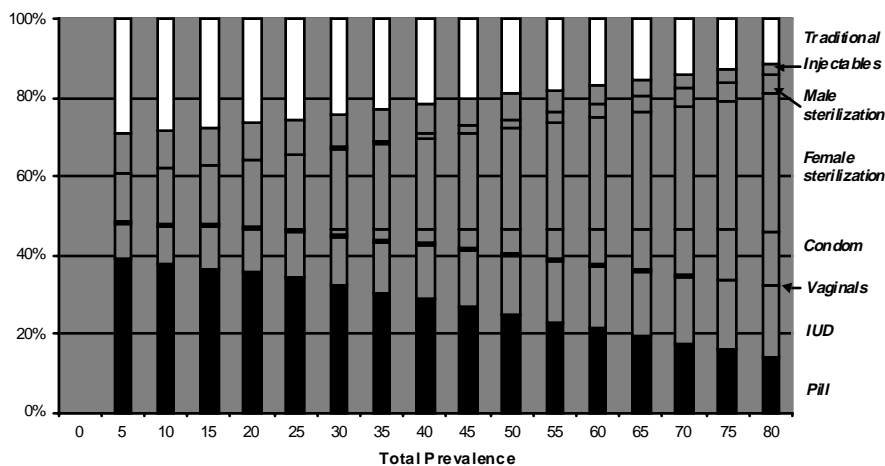
This model shows, on average, how method mix changes as total prevalence of use rises, as registered in past national surveys in many developing countries. Traditional method use, at the top, declines as a proportion of all use, while female sterilization increases considerably. Pill use declines, while IUD use increases somewhat, as does condom use. Minor roles on average are played by male sterilization, injectables, and such vaginals as foaming tablets. Note that all these changes are relative ones, adding to 100 percent of use. Because total use is increasing, up to about 80% of all couples, the number of pill users for example will be larger than suggested by the relative decline.

This model is used for the projections of use by method in this report, with adjustments for Muslim countries, whose method mix shows less sterilization and more IUD use, etc., and for certain other countries. See Appendix B, Technical Projection Methods, for details.

dates from recent national surveys. Appendix Table A.4 gives the number of users by method for 2000-2015. (See Appendix Tables A.6 and A.7 for the proportions married for all countries.)

Adjustments were made to these procedures to allow for a few special country cases, as when the original method mix was very unusual and should control the projection. Also, a separate set of equations was used for Muslim countries, since their method mix is typically different from others.

Commodities needed by method. The quantities of commodities needed are calculated for each method and each future year, by reference to values for couple years of protection (CYP). One year of protection requires 15 pill cycles (not 13, to allow for wastage), 120 condoms or vaginal tablets, or 4 injectables. An IUD lasts 3.5 years and a male or female sterilization 8, 9, or 10 years (depending upon the region in question) (see Stover et al., 1997). The corresponding supplies needed depend primarily upon new adoptions, which on average follow a consistent relationship to the time path for users.

That compressed description contains the essential features, and the technical appendix gives the details. This overall approach produces, for 116 countries and for each year 1999-2015, estimates for proportions and numbers using, use by method, and commodities needed. It also projects numbers of women, and numbers married. High, medium, and low variations are included for prevalence in the 22 large countries.

The following paragraphs discuss each of the above.

Projections for the Percentage Using Contraception

Three scenarios for future contraceptive use in 22 countries appear in Figure 3.3 at the end of this chapter, which provides high, medium, and low projections, all in the context of past survey results. For each country, additional summary statistics and a brief commentary are included. Note that certain statistical items in the lower-right boxes come from the latest survey, not from the projections. These include the TFR, wanted TFR, unmet need, and percent of women with unmet need who intend to use a method. The abortion rates are from WHO (1998) and the Alan Guttmacher Institute (Henshaw, Singh, and Haas, 1999). The maternal mortality rates are from WHO and UNICEF (1996). The percentages of adults with AIDS are from UNAIDS/WHO (1998).

It is important to treat these alternative projections with caution, since they are based upon a complex methodology, and the underlying data are subject to measurement error. This is stressed in the figures by showing three variations for prevalence, adapted from the high, medium, and low projections of the UN with reconciliations to the latest surveys. As elsewhere, it is best to think of each data point as lying within a band that contains the true figure.

Similar projections, for the medium variant, are given in Appendix Table A.3 for all 116 countries at the four dates of 2000, 2005, 2010, and 2015 These include percentages for both total use and use by method.

Projections for the percentage using each method. In Appendix Table A.3 the percentage of married women who are using each contraceptive method is given for the four dates just mentioned; note that additional users exist among unmarried women as well, and these are taken account of in the projections for total numbers of users below.

Appendix Table A.3 extends the empirical information in Appendix Table A.1 for use as registered in all national surveys for developing countries from 1980 to the present.

Projections for Total Numbers Using Contraception

The numbers of contraceptive users will increase very substantially in the future due to the double force of larger populations and larger proportions practicing a method. As seen in Table 3.1, there will be sizeable growth both in the number of married women and in the proportion who use a method, and consequently in the number of married users. Even larger increases are expected in the number of all users. Over the 15 years, married users increase by over one-third (37%), and all users increase by 41%. That is 141 users for every 100 currently, which other things equal means an equivalent increase in the resources needed, including supplies, facilities, training, and service arrangements.

Even in the next five years, an increase of 8.6% must be absorbed. This however varies sharply by region (Figure 3.4), from China's 3% rise to sub-Saharan Africa's 43%. Note however that the predicted rise in contraceptive use in these projections is approximately tied to the UN projections for declines in the total fertility rates, and those are probably optimistic in the case of sub-Saharan Africa. If fertility falls less than expected, the associated rise in contraceptive use will be less. However, it is best for donors and governments to plan for

Table 3.1. Percentage Increases for Married Women, for Proportion Using a Method, and for Married Users and Total Users, in Five-Year Periods, 2000-2015

	For No. of Married Women[a]	For Proportion Using[b]	For No. of Married Users	For No. of All Users
2000-2005	8.7	5.1	14.2	15.4
2005-2010	6.7	4.2	11.2	12.5
2010-2015	5.0	2.6	7.7	8.9
2000-2015	21.8	12.4	36.8	41.4

[a]Percentage increases for all women and married women are nearly identical.
[b]Among married women.

more users rather than fewer, as a hedge against the usual shortages and interruptions in supply lines and services.

Appendix Table A.4 provides numbers of users among all women, by method, for 2000-2015, for all countries.

Paralleling Figure 3.4 is Figure 3.5, to show the regional pattern for the 15-year increases. It is very similar in appearance to Figure 3.4 except that sub-Saharan Africa's increase is now more than double the next highest region, reflecting the longer range effects of the very young age structure in most countries there.

Turning to absolute numbers to be served, Figure 3.6 shows the changes. China again, although having the largest numbers, stabilizes at about 190 million users. India, however, is slated to experience a drastic rise, nearly reaching China's level, due to the combination of population growth and a rise in the proportion using. The rest of Asia will also face rapid growth, due not only to higher prevalence of use but also to the young age structures in Pakistan, Bangladesh, Indonesia, and elsewhere. Latin America and the Middle East/North Africa can expect milder increases, unlike sub-Saharan Africa where again, rapid growth is projected.

By method, users in 2000 are distributed for each region in Table 3.2. Over one-half billion users are estimated, three-fourths of them in Asia (as in Figure 3.6). Sterilization dominates in Asia, where it accounts for 40% of users; the IUD is next at one-fourth of users due largely to its extensive use in China. Sterilization is important in Latin America, also at 40% of users, but the pill comes next at 22%. Thus two methods cover about two-thirds of all users in both regions. Further, in the Middle East/North Africa, the IUD and pill make up 60% of all use, and in the Central Asia Republics, the IUD alone is over one-half of all use (due mainly to Uzbekistan). In sub-Saharan Africa, the pill and injectable make up 42% of use. The overall pattern is that two modern methods, out of the seven candidates,

Figure 3.4. Percent Increase Over the Next Five Years in Number of Contraceptive Users, 2000-2005, by Region
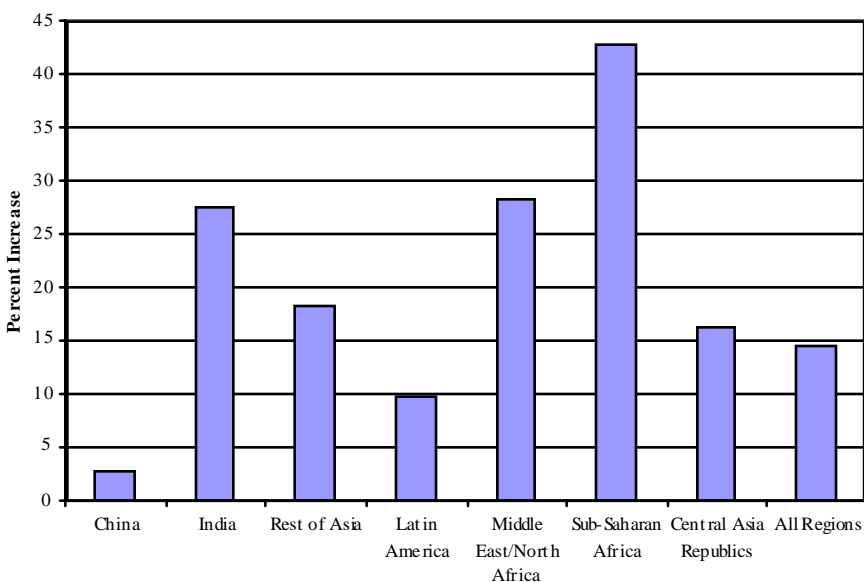
Figure 3.5. Percent Increase over the Next Fifteen Years in Number of Contraceptive Users, 2000-2015, by Region
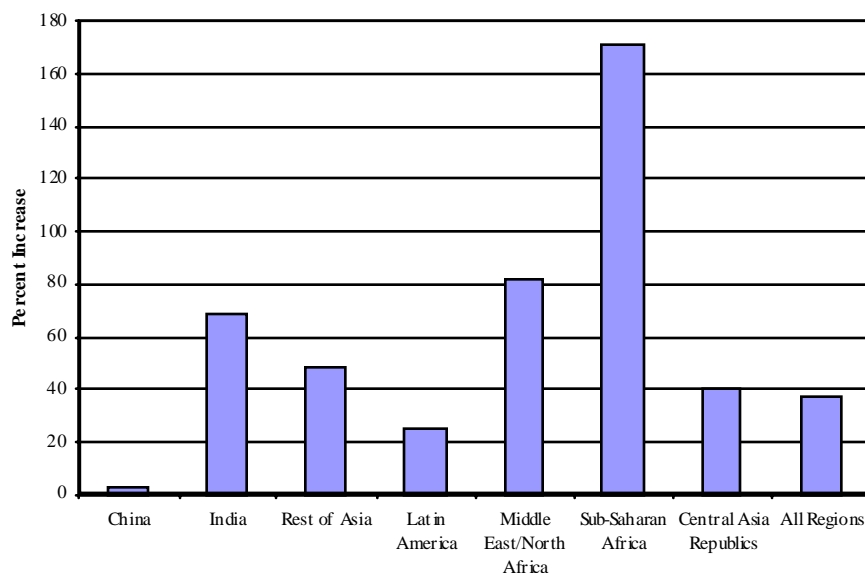
Figure 3.6. Users of All Contraceptive Methods, 2000-2015, by Region
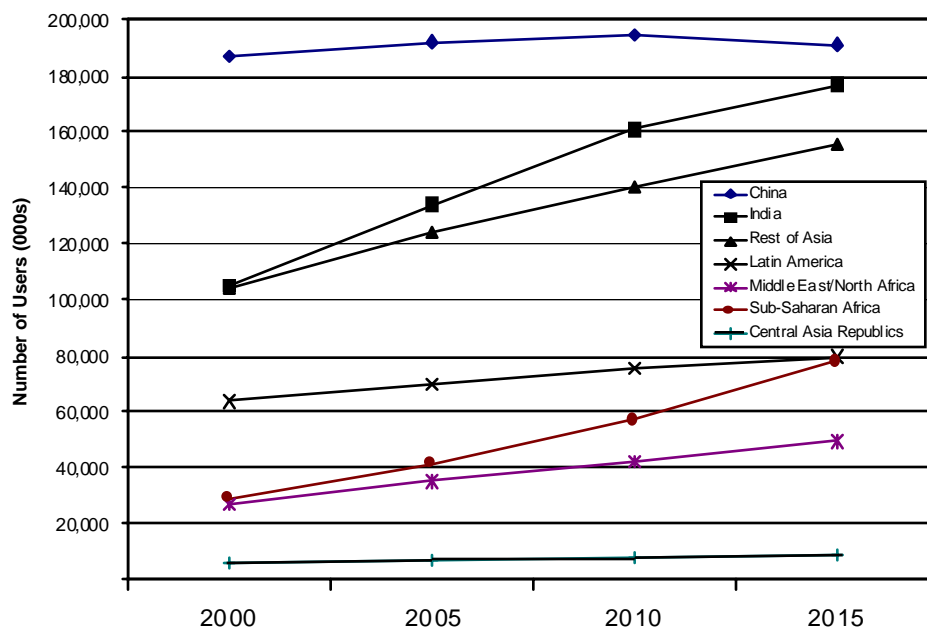
Table 3.2. Projected Numbers (000s) and Percent of Contraceptive Users Among All Women by Method, by Region for 2000, and for Four Dates 2000-2015

Region	Total	Sterilization		Pill	Injectable	IUD	Condom	Vaginals	Any Traditional
		Female	Male						
				Total Numbers by Region					
Asia	396,756	159,954	33,382	31,946	22,117	96,745	15,904	2,227	34,481
Latin America	63,875	25,418	1,710	14,151	2,380	6,941	4,671	417	8,187
Middle East/North Africa	27,399	1,582	135	7,804	937	8,680	1,510	202	6,548
Sub-Saharan Africa	28,868	3,161	302	6,923	5,294	2,177	1,594	316	9,101
Central Asia Republics	6,161	741	164	459	154	3,438	329	35	842
Total	523,059	190,855	35,693	61,284	30,881	117,981	24,008	3,198	59,160
				Percent Distribution by Region					
Asia	100.0	40.3	8.4	8.1	5.6	24.4	4.0	0.6	8.7
Latin America	100.0	39.8	2.7	22.2	3.7	10.9	7.3	0.7	12.8
Middle East/North Africa	100.0	5.8	0.5	28.5	3.4	31.7	5.5	0.7	23.9
Sub-Saharan Africa	100.0	11.0	1.0	24.0	18.3	7.5	5.5	1.1	31.5
Central Asia Republics	100.0	12.0	2.7	7.4	2.5	55.8	5.3	0.6	13.7
Total	100.0	36.5	6.8	11.7	5.9	22.6	4.6	0.6	11.3
				Total Numbers by Date 2000-2015					
2000	523,059	190,855	35,693	61,284	30,881	117,981	24,008	3,198	59,160
2005	603,833	198,975	32,837	93,142	37,545	124,122	39,598	3,622	73,994
2010	679,334	200,998	28,804	127,417	43,296	130,180	56,053	4,003	88,581
2015	739,520	194,945	23,525	161,845	48,206	134,261	71,269	4,300	101,168

emerge in each region as dominant. The eighth choice, traditional methods, continues to be very important in both sub-Saharan Africa and the Middle East/North Africa, at one-third and one-fourth of use respectively.

This method mix will change over the 15-year period under discussion, and it will change differentially by region. However, the changes are somewhat gradual, and they vary a good deal by country. Appendix A.4 provides full method details for each country and for each year 2000, 2005, 2010, and 2015.

Projections for Commodities Needed, by Method

The user numbers above translate directly into commodity needs by the rules explained above, based on couple years of protection. For example, the number of pill cycles needed in any country in 2000 is simply 15 times the number of users in that year. Note that the sterilization figures are simply estimates for the number of procedures done annually, as a basis for country calculations (not included) of the kits and other supplies needed. Appendix Table A.5 projects the needs for each method by country and year, with regional totals. Here we sim-

ply show the overall rise in total commodities needed for pills, condoms, IUDs, and vaginal methods for the developing world as a whole (Figure 3.7). Note that the condom figures are understated since they omit the need for disease prevention.

Finding ways to cope with these large increases in users and commodities will occupy donors and governments for the foreseeable future. The role of the private sector will be quite important as a way of relieving these burdens. However, more creative ways are needed than those used heretofore if private sectors in many countries are to significantly enlarge their contribution.

Figure 3.7. Projection of Annual Commodity Needs, Four Methods, 2000-2015, Developing World
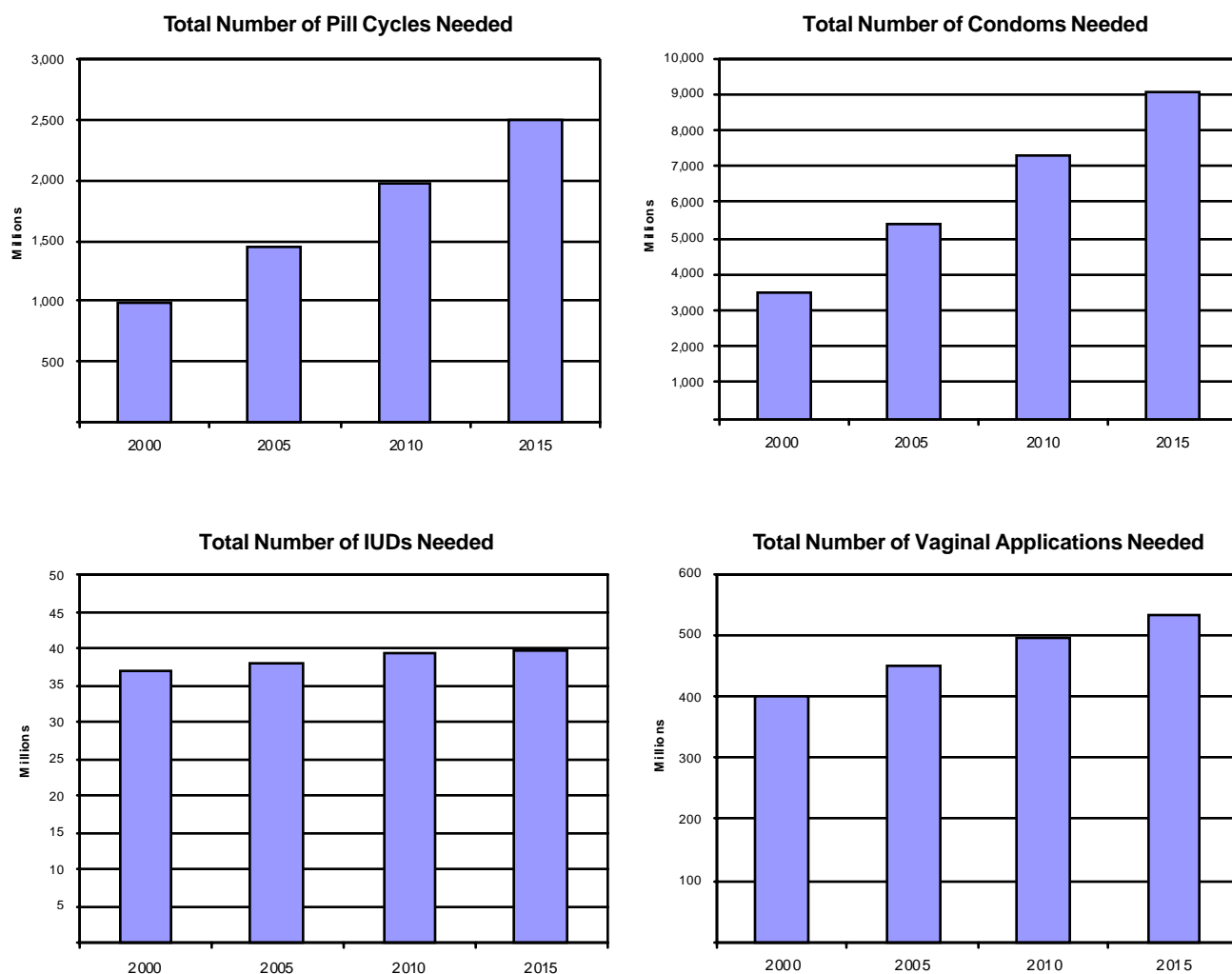
References

Henshaw, Stanley K., Susheela Singh, and Taylor Haas. "The Incidence of Abortion Worldwide." *International Family Planning Perspectives*. Vol. 25, Supplement. Pages S30-S37. 1999.

Stover, John et al. *Empirically Based Conversion Factors for Calculating Couple-Years of Protection.* The EVALUATION Project. Carolina Population Center, Tulane University, and The Futures Group International. 1997.

UNAIDS/WHO. *Report On the Global HIV/AIDS Epidemic*. Geneva: Joint United Nations Programme on HIV/AIDS (UNAIDS) and WHO. 1998.

United Nations Population Division. *World Population Prospects: The 1998 Revision.* Volume I: Comprehensive Tables. New York: United Nations. 1998.

WHO Division of Reproductive Health. *Unsafe Abortion: Global and Regional Estimates of Incidence of and Mortality Due to Unsafe Abortion with a Listing of Available Country Data.* Third Edition. Geneva: WHO. 1998.

WHO and UNICEF. *Revised 1990 Estimates of Maternal Mortality: A New Approach by WHO and UNICEF.* Geneva: WHO. April 1996.

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age

Algeria

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)
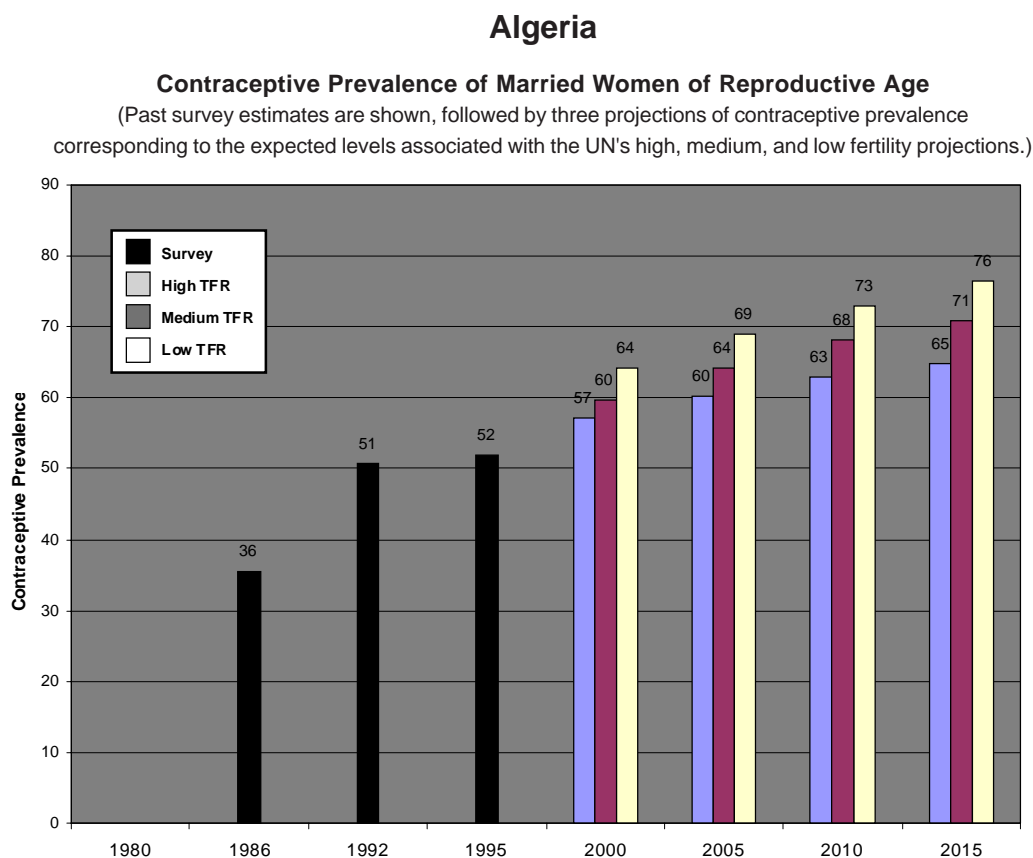
Algeria's latest survey (1995) shows about half of couples using a method; in the medium projection this rises to two-thirds by 2010, increasing at 1.1% per year. In the ten-year period before then the population will grow by 19%-24%, depending upon the projection chosen. The low percent married helps to depress the fertility rate, but the TFR is still above 4 (UN 2000 TFR 3.6). The 1994 program effort score was only a modest 44%. The MMR is lower than in many other countries but still has much room to fall.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	31,572	35,314	39,094	42,664	68,808
Medium	31,471	34,965	38,304	41,199	57,731
Low	31,182	34,259	37,101	39,412	47,110

% Married/in Union (Ages 15-49)	57.6
Unmet Need	
% Spacing	NA
% Limiting	NA
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	10
1994 FP Effort Score (% of maximum)	44
% Public of All Modern Methods	NA
TFR: Total Fertility Rate	4.2
TWFR: Total Wanted Fertility Rate	NA
MMR: Maternal Mortality Ratio (per 100,000 Births)	160
Estimated % of Adults with HIV/AIDS	<1

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)

Bangladesh

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)
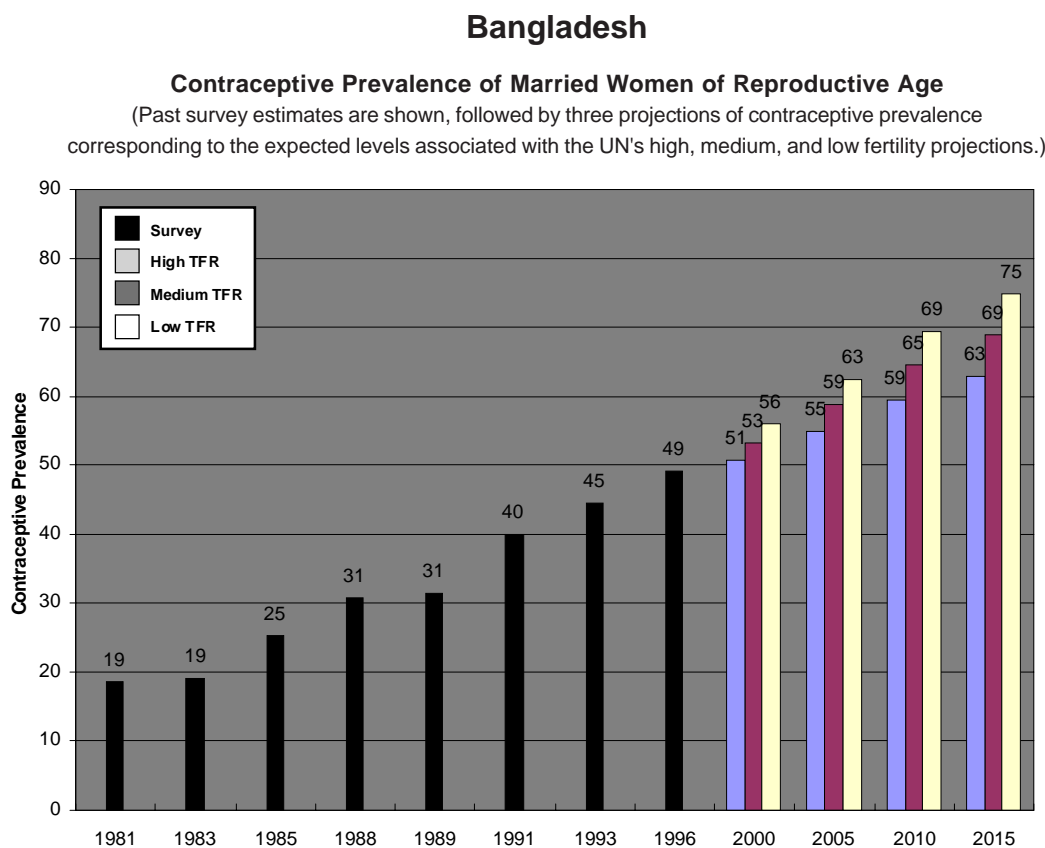
The Bangladesh FP program is noted for its exceptional achievements despite an unfavorable social setting. About half of couples use contraception; in the medium projection this rises to two-thirds over the next decade, increasing at 1.6 % per year. In that ten-year period the population will grow by 20%-30%, depending upon the projection chosen. The TFR fell to 3.3 by 1996 despite a high percent married (UN 2000 TFR 3.0). Favorable features are that most women with unmet need intend to use a method; the FP effort score is high; and the TWFR is at the replacement level. Unfortunately the MMR is very high.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	130,144	143,187	156,684	169,415	262,640
Medium	129,155	140,566	151,799	161,540	212,495
Low	128,067	137,792	146,742	153,499	169,770

% Married/in Union (Ages 15-49)	79.7
Unmet Need % Spacing % Limiting	 7.9 7.9
Of MWRA with Unmet Need % Intending to Use	81
Abortion Rate (Number per 1,000 Women/Year)	12
1994 FP Effort Score (% of maximum)	69
% Public of All Modern Methods	74
TFR: Total Fertility Rate	3.3
TWFR: Total Wanted Fertility Rate	2.1
MMR: Maternal Mortality Ratio (per 100,000 Births)	850
Estimated % of Adults with HIV/AIDS	<1

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)

Brazil

Contraceptive Prevalence of Married Women of Reproductive Age

(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

The Brazilian government has never mounted a strong national FP program, although the NGO sector has historically been active. Public interest in contraception and sterilization has been high through the years and use has spread throughout the country. Over the next decade the population will grow by 9%-16%, depending upon the projection chosen. The TFR is low, helped by a relatively low percent married, and the TWFR has dropped well below replacement (UN 2000 TFR 2.2). Most of the relatively few women with an unmet need intend to use a method in the future. Maternal mortality persists at an unfortunately high level.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	170,997	184,022	198,073	211,859	305,892
Medium	170,115	180,638	190,875	200,697	244,230
Low	169,297	177,718	184,104	189,970	192,327

% Married/in Union (Ages 15-49)	60.1
Unmet Need	
% Spacing	2.5
% Limiting	4.7
Of MWRA with Unmet Need % Intending to Use	76.4
Abortion Rate (Number per 1,000 Women/Year)	12
1994 FP Effort Score (% of maximum)	43
% Public of All Modern Methods	43
TFR: Total Fertility Rate	2.5
TWFR: Total Wanted Fertility Rate	1.8
MMR: Maternal Mortality Ratio (per 100,000 Births)	220
Estimated % of Adults with HIV/AIDS	<1

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)

Colombia

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence is already high in Colombia and is expected to continue in the mid-seventies. Over the next decade the population will grow by 15%-20%, depending upon the projection chosen. The TFR is estimated at 3.0, and the TWFR is 2.2 (UN 2000 TFR 2.7). Favorable conditions are the unusually low proportion of women in union, and the broad participation of the private sector in contraceptive supply-service including a strong NGO presence. Maternal mortality needs to fall further.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	42,560	46,757	51,067	55,458	86,821
Medium	42,321	46,039	49,665	53,183	71,550
Low	42,076	45,422	48,534	51,367	59,744

% Married/in Union (Ages 15-49)	54.7
Unmet Need % Spacing % Limiting	 3.2 4.5
Of MWRA with Unmet Need % Intending to Use	83.1
Abortion Rate (Number per 1,000 Women/Year)	30
1994 FP Effort Score (% of maximum)	66
% Public of All Modern Methods	27
TFR: Total Fertility Rate	3
TWFR: Total Wanted Fertility Rate	2.2
MMR: Maternal Mortality Ratio (per 100,000 Births)	100
Estimated % of Adults with HIV/AIDS	<1

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)

Egypt

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Egypt's contraceptive prevalence was stable in the early 1990s at about half of couples using a method, but rose to 55% in the 1997 survey. It may rise over the next decade to about two-thirds of couples using, or an increase of about 1.6% annually. In that ten years population will increase by 14% - 20%, depending upon the projection chosen. The TFR, at 3.6 in 1995, was well above the TWFR of 2.6. (The TFR was 3.3 in the 1997 survey.) (UN 2000 TFR 3.1.) The FP effort score was 59% in 1994. The private sector is very important, providing more than half of supplies/services. Maternal mortality should be less, since distance from emergency services is less than in many countries with much of the population along the Nile, close to health centers.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	68,917	75,814	82,681	89,565	141,883
Medium	68,470	74,535	80,063	85,224	114,844
Low	68,019	73,240	77,389	80,771	91,402

% Married/in Union (Ages 15-49)	66.8
Unmet Need % Spacing % Limiting	 5.6 12.2
Of MWRA with Unmet Need % Intending to Use	73.8
Abortion Rate (Number per 1,000 Women/Year)	15
1994 FP Effort Score (% of maximum)	59
% Public of All Modern Methods	41
TFR: Total Fertility Rate	3.3
TWFR: Total Wanted Fertility Rate	2.6
MMR: Maternal Mortality Ratio (per 100,000 Births)	170
Estimated % of Adults with HIV/AIDS	<1

Ethiopia

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive use is nearly negligible in Ethiopia; projections suggest that it might rise to a sixth to a fifth of couples in the next ten years. Due to a young age structure in combination with a high TFR, the population is expected to grow by a full 25%-29% over the next decade (UN 2000 TFR 6.1). FP effort is not strong nationally. Conditions are very difficult; maternal mortality is extremely high; and HIV/AIDS prevalence is already quite substantial.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	62,730	71,060	81,103	92,908	193,473
Medium	62,565	70,480	79,944	90,947	169,446
Low	62,234	69,390	77,914	87,717	142,855

% Married/in Union (Ages 15-49)	71.8
Unmet Need % Spacing % Limiting	NA NA
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	24
1994 FP Effort Score (% of maximum)	39
% Public of All Modern Methods	NA
TFR: Total Fertility Rate	6.4
TWFR: Total Wanted Fertility Rate	NA
MMR: Maternal Mortality Ratio (per 100,000 Births)	1,400
Estimated % of Adults with HIV/AIDS	9

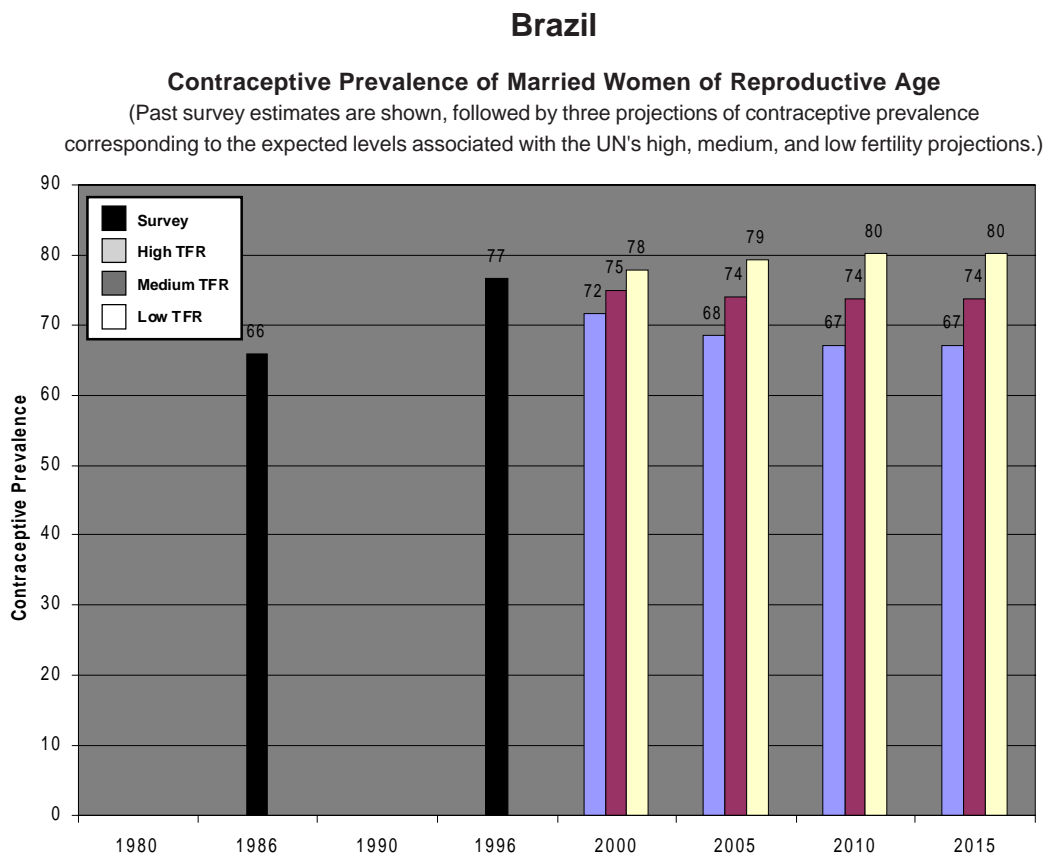**Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)**

India

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

India's latest survey shows less than half of couples using contraception; since then the reversal of the target system in at least some states has depressed the use of resupply methods and the numbers of new sterilizations. Prevalence may reach two-thirds of couples by 2010, although that implies an annual rise exceeding 2.5%, which is unlikely; even the low projection implies about 2% growth annually. Population will increase by then by 11%-16%, on an already large base. FP effort is uneven across the various states. The TWFR is well below the TFR (UN 2000 TFR 2.9). Much depends upon future actions in the subset of states with the greatest problems, where the percent married is very high, services are limited, and conditions are forbidding (see Appendix on India for state statistics).

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	1,018,825	1,103,705	1,186,618	1,269,525	1,896,744
Medium	1,013,662	1,087,459	1,152,164	1,211,665	1,528,853
Low	1,008,470	1,071,070	1,117,029	1,152,510	1,215,636

% Married/in Union (Ages 15-49)	78.6
Unmet Need % Spacing % Limiting	 NA NA
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	24
1994 FP Effort Score (% of maximum)	68
% Public of All Modern Methods	79
TFR: Total Fertility Rate	3.4
TWFR: Total Wanted Fertility Rate	2.6
MMR: Maternal Mortality Ratio (per 100,000 Births)	570
Estimated % of Adults with HIV/AIDS	<1

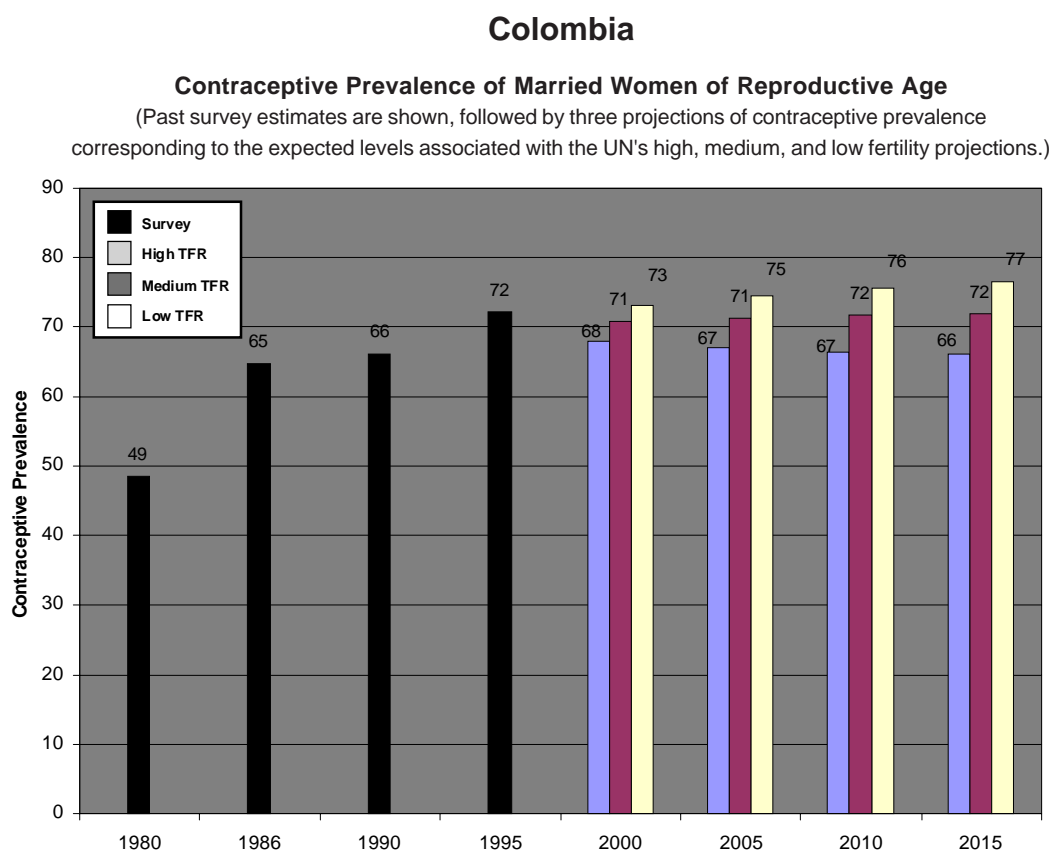**Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)**

Indonesia

Contraceptive Prevalence of Married Women of Reproductive Age

(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Indonesia's contraceptive prevalence has risen to 57%, and is expected to reach 68% in 2000, implying over 1.0% growth per year. From historical experience that is feasible, but it is subject to some economic recovery, especially as much contraceptive supply is paid for in the private sector. Population will grow by 8%-16% during the next decade, on a large base in this fourth largest country in the world. The TFR is still above the TWFR, and the FP program is exceptionally strong (UN 2000 TFR 2.4). The MMR is very high.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	213,607	230,357	247,467	264,725	390,096
Medium	212,107	225,475	238,012	250,383	311,857
Low	210,578	220,345	228,049	235,418	243,458

% Married/in Union (Ages 15-49)	66.2
Unmet Need % Spacing % Limiting	 4.2 5
Of MWRA with Unmet Need % Intending to Use	50.0
Abortion Rate (Number per 1,000 Women/Year)	35
1994 FP Effort Score (% of maximum)	84
% Public of All Modern Methods	43
TFR: Total Fertility Rate	2.8
TWFR: Total Wanted Fertility Rate	2.5
MMR: Maternal Mortality Ratio (per 100,000 Births)	650
Estimated % of Adults with HIV/AIDS	<1

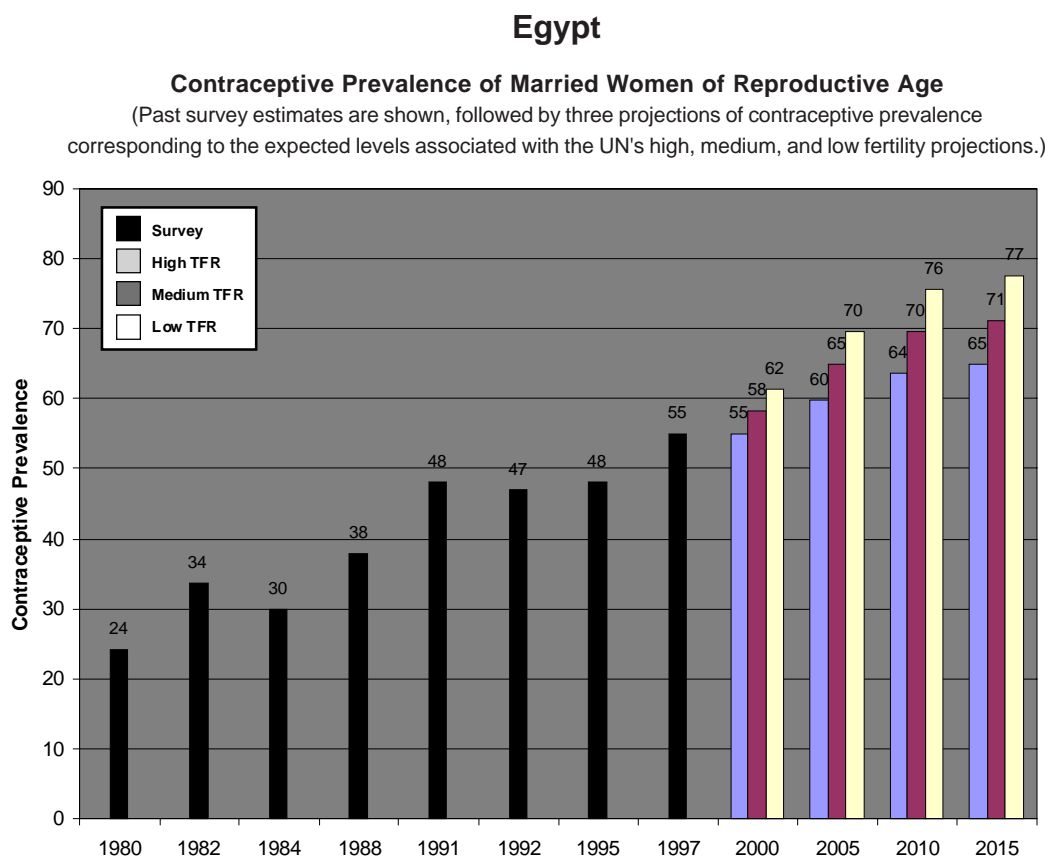**Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)**
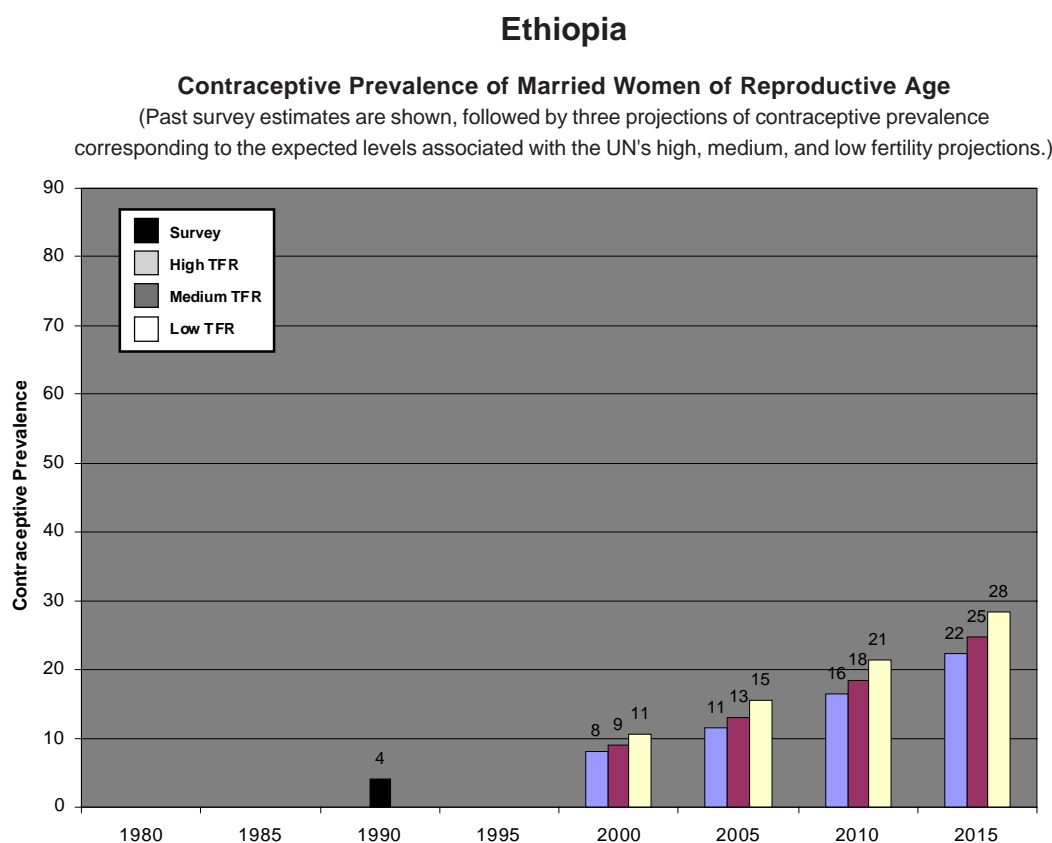
Iran

Contraceptive Prevalence of Married Women of Reproductive Age

(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Two surveys in Iran put contraceptive prevalence at 65%-70%, and it is expected to plateau at about 73%. Over the next decade population will grow by 10%-17%, depending upon the projection chosen. The percent married is exceptionally high, but the TFR has fallen substantially from over 6 traditionally to 3.4 in the 1994 survey (UN 2000 TFR 2.6). The FP program is moderately strong. The MMR has ample room to fall further.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	68,192	72,641	80,086	88,034	142,050
Medium	67,702	71,143	76,932	83,054	114,947
Low	67,213	69,647	73,929	78,174	91,813

% Married/in Union (Ages 15-49)	78.6
Unmet Need	
% Spacing	NA
% Limiting	NA
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	10
1994 FP Effort Score (% of maximum)	61
% Public of All Modern Methods	NA
TFR: Total Fertility Rate	3.4
TWFR: Total Wanted Fertility Rate	NA
MMR: Maternal Mortality Ratio (per 100,000 Births)	120
Estimated % of Adults with HIV/AIDS	<1

Kenya

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence, now at nearly 40%, grew an average of 1.6% per year from 1984 to 1998. To reach the medium projection of 57% by 2010 implies 1.4% growth per year, which may be feasible. Meanwhile, over ten years the population will grow by 14%-20%, depending upon the projection selected. Unmet need is large for both spacing and limiting (although the percent who say they intend to use a method is low). The FP program is moderately strong with a good balance of public and private sector involvement. The TFR is still well above the TWFR, as of the 1998 survey (UN 2000 TFR 4.1). The MMR is quite high, and HIV/AIDS prevalence is among the highest in the world.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	30,252	33,246	36,351	39,436	62,601
Medium	30,080	32,637	35,205	37,611	51,034
Low	29,906	32,022	34,034	35,760	40,783

% Married/in Union (Ages 15-49)	61.4
Unmet Need % Spacing % Limiting	21.3 14.2
Of MWRA with Unmet Need % Intending to Use	35.5
Abortion Rate (Number per 1,000 Women/Year)	25
1994 FP Effort Score (% of maximum)	56
% Public of All Modern Methods	58
TFR: Total Fertility Rate	4.7
TWFR: Total Wanted Fertility Rate	3.5
MMR: Maternal Mortality Ratio (per 100,000 Births)	650
Estimated % of Adults with HIV/AIDS	12

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)
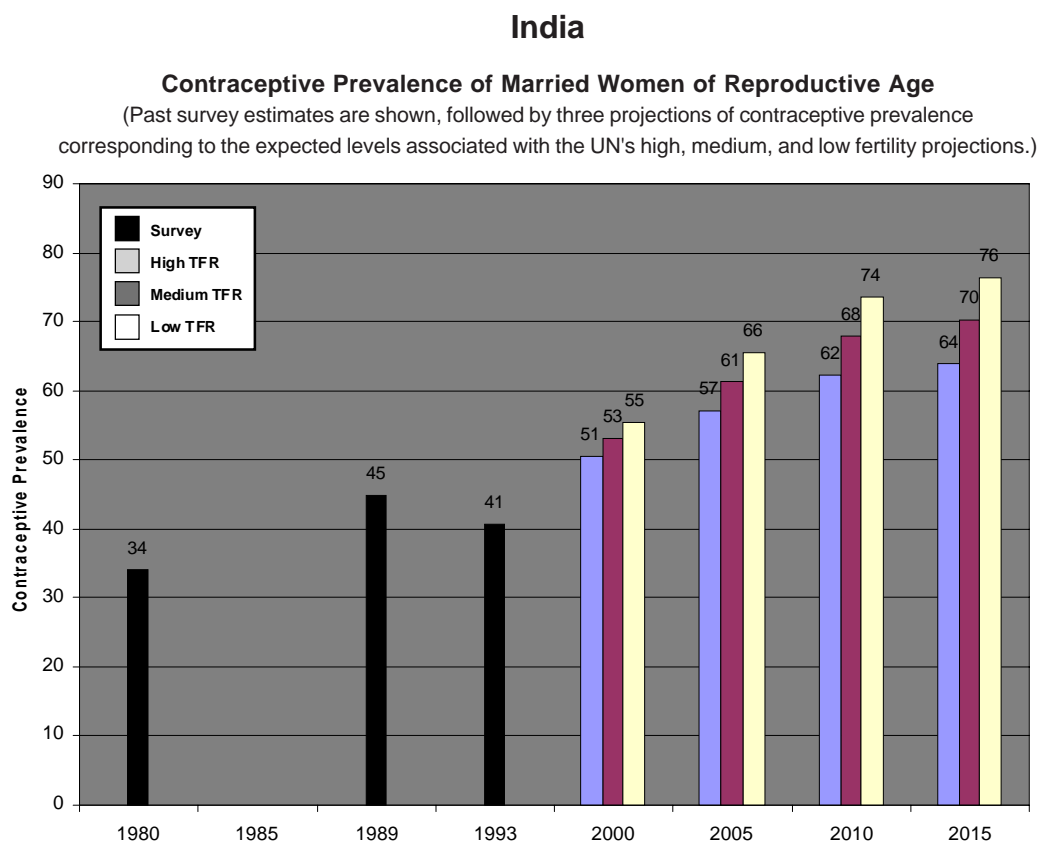
Mexico

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence reached 66% by 1995 and should plateau around 69%. Over the decade before 2010 population will increase by 12%-17%, depending upon the projection chosen. Mexico enjoys a high FP effort score, reflecting the involvement of multiple public and private agencies. Unmet need is relatively low at 11%, but the TFR is still above the wanted TFR. Maternal mortality still has substantial room to fall.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	99,437	108,096	116,770	125,295	182,136
Medium	98,881	106,147	112,891	119,178	146,645
Low	98,325	104,645	110,003	114,423	119,061

% Married/in Union (Ages 15-49)	60.1
Unmet Need	
% Spacing	6.9
% Limiting	5.2
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	19
1994 FP Effort Score (% of maximum)	74
% Public of All Modern Methods	62
TFR: Total Fertility Rate	3.1
TWFR: Total Wanted Fertility Rate	2.8
MMR: Maternal Mortality Ratio (per 100,000 Births)	110
Estimated % of Adults with HIV/AIDS	<1

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)
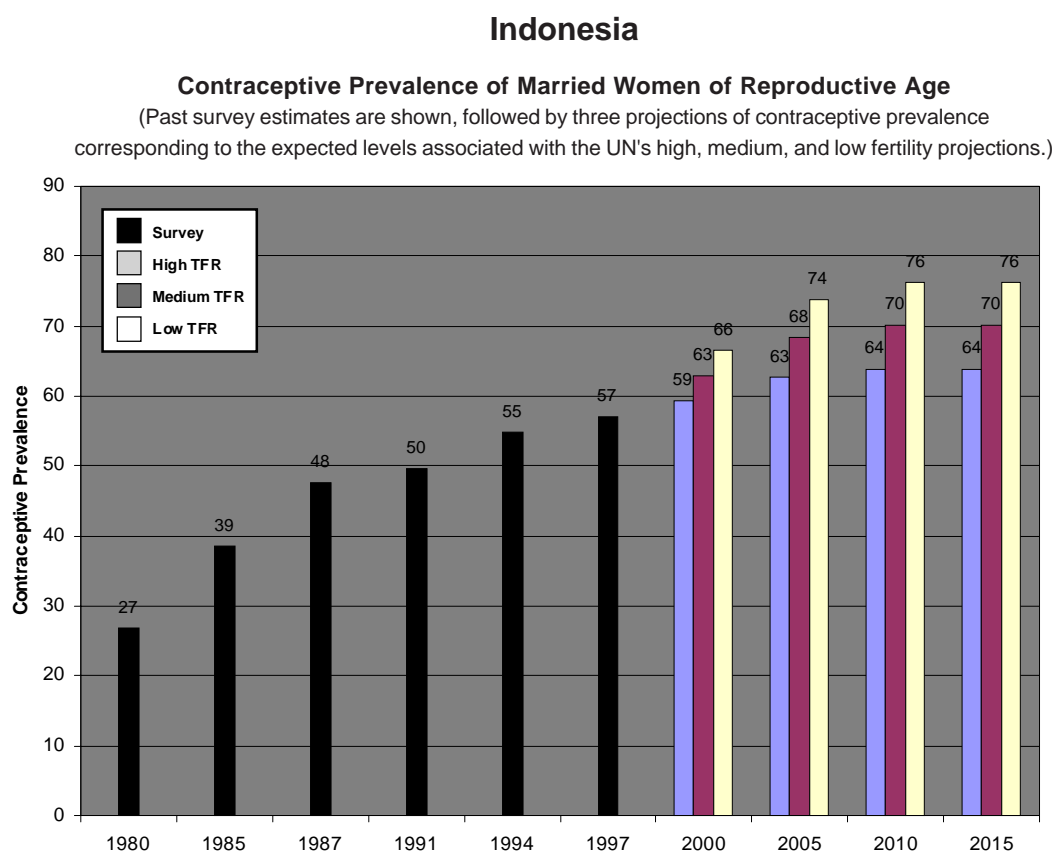
Myanmar

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence rose rapidly from 1991 to 1997, at 2.7% per year, and may reach two-thirds of couples by 2010, implying a further rise at 2.4% per year. During the decade before 2010 population will increase by 8%-15% depending upon the projection chosen. Although the FP score is low, the 1997 survey TFR estimate for 1995-1996 was only 2.8 (UN 2000 TFR 2.3). The abortion rate is quite high, and the percent married is low. The MMR is unfortunately still serious.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	45,789	49,110	52,771	56,425	79,524
Medium	45,611	48,254	50,903	53,533	64,890
Low	45,345	47,215	48,853	50,461	51,888

% Married/in Union (Ages 15-49)	58.2
Unmet Need % Spacing % Limiting	 NA NA
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	45
1994 FP Effort Score (% of maximum)	27
% Public of All Modern Methods	NA
TFR: Total Fertility Rate	2.8
TWFR: Total Wanted Fertility Rate	NA
MMR: Maternal Mortality Ratio (per 100,000 Births)	580
Estimated % of Adults with HIV/AIDS	2

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)
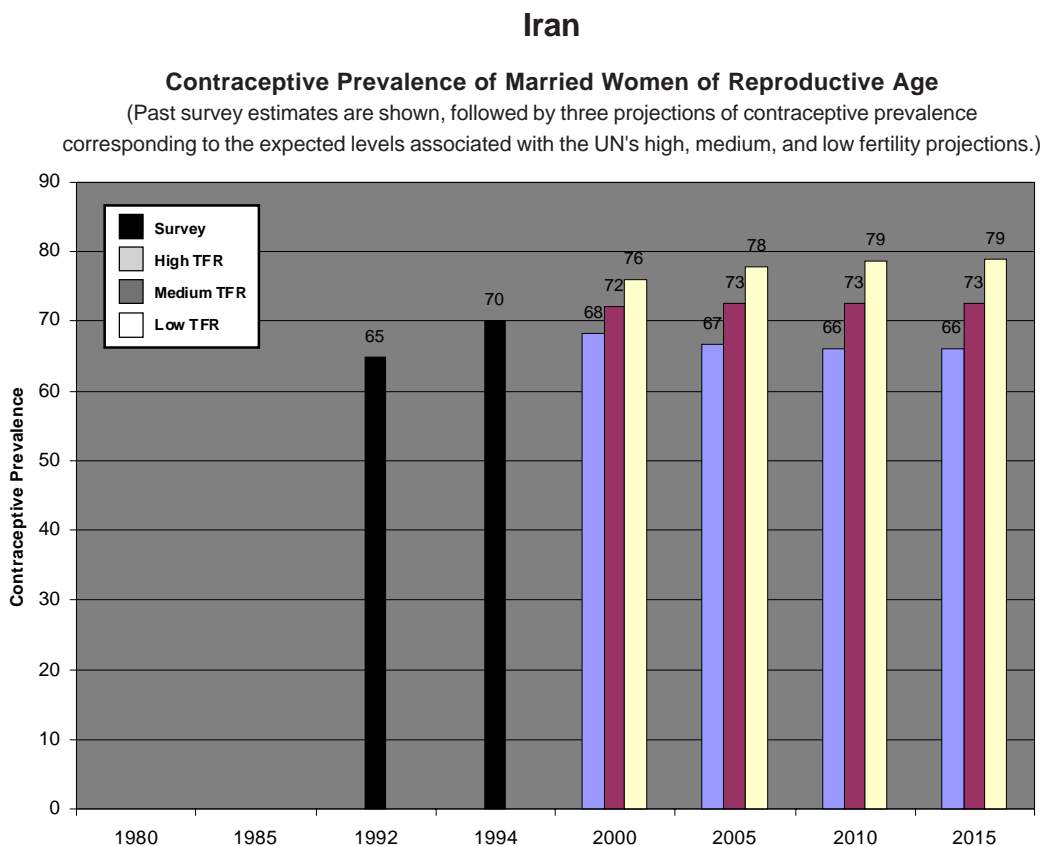
Nigeria

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive use in the 1990 survey was nearly negligible, but the medium projection shows it growing to 28% over the 20 years from 1990 to 2010, at 1.1% a year. Due to a young age structure and a high TFR the population in the decade before 2010 will grow rapidly, by 23%-27% depending upon the projection chosen. Wanted fertility is close to the high 1990 TFR of 6.0 (UN 2000 TFR 4.9), and the FP effort score is unimpressive. The percent married/cohabiting is exceptionally high. Unmet need is substantial at 20% of couples, although only 45% of these say they intend to use a method. The MMR is one of the highest recorded, and HIV/AIDS is spreading.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	112,757	127,458	143,175	160,030	292,717
Medium	111,506	124,714	138,698	153,307	244,311
Low	111,031	123,549	136,469	149,604	209,271

% Married/in Union (Ages 15-49)	78.3
Unmet Need % Spacing % Limiting	 15.5 4.9
Of MWRA with Unmet Need % Intending to Use	39.7
Abortion Rate (Number per 1,000 Women/Year)	17
1994 FP Effort Score (% of maximum)	42
% Public of All Modern Methods	40
TFR: Total Fertility Rate	6
TWFR: Total Wanted Fertility Rate	5.8
MMR: Maternal Mortality Ratio (per 100,000 Births)	1,000
Estimated % of Adults with HIV/AIDS	4

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)
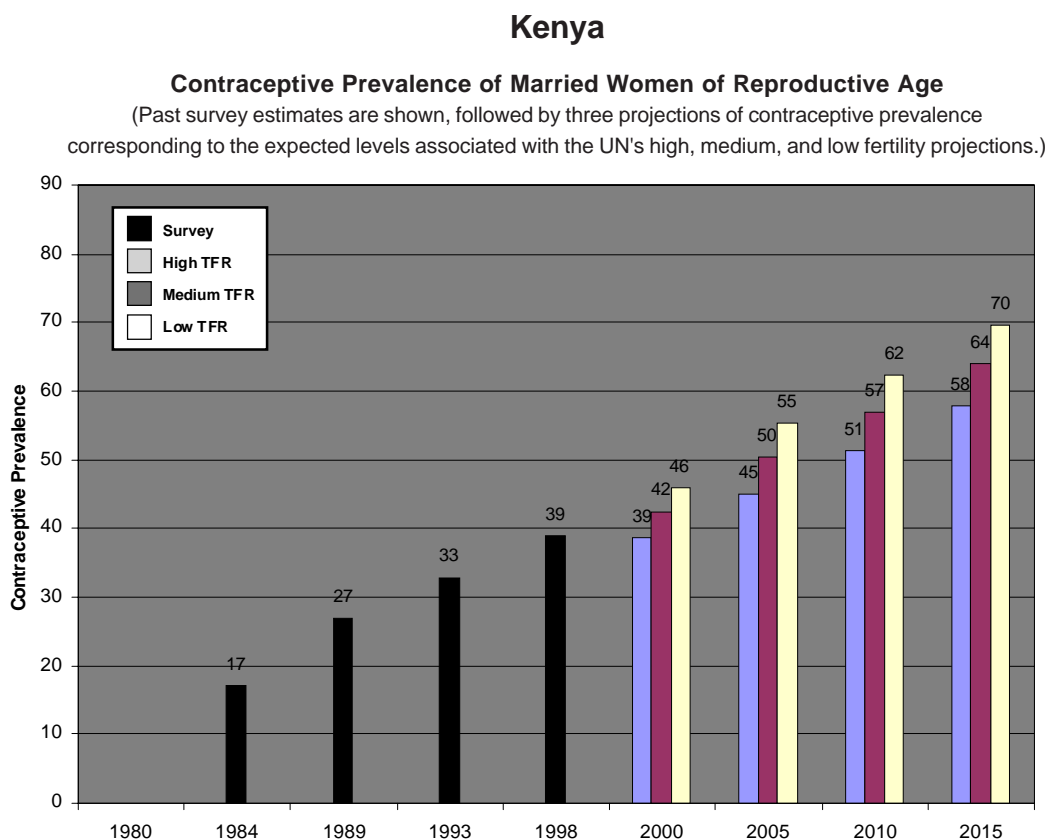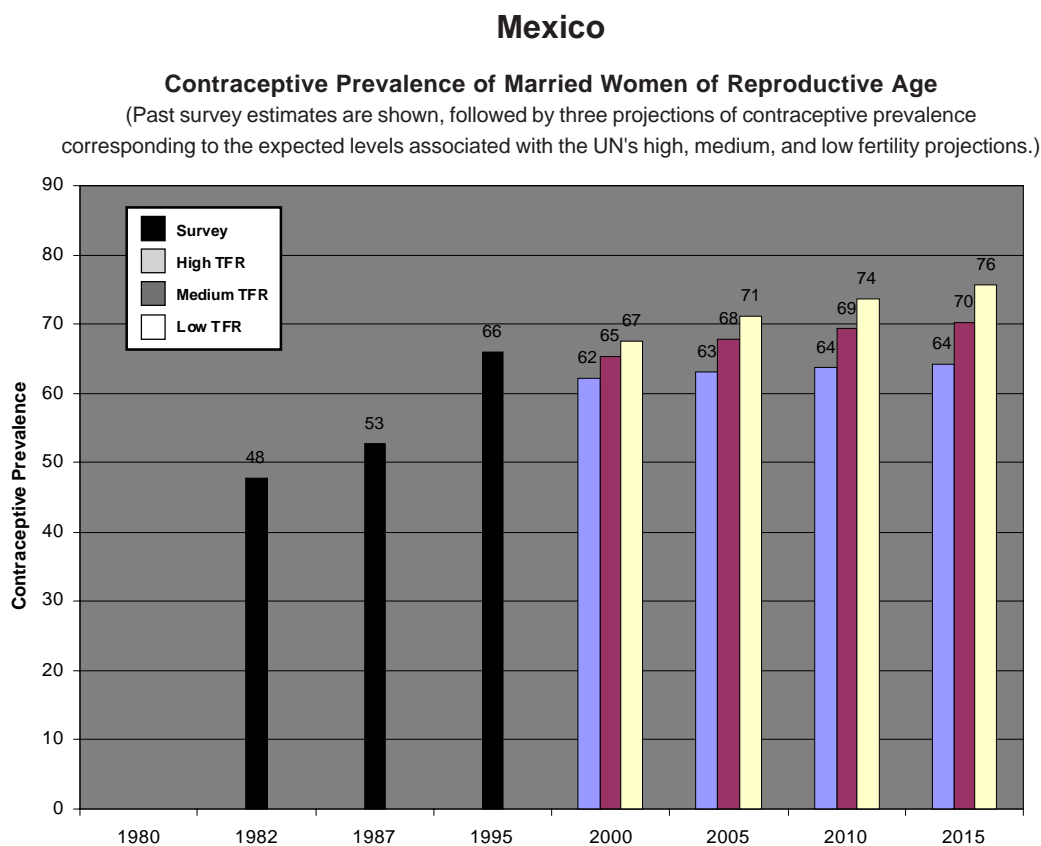
Pakistan

Contraceptive Prevalence of Married Women of Reproductive Age

(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence was rising but was still low as of 1994, at 18%. It may reach 41% in 2010, implying growth at 2.4% per year, or 1.2% by the low projection; even the latter may be optimistic. Population growth is very rapid; an increase of 26-30% in the ten years before 2010 is projected, and the TFR is a high 5.6 (UN 2000 TFR 4.8). Unmet need is one of the highest in the world, at 37% of couples in the 1994 survey; however in the previous survey only 26% of women with unmet need said they intended to use a method, partly reflecting a weak FP effort. The MMR is a substantial 340.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	157,549	179,854	204,340	230,067	409,693
Medium	156,483	177,309	199,745	222,587	345,484
Low	155,404	174,729	195,086	215,009	287,924

% Married/in Union (Ages 15-49)	69.1
Unmet Need % Spacing % Limiting	 6.7 30
Of MWRA with Unmet Need % Intending to Use	25.9
Abortion Rate (Number per 1,000 Women/Year)	25
1994 FP Effort Score (% of maximum)	49
% Public of All Modern Methods	67
TFR: Total Fertility Rate	5.6
TWFR: Total Wanted Fertility Rate	NA
MMR: Maternal Mortality Ratio (per 100,000 Births)	340
Estimated % of Adults with HIV/AIDS	<1

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)
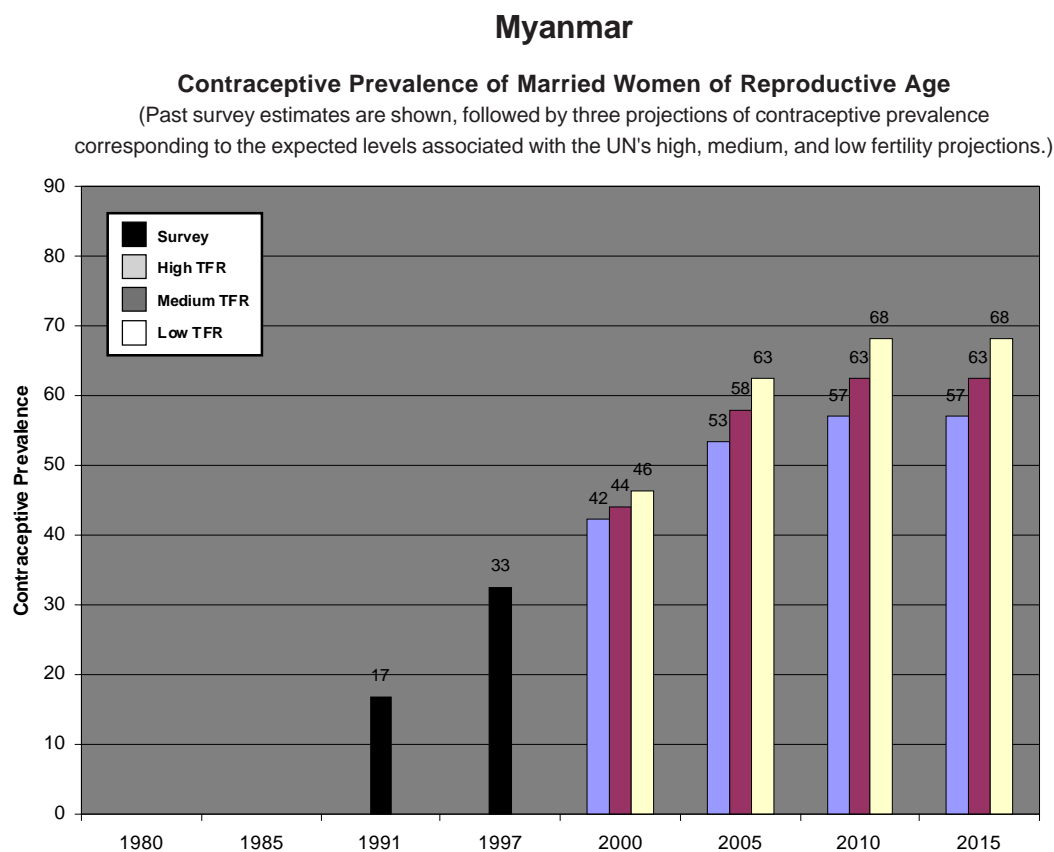
Philippines

Contraceptive Prevalence of Married Women of Reproductive Age

(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence has risen slowly over the years, at about 1% per year, to 46% in 1998. It is expected to do better, to reach 63% in 2010 by rising at 1.4% per year. The population will grow by 17%-22% over the ten years to 2010, adding 13 to 17 million to the current 76 million. Unmet need is substantial at 26% of couples; 40% of these say they intend to use a method. The 1994 FP score was 60%, but current adjustments to the decentralization of health structures may reduce this. Wanted fertility was well below the 1993 TFR of 4.1 (UN 2000 TFR 3.4). The MMR remains high.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	76,514	84,846	93,152	100,989	158,863
Medium	75,967	83,450	90,544	96,732	130,893
Low	75,693	82,525	88,504	92,994	107,214

% Married/in Union (Ages 15-49)	59.6
Unmet Need	
% Spacing	12.4
% Limiting	13.5
Of MWRA with Unmet Need % Intending to Use	40.5
Abortion Rate (Number per 1,000 Women/Year)	42
1994 FP Effort Score (% of maximum)	60
% Public of All Modern Methods	72
TFR: Total Fertility Rate	4.1
TWFR: Total Wanted Fertility Rate	2.9
MMR: Maternal Mortality Ratio (per 100,000 Births)	280
Estimated % of Adults with HIV/AIDS	<1

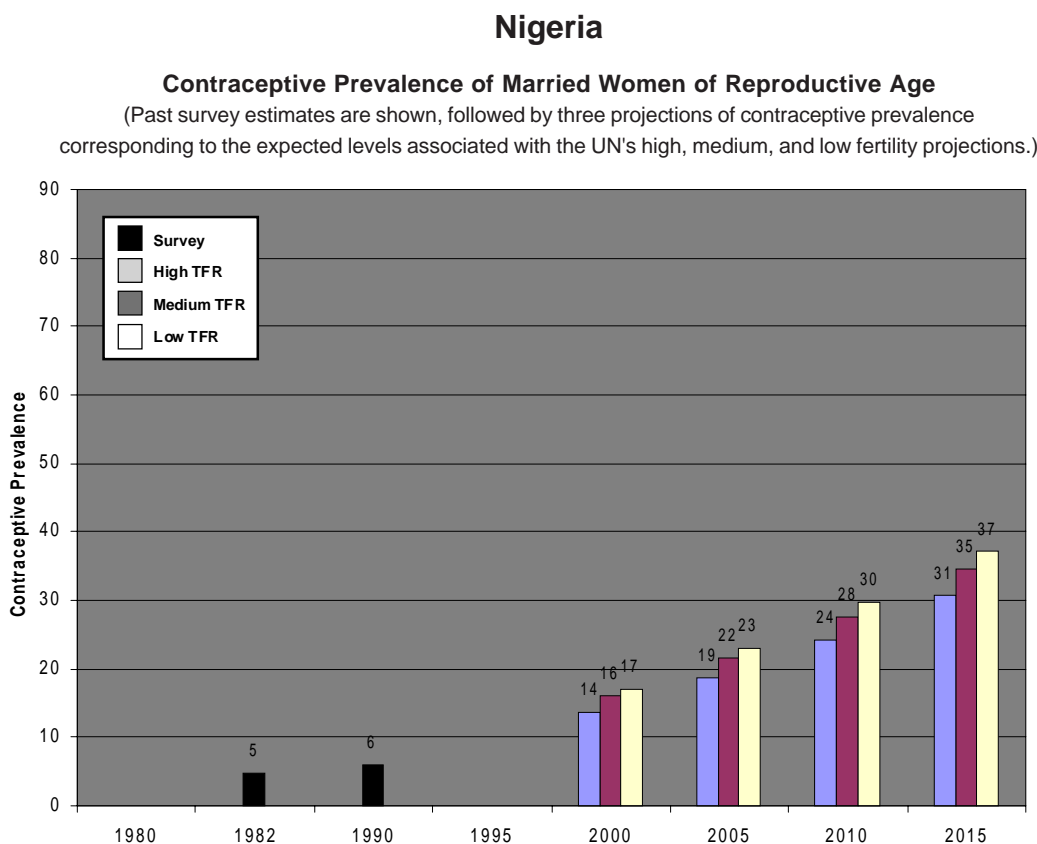**Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)**

South Africa

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence in the 1998 survey was 62% among all women sexually active in the last four weeks, which matches the 63% for 1994 above. However, it was only 56% among women married or in union. It is expected to plateau at about 70%. Population growth in the ten years before 2010 is relatively low; the total population will grow by 3%-8%, depending upon the projection chosen. The proportion married is exceptionally low. The 1998 survey estimate for the TFR is 2.9. The 1994 FP score was moderate at 56%; the private sector supplements the public sector in contraceptive services/supplies. The MMR is high, and HIV/AIDS prevalence is extremely high.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	40,580	42,541	43,898	45,587	65,192
Medium	40,377	41,836	42,515	43,387	52,514
Low	40,172	41,116	41,177	41,278	41,392

% Married/in Union (Ages 15-49)	46.2
Unmet Need % Spacing % Limiting	 NA NA
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	20
1994 FP Effort Score (% of maximum)	56
% Public of All Modern Methods	72
TFR: Total Fertility Rate	NA
TWFR: Total Wanted Fertility Rate	NA
MMR: Maternal Mortality Ratio (per 100,000 Births)	230
Estimated % of Adults with HIV/AIDS	13

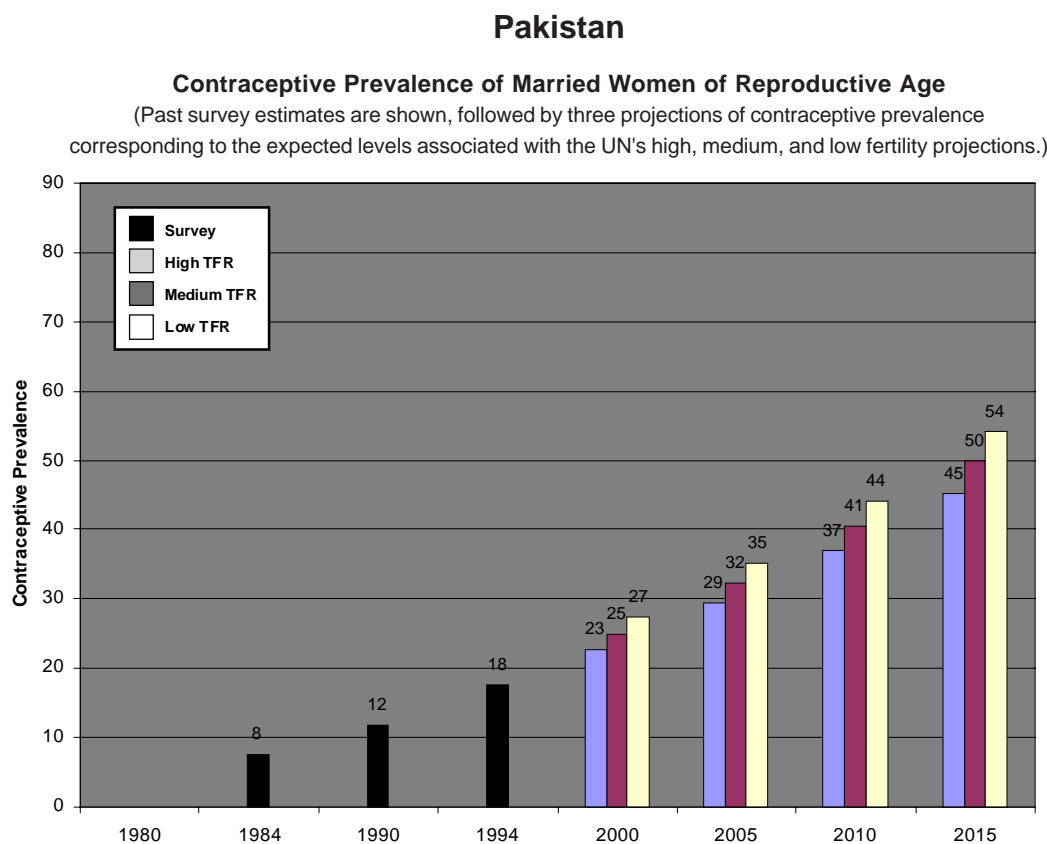**Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)**

Sudan

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence is nearly negligible at about 10%, but the projections show it rising to about a third of couples by 2010, implying an annual increase of 1.4%, which is optimistic. Conditions for all social and economic programs are forbidding. Population is expected to grow over the ten years to 2010 by a high 21%-25%, depending upon the projection chosen. Wanted fertility is not much below actual fertility (UN 2000 TFR 4.4). Unmet need is relatively high at 29%, but only one-sixth of women in need intend to use a method. The FP score is quite low. The MMR is very high.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	29,643	33,128	36,938	40,914	68,782
Medium	29,490	32,753	36,257	39,811	59,176
Low	29,313	32,331	35,503	38,611	50,107

% Married/in Union (Ages 15-49)	65.1
Unmet Need	
% Spacing	15.5
% Limiting	13.4
Of MWRA with Unmet Need % Intending to Use	17.1
Abortion Rate (Number per 1,000 Women/Year)	12
1994 FP Effort Score (% of maximum)	29
% Public of All Modern Methods	69
TFR: Total Fertility Rate	4.7
TWFR: Total Wanted Fertility Rate	4.2
MMR: Maternal Mortality Ratio (per 100,000 Births)	660
Estimated % of Adults with HIV/AIDS	<1

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)
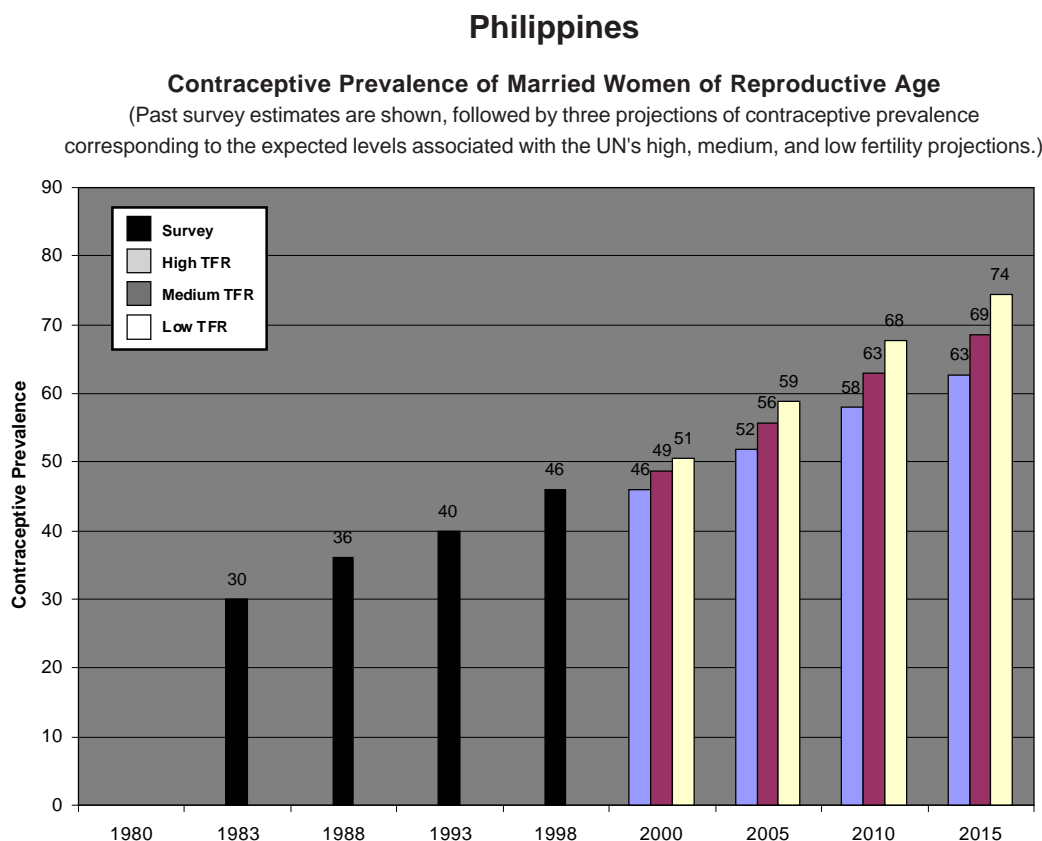
Tanzania

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence is low, at about 18%. It may increase to a third of couples by 2010, rising by 1.1% per year, compared to perhaps 2% per year from 1992 to 1996. The population is growing rapidly, and is estimated to increase by a high 22%-29% in the decade before 2010. Wanted fertility is still high, not much below the 1996 (survey) TFR of 5.8 (UN 2000 TFR 5.3). However unmet need is also substantial at 24% of couples, and two-thirds of these intend to use a method. The FP score is only intermediate, at 48% of maximum; however donor and NGO involvement provide important support. The MMR is very high, and HIV/AIDS prevalence is among the highest in the world.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	33,703	38,262	43,407	49,087	96,063
Medium	33,517	37,633	42,235	47,221	80,584
Low	33,210	36,622	40,435	44,499	64,726

% Married/in Union (Ages 15-49)	65.4
Unmet Need % Spacing % Limiting	 15.3 8.5
Of MWRA with Unmet Need % Intending to Use	66
Abortion Rate (Number per 1,000 Women/Year)	15
1994 FP Effort Score (% of maximum)	48
% Public of All Modern Methods	74
TFR: Total Fertility Rate	5.8
TWFR: Total Wanted Fertility Rate	5.1
MMR: Maternal Mortality Ratio (per 100,000 Births)	529
Estimated % of Adults with HIV/AIDS	9

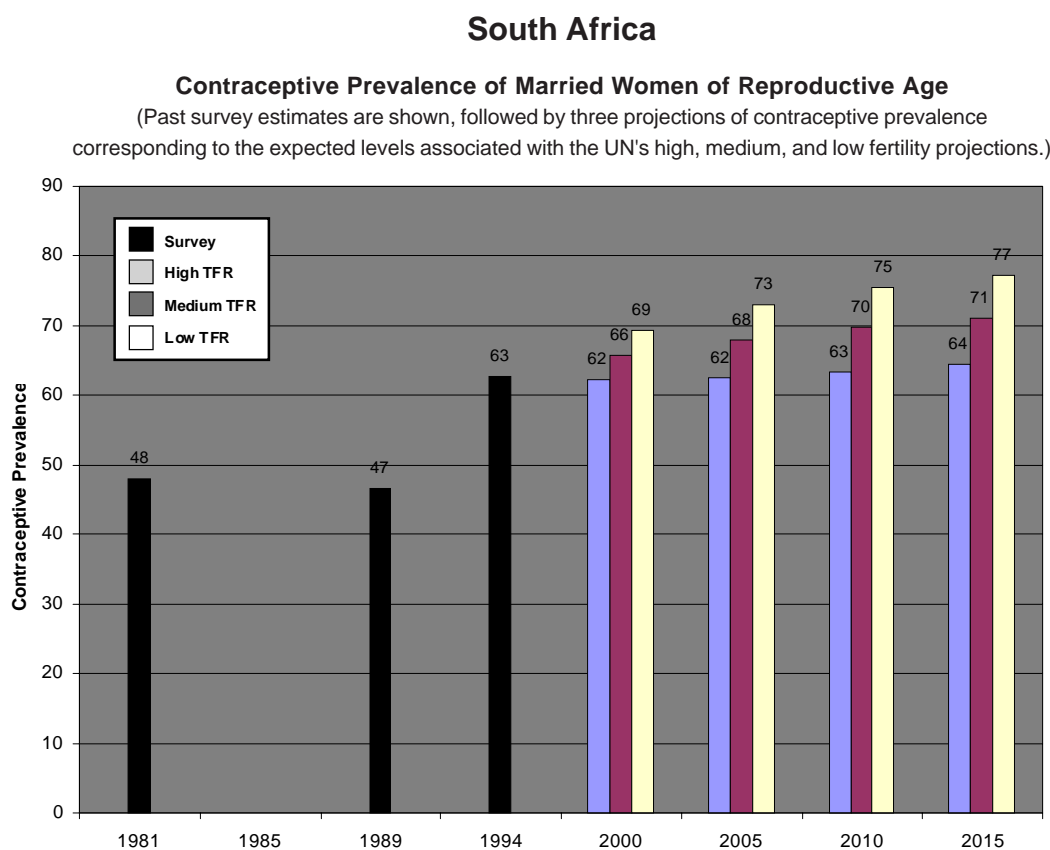**Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)**

Thailand

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence has been at a near ceiling level for several years and is expected to remain there. The population is growing at a modest rate and will increase by 6%-11% in the ten years before 2010, depending upon the projection selected. The FP effort score is among the highest in the developing world; most supplies/services continue to be provided by the government. Given the high prevalence level unmet need is probably quite low. In the 1993 survey wanted fertility was below replacement and below the TFR then of 2.3 (1.98 in a 1996 survey) (UN 2000 TFR 1.7). The MMR needs to fall much further. HIV/AIDS prevalence is worrisome, and the government for some years has mounted a determined campaign of public education and selective outreach.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	61,844	65,151	68,531	71,735	89,904
Medium	61,399	63,989	66,511	68,872	74,188
Low	61,121	63,132	64,917	66,380	62,014

% Married/in Union (Ages 15-49)	59.3
Unmet Need % Spacing % Limiting	 NA NA
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	13
1994 FP Effort Score (% of maximum)	75
% Public of All Modern Methods	75
TFR: Total Fertility Rate	2.3
TWFR: Total Wanted Fertility Rate	1.9
MMR: Maternal Mortality Ratio (per 100,000 Births)	200
Estimated % of Adults with HIV/AIDS	2

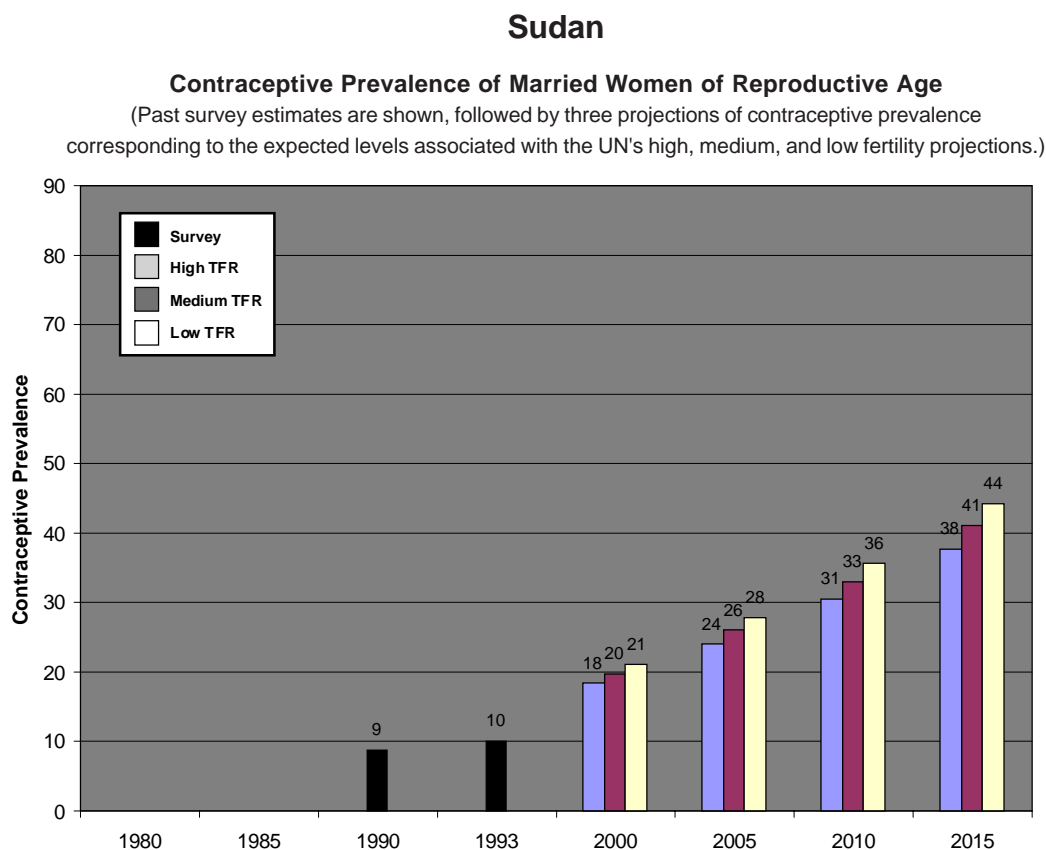**Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)**
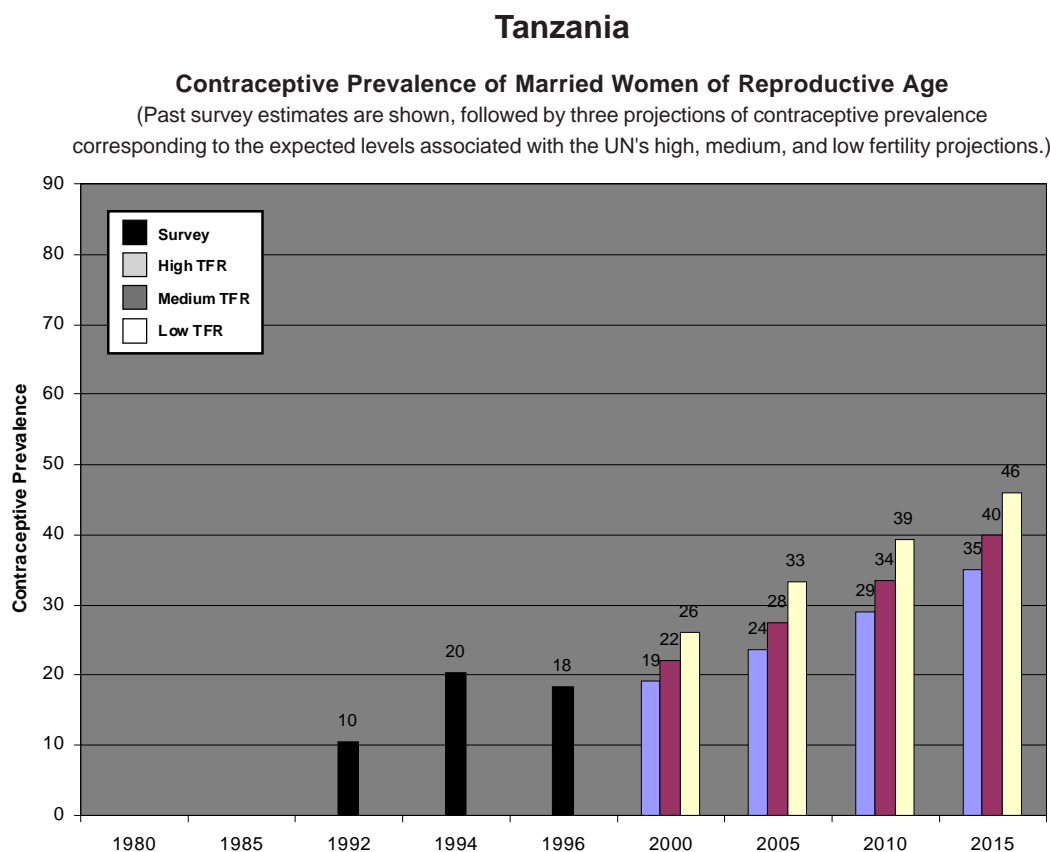
Turkey

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)

Contraceptive prevalence held steady at nearly two-thirds of couples from 1988 to 1993; nearly half of use was of traditional methods, especially withdrawal. Prevalence is projected to plateau at about 71% by 2010. The population will grow by 10%-18% over the ten years before 2010, depending upon the projection chosen. The TFR is low at about 2.7 (1993) but wanted fertility is even below the replace-ment level (UN 2000 TFR 2.4). Unmet need is moderate at 11%; two thirds say they intend to use a method. FP effort is only 54% of maximum but the private sector is active for supplies and services. The MMR is excessive, at 180. Turkey is noted for sharp regional disparities in most of these indicators.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	66,898	72,636	78,615	84,320	124,365
Medium	66,591	71,509	76,054	80,284	100,664
Low	65,689	69,343	72,371	75,076	78,981

% Married/in Union (Ages 15-49)	68.7
Unmet Need	
% Spacing	3.7
% Limiting	7.6
Of MWRA with Unmet Need % Intending to Use	62.8
Abortion Rate (Number per 1,000 Women/Year)	19
1994 FP Effort Score (% of maximum)	54
% Public of All Modern Methods	72
TFR: Total Fertility Rate	2.7
TWFR: Total Wanted Fertility Rate	1.8
MMR: Maternal Mortality Ratio (per 100,000 Births)	180
Estimated % of Adults with HIV/AIDS	<1

Figure 3.3. Contraceptive Prevalence of Married Women of Reproductive Age (Cont.)
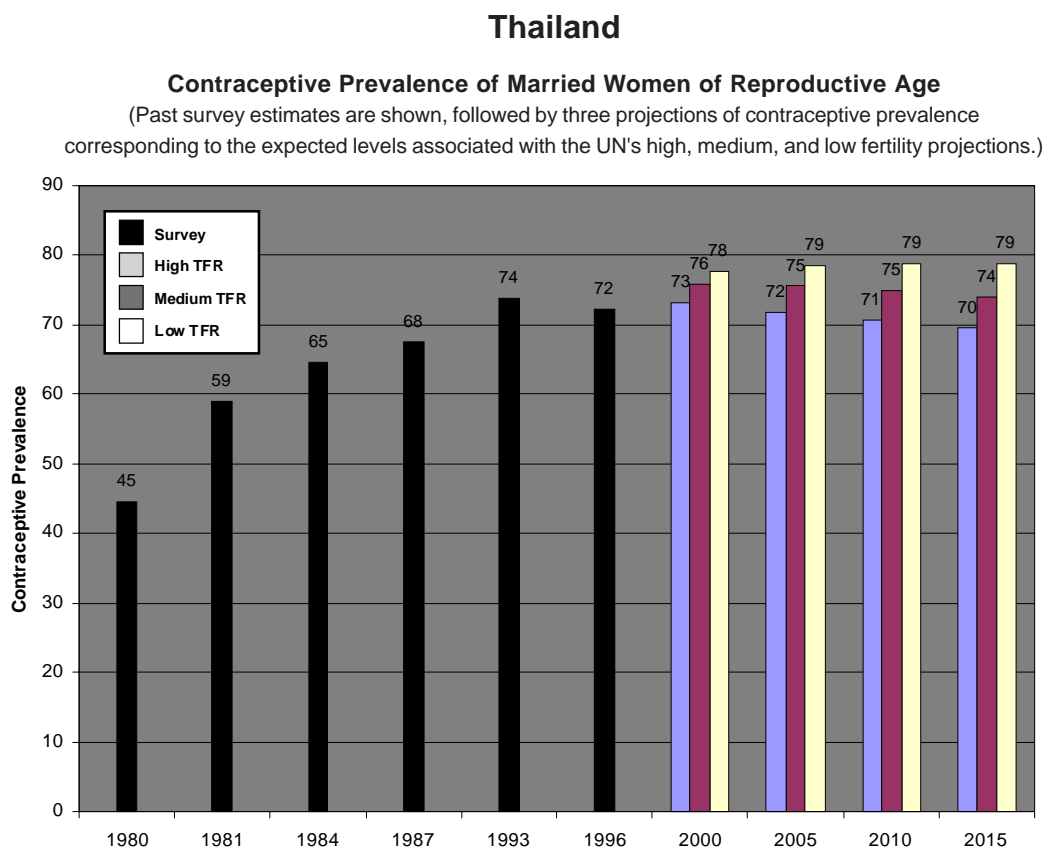
Vietnam

Contraceptive Prevalence of Married Women of Reproductive Age
(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)
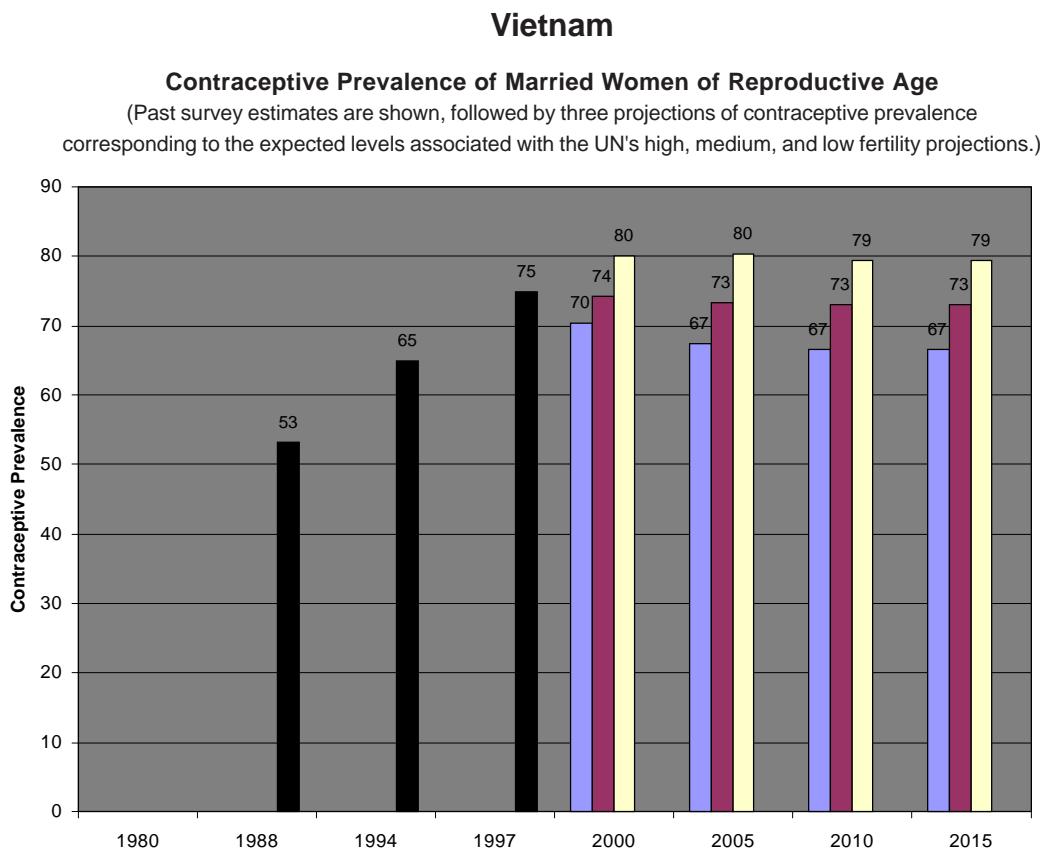
Contraceptive prevalence in Vietnam is estimated to be at near ceiling level and to remain there. The population will grow by 9%-18% during the decade before 2010, depending upon the projection chosen. The TFR of 2.7 (5-yr. ave.) (UN 2000 TFR 2.4) is still well above the wanted fertility rate. At such high prevalence, unmet need as usually defined is very low, at 7%, although 19% of couples use traditional methods and there are many failures, which underlie part of the exceptionally high abortion rate. The FP effort score is high, and most contraceptive supplies/services come from the government. The MMR still has much room to fall.

Estimated Population (000's)					
	2000	**2005**	**2010**	**2015**	**2050**
High	80,323	87,229	94,627	102,502	157,689
Medium	79,832	85,296	90,764	96,610	126,793
Low	78,855	82,414	86,023	89,873	99,065

% Married/in Union (Ages 15-49)	60.7
Unmet Need % Spacing % Limiting	 3.5 3.5
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	57
1994 FP Effort Score (% of maximum)	67
% Public of All Modern Methods	88
TFR: Total Fertility Rate	2.7
TWFR: Total Wanted Fertility Rate	2.3
MMR: Maternal Mortality Ratio (per 100,000 Births)	160
Estimated % of Adults with HIV/AIDS	<1

Zaire

Contraceptive Prevalence of Married Women of Reproductive Age
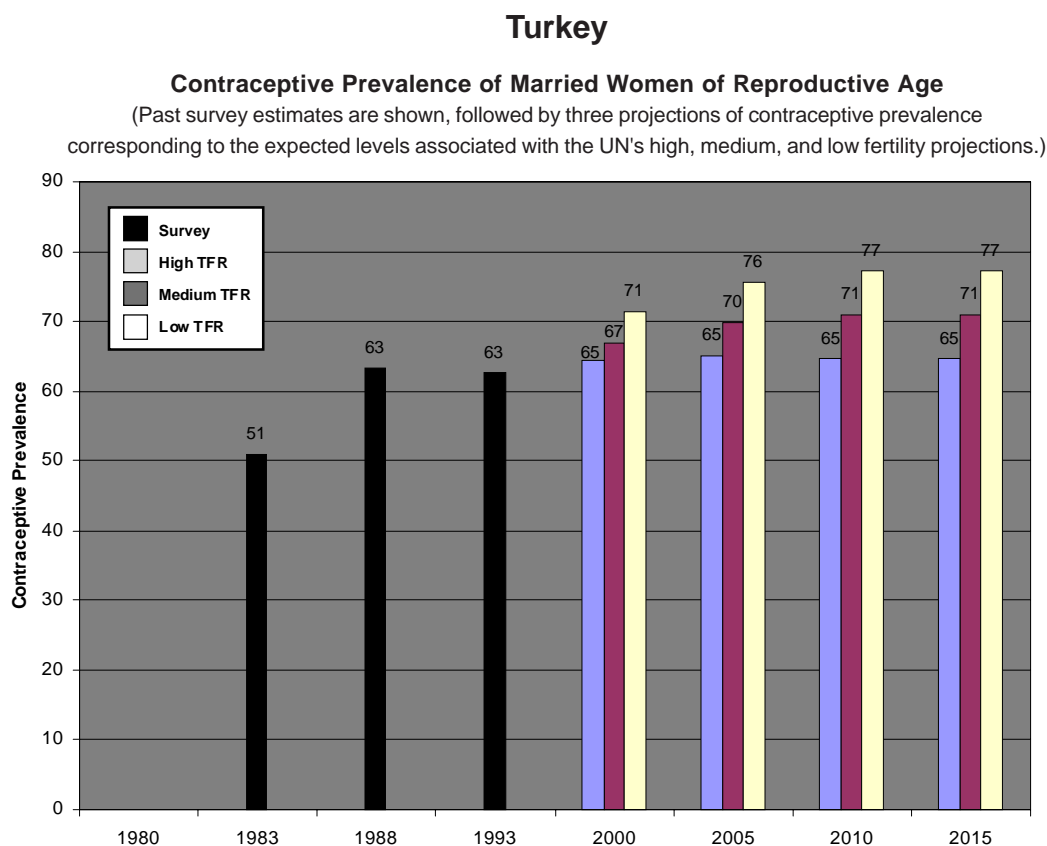(Past survey estimates are shown, followed by three projections of contraceptive prevalence
corresponding to the expected levels associated with the UN's high, medium, and low fertility projections.)
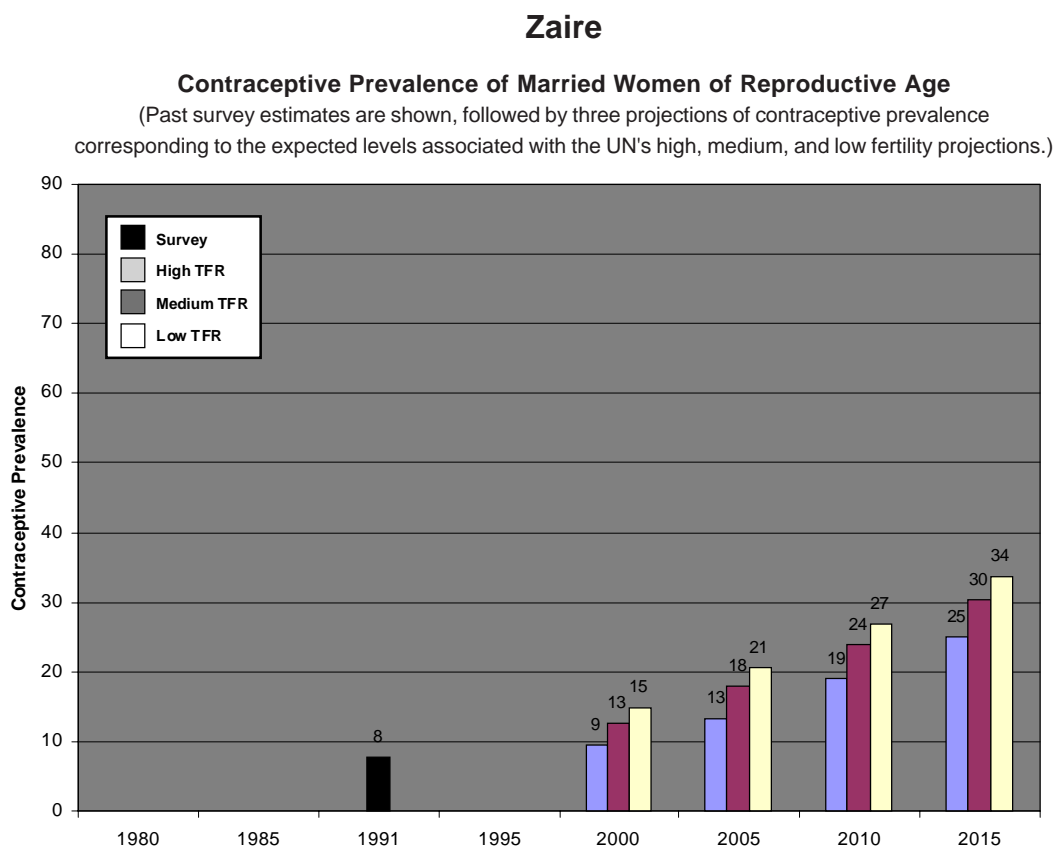
Contraceptive prevalence is nearly negligible; projections suggest that it might rise to about a fourth of couples by 2010, a growth rate of 0.8% per year. This is necessarily speculative since conditions are currently so chaotic. The population is growing very rapidly indeed, at 32%-38% in the decade to 2010, depending upon the projection chosen. The UN estimate of the TFR is 6.2 in 2000. The FP score was 28% in 1989. Unfortunately, little reliable information is available on the other indicators, except for the extremely high MMR.

Estimated Population (000's)

	2000	2005	2010	2015	2050
High	52,049	61,212	71,750	84,008	191,802
Medium	51,654	59,923	69,389	80,261	160,360
Low	51,261	59,027	67,824	77,745	136,755

% Married/in Union (Ages 15-49)	75.8
Unmet Need	
% Spacing	NA
% Limiting	NA
Of MWRA with Unmet Need % Intending to Use	NA
Abortion Rate (Number per 1,000 Women/Year)	8
1994 FP Effort Score (% of maximum)	NA
% Public of All Modern Methods	64
TFR: Total Fertility Rate	NA
TWFR: Total Wanted Fertility Rate	NA
MMR: Maternal Mortality Ratio (per 100,000 Births)	870
Estimated % of Adults with HIV/AIDS	NA

Chapter 3

Chapter 4
DEMANDS ON SERVICES

This chapter sets out five kinds of demands that will impinge upon the services networks of both public and private sectors. The first provides the demographic context of the sheer numbers of women and deliveries to be expected; it is within that framework that the other four will evolve. Those four concern the care needed for pregnancy and delivery, the related maternal mortality and morbidity, the part played by abortions and postabortion contraception, and finally the burden of the HIV/AIDS epidemic. These five sections follow.

Growing Numbers of Women, Married Women, and Deliveries

While the number of women, and married women, will certainly rise substantially in the developing world, the number of births will not, according to the UN's projections (Appendix Tables A.6-A.9).

However this differs by region: Figure 4.1 (on the next page) shows the trends for China, India, and the major regions. Note that the numbers of women to expect in the next 15 years are already born so the projections are fairly reliable; also the proportions married through time are held constant, so their trends mirror those for all women but at lower levels that vary by region. China's age structure is such that little growth is expected in numbers of women; the number of births is also quite flat. India is different: large increases are projected for numbers of women, but the UN anticipates enough of a fall in the fertility rate to cause an actual decline in the number of births. In the rest of Asia, large increases are expected for the population of women but births remain about constant.

The other regions vary: in Latin America and the Middle East/North Africa, women become more numerous but births do not. In sub-Saharan Africa both women and births increase very sharply. The other three regions, all parts of the former USSR, show no growth in either.

The percentage increases for the regions are given in Table 4.1. Apart from China and the former USSR areas, all developing areas experience substantial growth in each five-year period, on an ever-growing base. The picture for births is quite different, as explained above.

The same 22 large countries that are highlighted elsewhere in this report appear in Table 4.2. This list, in order by number of births in 2000, echoes the large role being played by India in all demographic matters. It has more births than the next six countries together, or alternately, more than the bottom 16.

Twelve of these countries are projected by the UN to experience birth declines over the next 5 years, also over the next 15 years. Posed against those are the large percentage increases coming in Ethiopia (24%), Zaire (30%), Nigeria (13%), Iran (12%), and Tanzania (16%). This points to the need for plans that are specific to each country, notwithstanding the overall picture of stability in birth numbers.

Moreover, nearly every country needs substantial improvement in coverage and quality of services, so relief from rising numbers of births does not allow for any relaxation of effort. Quite the contrary, especially since the picture given here depends heavily upon future fertility trends that may not obey the declines assumed.

Table 4.1. Percent Increases for Women, Married Women, and Births, by Region, 2000-2015

	Percent Increases in Numbers of Women Aged 15-49			
	2000-2005	2005-2010	2010-2015	2000-2015
China	3.5	1.9	(1.7)	3.6
India	10.3	8.5	6.4	27.3
Rest of Asia	10.8	7.7	6.3	26.9
Latin America	8.3	6.4	4.5	20.4
Middle East/North Africa	12.8	10.4	9.6	36.5
Sub-Saharan Africa	15.0	14.6	14.4	50.8
Central Asia Republics	9.0	5.8	4.7	20.8
Caucasus	4.6	0.8	(3.3)	2.0
Moldova, Russia, Ukraine	(0.4)	(5.9)	(6.1)	(12.0)
ALL REGIONS	**8.6**	**6.6**	**4.9**	**21.5**
	Percent Increases in Numbers of Married Women Aged 15-49			
China	3.5	1.9	(1.7)	3.6
India	10.3	8.5	6.4	27.3
Rest of Asia	10.9	7.7	6.7	27.3
Latin America	8.3	6.4	4.5	20.4
Middle East/North Africa	13.1	10.4	8.8	35.8
Sub-Saharan Africa	15.3	15.0	14.7	52.1
Central Asia Republics	9.2	5.9	4.8	21.1
Caucasus	4.6	0.8	(3.3)	2.0
Moldova, Russia, Ukraine	(0.4)	(5.9)	(6.1)	(12.0)
ALL REGIONS	**8.7**	**6.7**	**5.0**	**21.8**
	Percent Increases in Numbers of Births			
China	(2.9)	1.4	(0.9)	(2.5)
India	(5.7)	(5.3)	(0.4)	(11.0)
Rest of Asia	(0.2)	(0.7)	(1.4)	(2.2)
Latin America	(0.1)	(0.3)	(0.7)	(1.1)
Middle East/North Africa	2.1	1.1	0.5	3.7
Sub-Saharan Africa	6.8	5.5	3.5	16.6
Central Asia Republics	(2.4)	(3.3)	(4.7)	(10.0)
Caucasus	1.5	4.0	(0.5)	5.0
Moldova, Russia, Ukraine	4.7	0.3	(6.6)	(2.0)
ALL REGIONS	**(0.0)**	**0.3**	**0.1**	**0.4**

Table 4.2. Number of Births Annually and Percent Change for 22 Large Countries, 2000-2015

	Number of Births in Each Year (000s)				Percent Change			
	2000	**2005**	**2010**	**2015**	**2000-2005**	**2005-2010**	**2010-2015**	**2000-2015**
India	24,241	22,855	21,643	21,566	(5.7)	(5.3)	(0.4)	(11.0)
Pakistan	5,388	5,600	5,759	5,715	3.9	2.9	(0.8)	6.1
Indonesia	4,525	4,319	4,274	4,314	(4.6)	(1.0)	0.9	(4.7)
Nigeria	4,238	4,512	4,701	4,771	6.5	4.2	1.5	12.6
Bangladesh	3,491	3,524	3,322	3,054	1.0	(5.7)	(8.1)	(12.5)
Brazil	3,357	3,382	3,395	3,374	0.7	0.4	(0.6)	0.5
Ethiopia	2,747	2,979	3,212	3,414	8.5	7.8	6.3	24.3
Zaire	2,317	2,520	2,779	3,017	8.8	10.3	8.6	30.2
Mexico	2,306	2,238	2,181	2,137	(2.9)	(2.6)	(2.0)	(7.3)
Philippines	2,052	2,002	1,886	1,779	(2.4)	(5.8)	(5.6)	(13.3)
Egypt	1,701	1,630	1,554	1,558	(4.2)	(4.7)	0.3	(8.4)
Vietnam	1,666	1,619	1,677	1,749	(2.8)	3.6	4.3	5.0
Iran	1,450	1,500	1,577	1,630	3.4	5.2	3.3	12.4
Turkey	1,387	1,350	1,328	1,315	(2.7)	(1.6)	(1.0)	(5.2)
Tanzania	1,345	1,428	1,504	1,555	6.2	5.3	3.4	15.6
South Africa	1,046	1,013	969	931	(3.2)	(4.3)	(3.9)	(10.9)
Thailand	994	984	971	949	(1.1)	(1.3)	(2.2)	(4.5)
Kenya	992	1,011	994	917	1.8	(1.6)	(7.7)	(7.6)
Colombia	988	985	987	992	(0.3)	0.2	0.6	0.5
Sudan	957	1,012	1,049	1,042	5.8	3.6	(0.6)	8.9
Myanmar	935	931	928	915	(0.5)	(0.2)	(1.4)	(2.1)
Algeria	878	874	821	764	(0.5)	(6.1)	(7.0)	(13.1)
Total	**69,000**	**68,267**	**67,512**	**67,461**	**(1.1)**	**(1.1)**	**(0.1)**	**(2.2)**

**Figure 4.1a. Numbers of Women
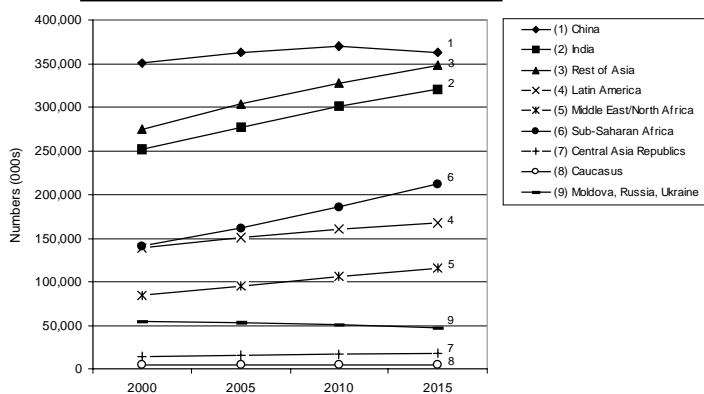Aged 15-49, by Region, 2000-2015**

**Figure 4.1b. Numbers of Married Women
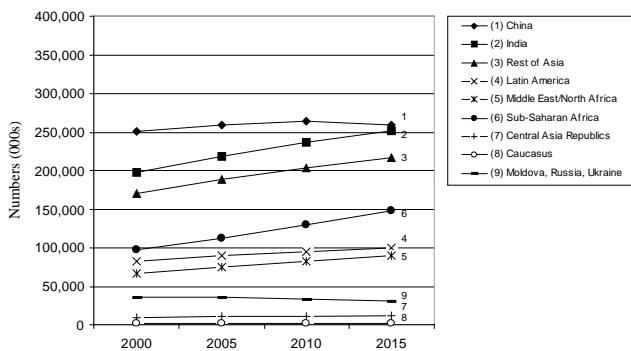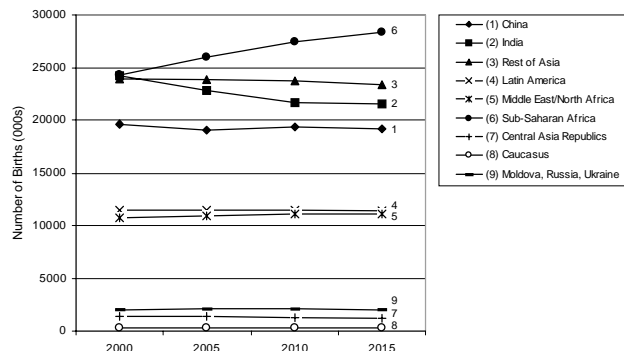Aged 15-49, by Region, 2000-2015**

**Figure 4.1c. Numbers of Births
Annually, by Region, 2000-2015**

Shortfalls in Care

This section builds on the previous one, to sketch the burdens upon the health system that result from large numbers of births, together with major shortfalls in the proportions of women currently served. Three functions are discussed: antenatal care, tetanus immunizations, and delivery attendance.

Antenatal care. Only about 70% of births are preceded by even a single antenatal visit in the developing world as a whole. Across regions (Table 4.3) the range is from 66% to 69% in Asia, the Middle East/North Africa, and sub-Saharan Africa, up to 80% in Latin America. It is 90% in the Central Asia Republics as an inheritance from the former USSR system.

In terms of numbers of women neglected, a full 38 million women receive no antenatal care annually (Table 4.3 and Appendix Table A.10). By region, the estimates are 23.9 million in Asia, 2.3 million in Latin America, 3.7 million in the Middle East/North Africa, 8.4 million in sub-Saharan Africa, and 0.1 million in the Central Asia Republics. Although the United Nations estimates that the total number of births per year in the developing world as a whole has leveled off, the number will still increase in such large countries as Nigeria, Ethiopia, and Pakistan, so even if the proportions of women assisted improve, the absolute numbers neglected may change rather little.

The distribution of countries according to the percent of women receiving antenatal care appears in Table 4.4, for nearly 100 countries. One-third of countries fall below the 60% mark (column 2). That is, in these countries less than 60% of women receive antenatal care. In 13% of countries, or about one in six, less than 30% of women receive care.

Tetanus immunizations. A similar analysis for tetanus protection gives an even worse picture. On average, only about one-half of pregnant women receive tetanus injections (Table 4.3). This is least, at 39%, in sub-Saharan Africa and is

only 53% to 58% in the other three regions with available data. Translated to numbers, this means an annual neglect of 29.3 million women in Asia, 4.5 million in Latin America, 5.0 million in the Middle East/North Africa, and 14.9 million in sub-Saharan Africa, totaling 53.7 million. Again, the coming five-year increases in births in certain large countries will elevate these numbers unless the proportions of women served rise sufficiently to counteract it; the problem even then is that the absolute numbers not served could then remain constant.

The distribution of countries by the percent of women receiving tetanus immunizations is shown in Table 4.4. A single figure captures the unsatisfactory state of coverage: in one-half of the countries, less than one-half of women receive tetanus injections.

Delivery care. Professionally trained birth attendants, whether paramedics or doctors, and whether serving at home or in facilities, are the focus here. Coverage

of births by professional attendants rests at about 51% of births for the developing world as a whole, an unfortunate level as bad as that for tetanus immunization (Table 4.3). The range of variation across regions is considerably greater than it is for either tetanus or antenatal care (omitting the Central Asia Republics for antenatal care) since only 36% of deliveries are attended in sub-Saharan Africa compared to 73% in Latin America. The Asia figure is a low 51%; the high figure for China is offset by the lower ones for Bangladesh, India, Indonesia, and Pakistan (Appendix A.10). (All regional figures above weight countries by number of deliveries.)

Converted to numbers, these percentages mean the neglect of 31.4 million women in Asia, 2.7 million in Latin America, 3.4 million in the Middle East/North Africa, 14.7 million in sub-Saharan Africa, and 0.1 million in the Central Asia Republics, for a total of 52.4 million.

Table 4.3. Mean Regional Values for Care Received, with Numbers Unserved

| | % of Women Receiving Care | | | | Numbers Unserved | | |
	Antenatal[a]	Tetanus[a]	Deliveries[a]	No. of Deliveries	Antenatal (000s)	Tetanus (000s)	Deliveries (000s)
Asia	64.7	53.3	51.0	70,125	23,906	29,336	31,461
Latin America	74.2	58.4	72.6	11,335	2,292	4,518	2,715
Middle East/ North Africa	58.4	53.7	65.5	11,881	3,676	5,024	3,438
Sub-Saharan Africa	62.5	39.3	35.7	25,746	8,446	14,875	14,735
Central Asia Republics	90.4	u	92.6	1,412	136	u	96
Developing World	64.9	50.8	51.2	120,499	38,455	53,753	52,445

[a]Figures are weighted by the number of deliveries in each country.

Table 4.4. Distribution of Countries by the Percent of Women Receiving Care

| Percent of Women Receiving Care | Antenatal Care | | Tetanus Immunization | | Attended Deliveries | |
	No. of Countries	Cumulative Percent	No. of Countries	Cumulative Percent	No. of Countries	Cumulative Percent
0-9	1	1	3	3	5	5
10-19	3	4	6	10	7	11
20-29	9	13	11	21	6	17
30-39	2	15	12	34	11	27
40-49	4	19	15	50	14	39
50-59	14	32	12	63	12	50
60-69	10	42	12	76	7	57
70-79	17	59	10	86	8	64
80-89	17	75	6	93	8	72
90-100	25	100	7	100	31	100

Source: Appendix Table A.10.

Figure 4.2. Cumulative Distribution of Countries for Maternal Care: Antenatal Care, Tetanus Immunization, and Delivery Attendance
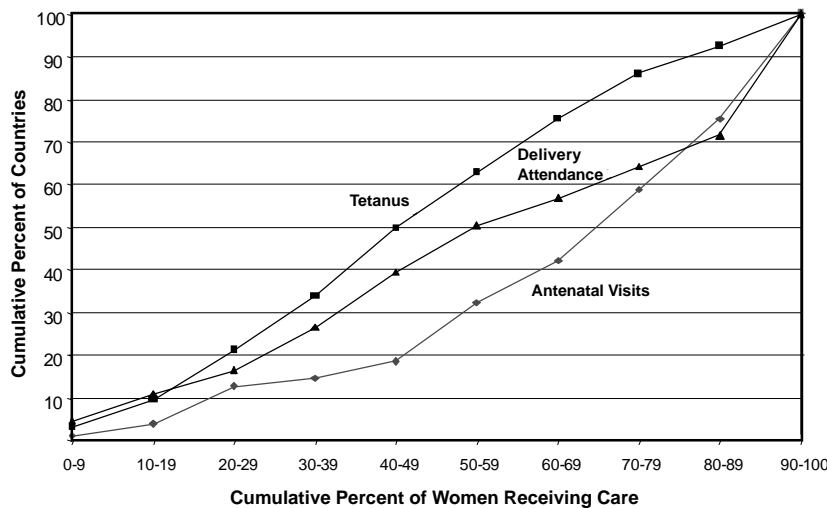
Improvements in the proportions of births attended will tend to offset the increasing absolute numbers of births in countries like those mentioned above, but will still leave vast numbers unattended. The distribution of countries by the percent of births attended is shown in Table 4.4. Again, a single fact is eloquent: one-half of countries attend less than 60% of births. One-fourth of countries attend less than 40% of births.

Three-way comparison. Most countries in the developing world have large deficiencies in maternal care. Figure 4.2 gives the cumulative distribution of all countries by the percent of women receiving care for the three services of antenatal visits, tetanus protection, and delivery attendance. The ideal curve would stay very low along the bottom axis, indicating that few countries have low percentages of care, and it would then rise very sharply at the right, placing most countries at the favorable high percentages. The space beneath each line reflects the failure to provide care. Thus the best curve is for antenatal visits and the worst is for tetanus protection. In between is delivery care; it crosses the 50% point for countries at the unfavorable point of only 50% to 59% of women with attended deliveries.

The burdens of care and the needs for services will rise inexorably in those developing countries with increasing numbers of births. A race is underway between those increases and the effort to improve coverage of services, made more challenging by the drive to also improve quality. Progress on coverage and quality may be largely cancelled in these countries by the rising numbers of births unless both efforts and resources are greatly augmented.

References

UNICEF. *The State of the World's Children.* 1998 and 1999 issues. New York: Oxford University Press. 1998, 1999.

United Nations. *World Population Prospects: The 1998 Revision.* Volume I, Comprehensive Tables. New York: United Nations Population Division. 1998.

WHO. *The World Health Report 1998.* Geneva: World Health Organization. 1998.

Maternal Mortality and Morbidity

Maternal mortality has received continuing attention as a major problem of the developing world, but clear evidence of progress against it is lacking. Essentially no developing country has a rate anywhere close to the very low rates in the West. The low range of rates in Appendix Table A.11 is around 75-100 deaths per 100,000 births, and the high range is well over 1,000. On average, in developing countries about 1 woman in 48 can expect to die from pregnancy-related causes sometime during her reproductive career (Table 4.5); at worst, this can be 1 in 10.

The basic facts are not in dispute; here are examples from a recent World Bank (1999) review:

➤ Nearly 99% of the more than 500,000 maternal deaths each year occur in the developing world.

➤ Of all the human development indicators, the greatest discrepancy between developed and developing countries is in the risk of maternal death.

➤ Complications of pregnancy and childbirth are the leading cause of death and disability among women of reproductive age in developing countries.

➤ One in four women in these countries suffers from acute or chronic conditions related to pregnancy.

➤ At least 20% of the burden of disease among children below age five is attributable to conditions directly associated with poor maternal health, nutrition, and the quality of obstetric and newborn care.

➤ Most of this loss and suffering is preventable.

Within the developing world the regions differ significantly in average risk, but all are far above the rates for Europe and North America.

Table 4.5. Women's Risk of Dying from Pregnancy and Childbirth

Region	Risk of Dying
All Developing Countries	1 in 48
Africa	1 in 16
Asia	1 in 65
Latin America and Caribbean	1 in 130
All Developed Countries	1 in 1,800
Europe	1 in 1,400
North America	1 in 3,700

Source: WHO and UNICEF, 1996.

Table 4.6. Number and Percent of Maternal Deaths Annually

Country	Number of Maternal Deaths Annually	Percent
Asia	303,365	53.1
Latin America	22,295	3.9
Middle East/ North Africa	34,445	6.0
Sub-Saharan Africa	209,745	36.7
Central Asia Republics	1,170	0.2
Total	571,020	100.0

The total numbers of deaths reflect population sizes and birth rates as well as the mortality risks, so the numbers are very uneven by region. Asia has over one-half of the total, due largely to India (see Table 4.6), and sub-Saharan Africa has over one-third.

In the following section we discuss three features, drawn from Appendix Table A.11: numbers, ratios, and lifetime risks. Due to defects in the original data, all figures are approximations and the patterns presented must be viewed in general terms.

Numbers of deaths. India's maternal deaths far exceed those of any other country. Its 147,000 deaths compose over one-fourth of the total; this vastly exceeds China's total of 22,000, reflecting China's much lower birth rate and its lower maternal mortality ratio (MMR) of 95 vs. India's 570. Several other countries cluster at 30,000-40,000 annual deaths: Nigeria is at 44,000; Bangladesh, Indonesia, and Ethiopia are at about 30,000; Zaire and Pakistan are at 16,000 to 18,000.

The ratios (MMR) partly overlap with this picture. High ratios occur in Ethiopia, Nigeria, Zaire, Bangladesh, Indonesia, and India. But many smaller countries suffer very high rates, most of them in Africa. Some 21 countries have ratios exceeding 1,000.

The lifetime risks vary across a vast range, from 1 woman in 7 in Afghanistan or Sierra Leone to 1 in 9,200 in Hong Kong. These can be converted by their reciprocals to the per-woman risk: 14% and 0.01% respectively. This risk in each country reflects both the average number of births per woman (the TFR) and the risk per birth (the MMR), so women in countries with high fertility rates and high ratios will have the highest lifetime risks. (See Appendix Table A.11.)

The MMR is normally stated as maternal deaths per 100,000 births. The same number of deaths can be compared to pregnancies rather than births. If about 120 million births occur in the developing world, they represent perhaps two-thirds to three-fourths of all pregnancies. If there were at least 500,000 maternal deaths in these countries the overall ratio is about 415. However, with the 160 to 180 million pregnancies as the denominator the ratio is less, at 277 to 313. That however still translates to one death per minute the year around, in addition to many times more for serious disability.

Strategies. A strong argument has been urged that highly specific measures are essential to reduce the numbers of maternal deaths. General improvements in socioeconomic status will not significantly lower maternal mortality rates, since most deaths occur for lack of well-equipped medical facilities close at hand, ready at short notice to assist the woman experiencing difficulty. Screening in advance to identify high-risk subgroups is not efficient, since "the vast majority of high-risk women will deliver without incident. Furthermore, most women who develop life-threatening complications belong to low-risk groups" (Maine and Rosenfield, 1999), apparently because of their sheer numbers in the population. The implications

of such analyses are that sheer numbers of deaths will not fall greatly until there is close access to appropriate medical services to treat emergency cases.

The exception is broad-scale family planning since that reduces the overall number of unplanned and unwanted pregnancies in the first place. Moreover, enlarged contraceptive use offsets abortions that would otherwise occur, many of which produce maternal deaths from septic procedures. (See abortion section.)

A full strategy to reduce the total number of maternal deaths in the developing world must take into account their highly concentrated geographic distribution (Figure 4.3). Within any given country deaths are a function of the number of women, the birth rate, and the risk per birth (or pregnancy). The latter is to some extent a function of unsafe abortions. Wider contraceptive use addresses both the abortion rate and the birth rate, but the numbers of deaths will remain far too high until medical facilities improve in close proximity to most women.

References

AbouZahr, Carla, and Erica Royston. *Maternal Mortality: A Global Factbook.* Geneva: WHO. 1991.

Adamson, P. "Women: Maternal Mortality." In: Adamson, P., ed. *Progress of Nations.* New York: UNICEF. Pp. 2-7. 1996.

Maine, Deborah. *Safe Motherhood Programs: Options and Issues.* New York: Columbia University, Center for Population and Family Health. 1991.

Maine, Deborah, and Allan Rosenfield. "The Safe Motherhood Initiative: Why Has It Stalled?" *American Journal of Public Health*, Vol. 89, No. 4. Pages 480-482. April 1999.

Tsui, Amy, Judith N. Wasserheit, and John G. Haaga, eds. *Reproductive Health in Developing Countries. Expanding Dimensions, Building Solutions.* Panel on Reproductive Health, Committee on Population, Commission

on Behavioral and Social Sciences and Education. National Research Council. Washington, DC: National Academy Press. 1997.

UNICEF. *The Progress of Nations.* New York: UNICEF. 1996.

WHO. *Coverage of Maternal Care: A Listing of Available Information, Fourth Edition.* Geneva: WHO. 1997.

WHO. *Mother-Baby Package: A Road Map for Implementation in Countries.* Geneva: WHO, Division of Family Health. 1993.

WHO and UNICEF. "Revised 1990 Estimates of Maternal Mortality: A New Approach by WHO and UNICEF." Geneva: WHO and UNICEF. April 1996.

World Bank. *Safe Motherhood and the World Bank: Lessons from Ten Years of Experience.* Washington, DC: The World Bank. June 1999.

Induced Abortion and Postabortion Contraception

Planners need to know the level of abortion activity to sense the burdens that weigh upon both maternal health and service networks. They also need to gauge the requirements for preventive care, including contraception and postabortion contraception. Here we provide three measures of abortion activity (Appendix Table A.12), using data drawn primarily from the World Health Organization and the Alan Guttmacher Institute. These data are only rough estimates for many countries and should be used with caution.

The most recent counts of abortions by region are shown in Table 4.7; these are consistent with the latest published figures (Henshaw, Singh, and Haas, 1999) but the regional definitions are adapted to match those used in our appendix tables. These figures are preferred over the totals (not shown) in Appendix Table A.12, which omit certain countries and may not reflect all of the latest country information.

Figure 4.3. Number of Maternal Deaths
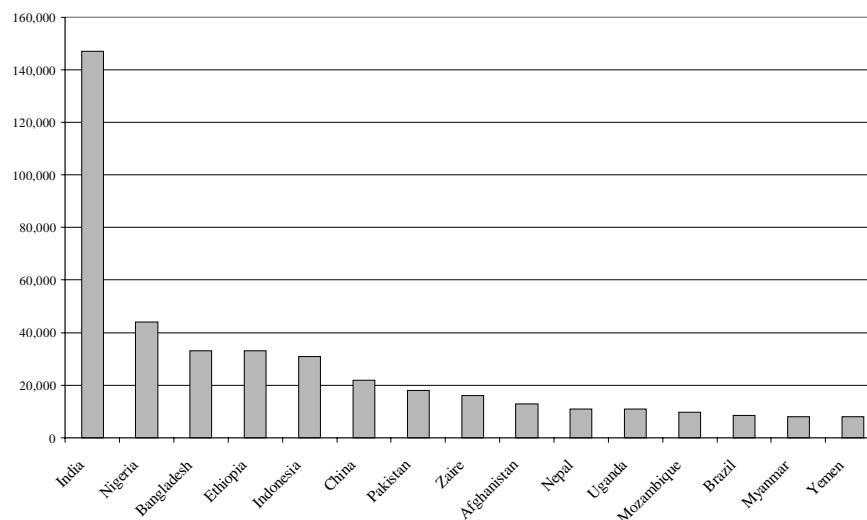
Asia dominates the number of abortions done annually, with 61% of the table total and 69% of the developing world total. (All Western countries are excluded.) China is responsible for much of this, but the rest of Asia still contains over half of abortions in the developing world with China removed. This reflects the large numbers in India, Indonesia, Bangladesh, and Vietnam. Latin America is next, due to the presence of Brazil, Mexico, and Venezuela. In sub-Saharan Africa, Nigeria ranks first; in Middle East/North Africa, Turkey and Egypt have the largest numbers. In the five Central Asian Republics, Uzbekistan has an estimated two-thirds of the total.

The number of abortions reflects two determinants: the number of pregnancies and the proportion aborted (the abortion *ratio*). Another perspective is that the numbers reflect the abortion *rate* (the percent of women having an abortion each year) times the size of the female population. Thus, the size of the population, the number of pregnancies, and the proclivity to terminate them, all enter in. Further, each of these three has its own prior determinants; most notably, increased contraceptive use reduces the second and therefore the total.

Rates vary across a wide range, from lows of only 3 to 10 (annual abortions per 1,000 women aged 15-49), to highs in the 60s and 70s. The rates and ranks in Appendix Table A.12 reflect these extremes. An overview of regional differences appears in Table 4.8; it presents

Table 4.7. Abortions by Region

	No. of Abortions (millions)	Percent of Total	Percent of Total for Developing Countries
Asia	24.2	61.4	69.3
Latin America	4.2	10.4	12.0
Middle East/North Africa	1.7	4.3	4.9
Sub-Saharan Africa	4.4	11.2	12.6
Central Asian Republics	0.4	1.0	1.1
Subtotal	34.9	88.3	99.9
Caucasus	0.3	0.8	
Moldova, Russia, Ukraine	4.2	10.7	
Total	**39.4**	**99.8**	

Table 4.8. Abortion Rates and Ratios, with Ranks, by Region

	Abortion Rate Per 1,000 Females Aged 15-49	Mean Rank	Abortion Ratio per 100 Births	Mean Rank
Asia	26	53	26	44
Latin America	40	31	45	29
Middle East/North Africa	16	81	13	78
Sub-Saharan Africa	20	69	11	79
Central Asia Republics	54	19	55	23
Caucasus	24	57	46	26
Moldova, Russia, Ukraine	49	15	119	4

*All figures weight countries equally; weighting by females aged 15-49 gives generally similar results.

mean regional values for the columns in the appendix table. On average the rates are especially low in the Middle East/ North African region and in sub-Saharan Africa. Next highest is Asia, and then Latin America, but by a large margin the former Soviet Union regions are highest. Within every region, there is rather wide country variation.

The ratios present a different picture from the rates for many individual countries, but the regional patterns are largely unchanged. The ratios are quite low in the Middle East/North Africa and in sub-Saharan Africa, higher in Asia and even higher in Latin America. The highest averages are for the Central Asian Republics and for the group of Moldova, Russia, and Ukraine. Five of the ten highest country ratios occur in the former Soviet Union.

Widespread contraceptive practice greatly reduces the number of pregnancies and therefore the rate, but the ratio may either rise or fall. It may fall if most of the remaining pregnancies are wanted ones, but it may rise if there are many contraceptive failures and a high proportion is aborted. In that case, most abortions serve as backup for defective contraceptive methods (especially traditional methods) or defective use of the methods. In other situations, where abortion is a primary instrument of birth control, the abortion ratio can be very high, and it matters considerably whether the ratio is based on pregnancies or births. If in the Russian Federation two-thirds of pregnancies are aborted that leaves one-third for births, so while the ratio is 66 for pregnancies it is 150 for births.

Regardless of whether abortion is legal or illegal, increased contraceptive use will cut into the base of unwanted pregnancies. In particular, postabortion contraception addresses the population most concerned. A strategy to offer advice and methods during the abortion episode is vital, since many women will not be seen again and many will go on to repeat abortions.

Unsafe abortions are thought to account for some 78,000 maternal deaths each year (WHO, 1998), or about 13% of all maternal deaths. Thus they constitute about one-eighth of the 99% of maternal deaths that occur in the developing world. Safer medical procedures, including new non-surgical ones, will save lives and reduce maternal morbidity. Abortion is made safer and less traumatic by the use of vacuum procedures; these are now in common use in many developing countries.

There are three general strategies to reduce the numbers and rates of abortion, whether safe or unsafe:

1. Gross numbers will continue to fall in a relatively small number of countries with large populations and high rates; therefore, regional and international strategies should take account of the geographic pattern.

2. Rates within countries will fall as the pregnancy rate falls, the key to which is the spread of reliable contraceptive use.

3. The focused strategy of contraceptive offerings at the time of abortion will reduce repeat abortions and orient action to the subgroup most prone both to have repeat unwanted pregnancies and to terminate them.

The scourge of unsafe abortions in much of the developing world can be reduced by better contraceptive offerings, to provide more methods and easier access to more people. Abortion can be made safer through the spread of vacuum aspiration equipment. Contraception offered at the time of each abortion is especially important to reduce future unwanted pregnancies and repeat abortions. Contraceptive failure can be reduced by the provision of better counseling and a wider choice of reliable methods.

References

Henshaw, Stanley K., Susheela Singh, and Taylor Haas. "The Incidence of Abortion Worldwide." *International Family Planning Perspectives*, Vol. 25, Pages S30-S37. Supplement, 1999.

Ross, John A. and Elizabeth Frankenberg. "Induced Abortion," Ch. 9 in *Findings from Two Decades of Family Planning Research*. New York: The Population Council. 1993.

WHO. "Global and Regional Estimates of Incidence of and Mortality due to Unsafe Abortion with a Listing of Available Country Data," Table 2. *Maternal and Newborn Health: Unsafe Abortion*. Third Edition. Geneva: WHO. 1998.

Chapter 4

HIV/AIDS Incidence and Prevalence

The HIV/AIDS epidemic has surprised the world in its rapid growth and in its severity. It strikes the young population of working age, mainly in the cities, but in some African countries it pervades the whole society and affects up to one-fourth of all adults, with little hope of treatment.

Global estimates. A summary of global estimates is provided by UNAIDS, which publishes an annual status report for HIV/AIDS in all regions. Most of this section is drawn from the 1998 report, as is Appendix Table A.13, which provides estimates by country for several items of information. (See also World Bank, 1997.)

Highlights include the following (Table 4.9):

➤ In some areas AIDS is already the leading cause of death among adults (aged 15-49).

➤ Globally it is among the top ten causes of death. At current levels of new HIV infections, it may move into the top five.

➤ Over 30 million people were infected with HIV by early 1998; most will die within a decade and most before better medicines are discovered and deployed for mass use. Already about 11.7 million persons have died from AIDS.

➤ New infections are continuously being added: about 5.8 million in 1997 alone.

➤ Nearly 600,000 children were infected with HIV in 1997, mostly through their mothers before or during birth or through breastfeeding. So far some 2.7 million children (under age 15) have died from AIDS.

➤ Only a tiny fraction of those with HIV know they have it. This disguises the extent of the epidemic and invites denial by national leaders.

Growth rates. Countries differ in the patterns by which the HIV virus spreads. From 1994 to 1997, prevalence remained about constant at low levels in some countries, but rose rapidly in others. The distribution of 172 countries by the *proportional* increase in HIV prevalence from 1994 to 1997 follows:

Proportional Increase	Number of Countries
Over 100%	27
10 to 100%	47
0.01 to 10%	18
No increase	44
No 1997 data	36
Total	172

Over half of the countries with known data (74/136) have increased by 10% or more in the three-year period, some at very high rates within the wide range from 10% to over 100%.

Rapid increases in new cases are occurring in much of Asia and southern Africa, and in some Latin American countries. There are exceptions where growth is minimal, as in some Latin American countries and in special cases such as Thailand and Uganda that have had vigorous prevention programs.

The highest growth rates can be high indeed, even where prevalence already falls within a high range. Figure 4.4 shows the seven-year HIV trend among pregnant women in parts of South Africa.

In Zimbabwe about one-fourth of the adults are already estimated to have the virus. In Botswana, adult HIV prevalence doubled in five years, and 43% of pregnant women tested positive in a major urban center. Those two countries rank first in Figure 4.5, which shows the 20 countries with the highest percentage of adults (aged 15-49) with HIV.

In Asia the pattern is different from South Africa: levels are low in general (Table 4.10), but population sizes are greater and small changes in rates can produce very large numbers of new cases. Information is sparse for much of Asia but China's prevalence probably doubled in recent years to roughly 400,000 cases. India has perhaps 10 times China's prevalence but this is still less than 1% of all adults. However, given India's size, this amounts to an estimated 4 million cases – the largest number in any country. Figure 4.6 shows In-

dia as first among the 20 countries with the largest absolute numbers of HIV/AIDS cases. These reflect a balance between the country's size and the percent affected. Twelve countries appear in both Figures 4.5 and 4.6, with the unfortunate distinction of having both very large numbers of cases and very high rates. These are Burkina Faso, Cote d'Ivoire, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe.

Prevalence remains low (below 1/1,000 adults) in some large Asian countries: Bangladesh, Indonesia, Pakistan, the Philippines, and Sri Lanka. However, prevalence is notably higher in Myanmar, Thailand, Vietnam, and especially Cambodia.

In Latin America the picture is mixed. HIV prevalence is generally low in the region compared to southern Africa, but as in Asia the pattern is uneven from one country to another. Adult prevalence is estimated at less than 1 percent in most countries, but overall some 1.3 million cases exist. In the two largest countries, Brazil and Mexico, as well as Argentina, transmission appears to be increasing, not only in special subgroups but also through more general heterosexual contacts. In 1986 in Brazil women constituted one in 17 AIDS cases; now it is one in four. For HIV prevalence, about one-fifth of cases are women in Latin America as a whole.

Because contraceptive use is widespread in Latin America fewer women become pregnant, which reduces the absolute number of mother-child transmissions; consequently there are fewer infected infants and fewer orphans when women die. A testing effect is that women who do become pregnant are less representative of all women than in Africa; in any case their levels of prevalence have ranged from less than 1% in Panama to 8% in Haiti and parts of the Dominican Republic.

In the Middle East and North Africa, the smallest region, data are very thin, but no country estimates its HIV prevalence at above 1% of adults. Only about

Table 4.9. Global Estimates of the HIV/AIDS Epidemic as of the End of 1997

People newly infected with HIV in 1997	**Total**	**5.8 million**
	Adults	5.2 million
	Women	2.1 million
	Children <15 years	590,000
Number of people living with HIV/AIDS	**Total**	**30.6 million**
	Adults	29.4 million
	Women	12.2 million
	Children <15 years	1.1 million
AIDS deaths in 1997	**Total**	**2.3 million**
	Adults	1.8 million
	Women	800,000
	Children <15 years	460,000
Total number of AIDS deaths since	**Total**	**11.7 million**
the beginning of the epidemic	Adults	9.0 million
	Women	3.9 million
	Children <15 years	2.7 million
Total number of AIDS orphans since the beginning of the epidemic.		**8.2 million**

(Orphans are defined as children who lost their mother or both parents to AIDS when they were under the age of 15.)

Table 4.10. Adults and Children Living with HIV/AIDS by Region

North Africa and Middle East	210,000
Sub-Saharan Africa	21,000,000
Caribbean	310,000
Latin America	1,300,00
East Asia and Pacific	420,000
South and Southeast Asia	5,800,000
Australia and New Zealand	12,000
North America	860,000
Western Europe	480,000
Eastern Europe and Central Asia	190,000
Total	30,600,000

200,000 cases are estimated to exist (Table 4.10), less than 1% of the world's total.

Methods. Figures on prevalence and mortality are subject to much error. Prevalence estimates come chiefly from women attending antenatal clinics, from community sentinel sites, and in some cases from mass screenings, for example, blood donors. It is not enough just to measure current HIV prevalence, since it reflects the three different components of the recent flow of new cases, the inherited bulk of cases from the past, and AIDS deaths. This can confuse any prognosis of growth. In a mature epidemic prevalence may be stable, but this stability simply means that the number of new

infections every year equals the number of people dying from AIDS each year. When prevalence stabilizes at a high level, such as 20-25% in Zambia and Zimbabwe, it means that about 2% of adults are dying each year from AIDS and another 2% are newly infected each year.

Goals and strategies. Many things can be done to combat HIV, but cost constraints force some choices. In general, the stress has been on prevention, given the lack of inexpensive treatments for mass application. Prevention programs have focused on condom use, treatment and prevention of other sexually transmitted diseases, voluntary counseling and testing, peer education, and mass communications. Condom distribution has increased markedly in many countries, exceeding 50 million per year in countries such as Ethiopia, Kenya, Nigeria, and Zimbabwe. Worldwide, condom use for disease protection is estimated at about 560 million.

Besides the above, additional prevention strategies include the following (UNAIDS, 1998, p. 26):

➤ Spreading public knowledge of the disease, its means of transmission, and how to prevent it.

➤ Legitimating the discussion of safer sexual practices or drug behaviors.

➤ Reducing the stigma of having HIV or AIDS.

➤ Providing HIV testing services.

Figure 4.4. HIV Prevalence Among Pregnant Women, Selected Provinces, South Africa, 1990-1997
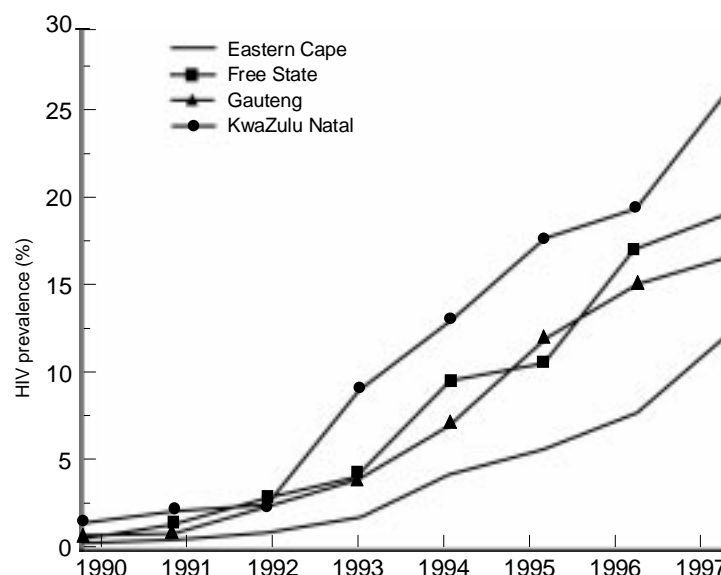
Source: Department of Health, South Africa; taken from UNAIDS, 1998.

Figure 4.5. Twenty Countries with the Highest Adult Rates of HIV

Percent of Adults (15-49) with HIV

Country	
Zimbabwe	
Botswana	
Namibia	
Zambia	
Swaziland	
Malawi	
Mozambique	
South Africa	
Rwanda	
Kenya	
Central African Rep.	
Cote d'Ivoire	
Uganda	
Tanzania	
Ethiopia	
Togo	
Lesotho	
Burundi	
Zaire	
Burkina Faso	
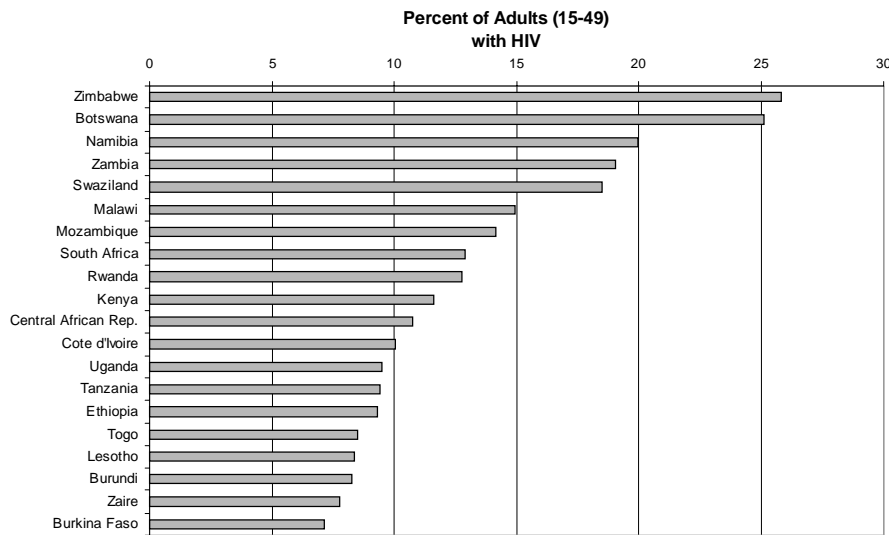
Figure 4.6. Twenty Countries with the Most Adults and Children with HIV/ AIDS

Number

Country	
India	
South Africa	
Ethiopia	
Nigeria	
Kenya	
Zimbabwe	
Tanzania	
Mozambique	
Congo	
Uganda	
Thailand	
Zambia	
Malawi	
Cote d'Ivoire	
Brazil	
Myanmar	
China	
Burkina Faso	
Rwanda	
Cameroon	

before the epidemic has reached the generalized stage, is most effective; however, many countries have found it difficult to organize effective prevention programs before large numbers of AIDS deaths begin to occur.

Prevention strategies have helped where they have been vigorously applied, as in Thailand, Uganda, and Senegal. Annual HIV counts from 1989 to 1996 for pregnant women in Dakar have remained quite level with no upward trend; further, the prevalence levels of various sexually transmitted diseases (STDs) among sex workers there fell sharply from 1991 to 1996. In northern Thailand 21-year-old men, tested in 1991, 1993, and 1995, showed very favorable changes in less use of sex workers, more use of condoms with them, and reduced presence of STDs. In Uganda, HIV prevalence has fallen by one-half in some sites, and it is particularly encouraging to note that prevalence has fallen dramatically among adolescents.

References

UNAIDS. *Report on the Global HIV/ AIDS Epidemic, June 1998*. Issued by UNAIDS/WHO, Joint United Nations Programme on HIV/AIDS (UNAIDS). World Health Organization. 1998.

World Bank. *Confronting AIDS: Public Priorities in a Global Epidemic*. Oxford University Press. 1997.

➤ Improving access to high-quality condoms and clean needles.

➤ Revising laws, regulations, and employment practices bearing upon the problem.

Resources of funds, personnel, and leadership can focus interventions on the general public or on special risk groups where the disease is concentrated, or on both. Countries can be classified by three stages of the epidemic: *nascent* (HIV prevalence is less than 5% in all known subgroups), *concentrated* (prevalence is at least 5% in one or more subgroups practicing high-risk behavior), and *generalized* (prevalence is 5% or more among women attending antenatal clinics). In the nascent and concentrated epidemics, it is clear that interventions targeted to high-risk groups will be most effective. Such targeting strategies are still the most effective even in countries with generalized epidemics. In all countries, significant resources are also needed to provide care and support for those who are infected and their families and to mitigate the serious social and economic consequences. Early intervention,

Chapter 5
FOUR PROGRAM OBJECTIVES

Introduction

This chapter discusses four program objectives:

➤ To provide full access to a variety of contraceptive methods

➤ To satisfy unmet need and intention to use a method

➤ To reach the desired fertility level

➤ To attain the replacement fertility level.

These objectives have been stressed in various national plans or in the international discourse concerning the proper goals of action programs. The first objective is the aim of providing good access to a full range of contraceptive methods to the population; this may be regarded as a necessary condition to the other three objectives, and so logically comes first. The second is meant to address unmet need and the level of expressed intention to use contraception. The third overlaps with that; it is to assist couples to reach the desired level of fertility. The fourth is to move toward the replacement fertility level, an objective that is present in numerous national plans.

Goal: To Provide Full Access to a Variety of Contraceptive Methods

The Cairo ICPD meeting stressed the goal of providing full availability to family planning methods. The Programme of Action declared:

"All countries should take steps to meet the family planning needs of their populations as soon as possible and should, in all cases by the year 2015, seek to provide universal access to a full range of safe and reliable family planning methods..."

And they should:

"Recognize that appropriate methods for couples and individuals vary according to their age, parity, family-size preference and other factors, and ensure that women and men have information and access to the widest possible range of safe and effective family planning methods..."

However there is a long way to go before most couples are given a true choice of alternative methods. In this section we use selected scores from past cycles of the International Family Planning Effort Study (Ross and Mauldin, 1996). (See Appendix Table A.14.) Of the 30 scores in the study, five concern the availability of contraceptive methods to the population. Country experts estimate what proportion of the population has ready access to each method – pill, IUD, male sterilization, female sterilization, and condom. This is explicitly not the proportion currently using the method, but rather the proportion who have reasonable access to it.

Table 5.1 and Figure 5.1 summarize the combinations of methods and the availability of individual methods. The rule employed is that at least half of the population must have access to a method for it to be considered available. For example, the pill is considered available by this rule in 65% of 91 countries (Table 5.1, top panel) and the IUD in 54%. Male sterilization is available in only 26% of countries while condoms are available in 73%, or nearly three-fourths of countries.

Our focus however is not upon single-method access but upon something close to "full availability of contraception," the topic of this section. That leads to the question of how many countries provide *multiple* methods.

Therefore the second panel of Table 5.1 gives the percent of countries where both pill and IUD availability meet the 50%

Table 5.1. Percent of Countries Making Contraceptive Methods and Combinations of Methods Available as of 1994

	Asia	Latin America	Middle East/ North Africa	Sub-Saharan Africa	Total
Pill	69.6	70.8	85.7	46.7	64.8
IUD	73.9	62.5	71.4	23.3	53.8
Female sterilization	52.2	75.0	21.4	16.7	41.8
Male sterilization	52.2	33.3	7.1	10.0	26.4
Condom	78.3	83.3	71.4	60.0	72.5
Pill and IUD	65.2	54.2	71.4	23.3	49.5
Pill and female sterilization	43.5	54.2	21.4	16.7	34.1
IUD and female sterilization	43.5	54.2	28.6	13.3	34.1
Pill, IUD, female sterilization	43.5	45.8	21.4	13.3	30.8
Pill, IUD, female sterilization, condom	43.5	45.8	21.4	13.3	30.8
At least one long-term method	73.9	87.5	78.6	26.7	62.6
At least one short-term method	65.2	70.8	85.7	46.7	63.7
At least one long-term method and at least one short-term method	65.2	66.7	71.4	26.7	53.8
No. of countries	23	24	14	30	91

Note: Table contains 91 countries; 3 Central Asia Republics are omitted.

rule – similarly for each other combination shown. Finally, the bottom panel allows for some flexibility in the provision of methods: in the first row a country qualifies if *any* long-term method exceeds 50% availability – either male or female sterilization or the IUD. Numerous countries offer either the IUD or female sterilization, which produces the relatively high 63% in the last column. In the second row a country qualifies if any short-term (resupply) method meets the 50% rule, either the pill or condom. Again, many countries offer at least one, so 64% qualify in the last column. The last line combines the two previous lines: a country qualifies only if it meets both criteria, which reduces the figure to 54%.

The numbers necessarily decline as more stringent conditions are applied. Sixty-five percent of countries qualify for the pill alone, but only 49% qualify for the pill and IUD together, and only 31% for those plus female sterilization. Thus less than one-third of all countries provide those three methods to at least one-half of the population – a far cry from the ICPD goal. Even those may not do so uniformly throughout the country: certain areas may have most access to just the pill and condom, and other areas only to the pill and sterilization.

Regions differ in the combinations of methods they provide. The Middle East/ North Africa does poorly on combinations that include sterilization, whereas Asia and Latin America do considerably better on those. However the Middle East/North Africa improves in the bottom panel, where flexibility is allowed as to which methods qualify.

Overall, sub-Saharan Africa has the least method availability. By the Cairo ICPD mandate, it is farthest from the goal of "full availability." It does best for condoms (top panel) but poorly for sterilization and the IUD, which hurts its ratings in the combinations. The easiest route to an enlarged choice of methods in the short term would be to add the pill to numerous outlets in both public and private sectors. However long-term methods are also needed both for automatic continuation and reliability.

Distance to go to "full availability." Observers have long noted the adjustments needed in certain country programs. India and Nepal have a near-exclusive stress on sterilization, which calls for a better balance with temporary methods. Conversely, Indonesia's caution regarding sterilization has left many couples with unsatisfactory alternatives, and this occurs in Egypt as well. Vietnam's preoccupation with the IUD alone has driven many couples to high-failure temporary methods and to excessive numbers of abortions. The tendency in numerous countries toward only one or two methods appears in detail in the method mix data in Chapter 2.

A different kind of problem prevails in some Francophone countries where no method at all is widely available to the mass of the population, as in Chad, Mali, Mauritania, and Zaire. This is equally true in some Anglophone countries, such as Ethiopia, Nigeria, and Sudan. All these and others face the elementary need to deploy services to most of the population. Moreover, physical availability of several contraceptive methods needs to be accompanied by services that are convenient and congenial to potential clients.

Thus the overall picture is quite bleak for public access to a variety of contraceptive choices. The rule used here, that a method is "available" if it is readily accessible to at least half of the population, is a lenient one. Yet only one-half of countries provide both a short-term and a long-term method (in brief, half fail half). Only one-fourth of sub-Saharan countries do so. Even in Latin America and Asia, only two-thirds do so.

The time trend of improvement according to the average availability score across all methods (Table 5.2 and Figure 5.2) is also disappointing. Over all 91 countries the 12-year increase was only 18 points, from 31 to 49 (percent of maximum score), or an average of only 1.5 points per year. At that rate, only 80% of maximum will be reached by the ICPD target year of 2015, leaving a one-fifth gap to full availability.

Regions differ quite sharply in the amount of improvement: sub-Saharan Africa and the Middle East/North Africa started from a low base in 1982, at only 10% and 17% of maximum, and rose rapidly at 2.8 and 2.2 points per year. A slower pace occurred in South Asia and Latin America, of only 0.81 and 0.74 points per year, suggesting that a plateau emerges in the middle range. Two factors are involved: certain countries may resist change due to political or cultural factors, or within countries an administrative fall-off may occur in extending services to large rural populations, or both.

Figure 5.1. Availability of Multiple Contraceptive Methods
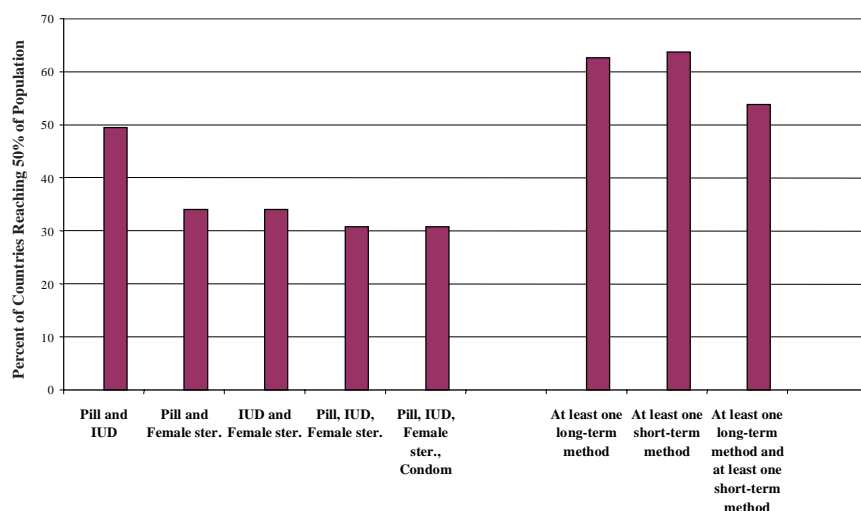
References

Mauldin, W. Parker, and John A. Ross. "Family Planning Programs: Efforts and Results, 1982-89." *Studies in Family Planning* 22(6):350-367. 1991.

Ross, John A., and W. Parker Mauldin. "Family Planning Programs: Efforts and Results, 1972-94." *Studies in Family Planning* 27(3):137-147. 1996.

Ross, John A. "The Question of Access." *Studies in Family Planning* 26(4):241-242. 1995.

United Nations Population Fund. *Programme of Action: Adopted at the International Conference on Population and Development*. Cairo, September 5-13, 1994. Pages 51, 53. Booklet published 1996.

Wilkinson, Marilyn I., Wamucii Njogu, and Noureddine Abderrahim. *The Availability of Family Planning and Maternal and Child Health Services*. DHS Comparative Studies No. 7. Calverton, Maryland: Macro International. 1993.

Table 5.2. Time Trend of the Average Availability Score by Region and Year

	1982	1989	1994	Rise per Year (1982-1994)
East Asia	92.1	90.1	90.5	-0.13
South Asia	40.4	48.1	50.1	0.81
Latin America	51.6	65.9	60.5	0.74
Middle East/North Africa	17.4	28.4	43.8	2.20
Sub-Saharan Africa	9.9	29.9	43.3	2.80
All Countries	31.2	42.2	48.9	1.50

Figure 5.2. Time Trend for Average Availability Score by Region and Year

Goal: To Satisfy Unmet Need and Intention to Use a Method

Besides serving as one indicator of the public's need for contraceptive assistance, unmet need can be supplemented by information on women's own expressed intention to use a method. Here we provide first the unmet need perspective, and then additional information on intention to use.

The unmet need concept has been useful through the years as a humane rationale for action programs and as evidence of a large subgroup in nearly every population whose needs have not yet been addressed. As a counterpoint to target-driven approaches it has helped ease international opposition to family planning, partly by demonstrating that satisfying unmet need in many populations would raise contraceptive prevalence as much as meeting the targets would. That helps justify the discontinuance of worker targets (Sinding et al., 1994) and in princi-

ple can release workers from general recruitment efforts and let them focus on simply helping the truly interested couples.

Unmet need therefore has served as one of the considerations for program planning, as it was in the 1994 Cairo ICPD meeting. At both international and regional levels it is an important rationale for justifying donor funding and for winning the support of a broad spectrum of interest groups. This is true also within some individual countries, where it serves to help gauge the interested market for family planning. For planning purposes however, where survey data permit, the unmet need estimates should be reduced due to clear non-intention to use, but increased to recognize omitted couples who intend to use a method.

At least one country, Bangladesh (Barkat et al., 1997), has used survey data on unmet need as the direct basis of its national plan. While a survey can take a

snapshot of unmet need it cannot directly tell how rapidly it will be satisfied. Because couples move in and out of unmet need statuses, it is really the net changes across surveys in both need and prevalence of contraceptive use that can be observed. The Bangladesh plan therefore had to select dates by which the current level of unmet need would be lessened by the overall rise in prevalence. This feature, the time path of a net reduction in unmet need, will vary from country to country.

Unmet need reflects the puzzling gap between the desire to avoid pregnancy and the failure to use contraception. This gap changes in size during the transition from very low prevalence of contraceptive use, as in Zaire for example, to very high prevalence, as in Thailand or Colombia. Unmet need starts small, since the desired family size is large, and ends small, since nearly everyone is using a method. In between, unmet need tends to be rather large, since usually there is a

serious lag in supplies and services to address the public's growing desire to avoid unwanted pregnancies. Therefore the time trend in unmet need can disguise an improvement in the program's effects, if it is outrun by a rapid decline in desired family size.

The figures below use the DHS definition of unmet need* since that is available for numerous countries. However the figures would be higher if the definition were expanded to sexually active single men and women, dissatisfied users, and traditional method users. In Vietnam for example unmet need rises from 14% to 36% if traditional method users (who have a high abortion rate for failures) are included (Phai et al., 1996).

By any definition a high level of unmet need reflects a programmatic inadequacy, either in public action or in stimulus to the private sector, or both. Donors and planners typically regard high unmet need as a call to a strengthened response.

How rapidly can unmet need be erased? Programs work best by satisfying the interest that already exists, as good in itself and as the best way to enlarge that interest. International experience (Table 5.3) indicates that an annual rise of about two points in prevalence is as much as can be expected, unless the program is exceptionally strong and the public is especially ready. In the text table below a 2% rise per year in Kenya would require ten years for unmet need to fall from 35% to 15%, the current level in Egypt and Bangladesh. In fact, Kenyan prevalence rose by 1.5 points annually from 1989 to 1993 and by 1.3 points annually from 1993 to 1998. However unmet need fell only slightly from 1989 to 1993, from 38.0 to 35.5, since the desire to avoid pregnancy changed nearly as fast as the prevalence level did.

_____

*Women with unmet need are those who are married/cohabiting, fecund, not using a method, and wish to postpone birth at least two years. Women who are pregnant or amenorrheic have unmet need if they did not want the current pregnancy or recent birth either at that time or at all, but if a contraceptive failure was responsible the woman is treated as having no unmet need.

Table 5.3. Annual Increase in Contraceptive Prevalence, by Level of Use at the Earlier Period, Developing Countries

Prevalence at earlier period	Annual percentage-point increase in contraceptive prevalence		
	< 1.0	1.0-1.9	2.0 or more
Less than 15 percent	Benin Côte d'Ivoire Ghana Iraq Mali Mauritania Nigeria Senegal Sudan Yemen	Cameroon Haiti Lesotho Malawi Nepal Oman Pakistan Rwanda Uganda Tanzania	
15-34 percent	Guatemala Jordan India	Bolivia Botswana Egypt Honduras Kenya Malaysia Nicaragua Philippines Syria	Bangladesh Grenada Morocco Zambia
35-49 percent	Dominica El Salvador Saint Lucia	Algeria Barbados Dominican Republic Ecuador Indonesia Paraguay Peru South Africa Tunisia Zimbabwe	Antigua and Barbuda Iran Saint Vincent and the Grenadines
50-64 percent	Colombia Trinidad and Tobago Panama Puerto Rico	Bahrain Jamaica Mexico Singapore Thailand Turkey Sri Lanka Vietnam	Republic of Korea
65 percent or more	Costa Rica Mauritius	Brazil China Hong Kong	

NOTE: Annual percentage-point increase is calculated for the period between the 1980s and 1990s, on average. Dates for countries vary; for details, see Tables 4 and 5 in United Nations, 1999.

The ICPD directive to reduce unmet need translates in practice to a rise in contraceptive prevalence, in programs that focus on women or couples who are genuinely interested in postponing pregnancy and in using contraception. Unmet need may rise during an intermediate stage but it finally diminishes as contraceptive prevalence increases to a high level. Meanwhile there is movement in and out of the pool of users and the various unmet need categories. If for example a goal is chosen to reduce unmet need from 20% to 10%, that might pragmatically be converted to a rise in prevalence of 10 points over time, e.g., over five years at 2% rise per year.

The following text table ranks 11 of the 22 countries of special interest, separate-

ly for spacing and limiting needs. (Appendix Table A.15 gives the available information on the full group of 116 countries.) These are ranked by total need, with Kenya at 35.5% in need and Colombia and Brazil at about 7%. There is a rough correspondence between the level of need and the level of contraceptive prevalence

Percent MWRA with Unmet Need

	Spacing	Limiting	Total
Kenya	21.3	14.2	35.5
Pakistan	16.3	15.4	31.7
Philippines	12.4	13.5	25.9
Tanzania	15.3	8.5	23.8
Nigeria	15.5	4.9	20.4
Egypt	5.3	10.7	16.0
Bangladesh	7.9	7.9	15.8
Turkey	3.7	7.6	11.3
Indonesia	4.8	5.8	10.6
Colombia	3.2	4.5	7.7
Brazil	2.5	4.7	7.2

Trends in unmet need. In some countries, most of them with medium to high prevalence, unmet need has declined over time. Figure 5.3 (updated from Westoff and Bankole 1995) shows unmet need and contraceptive prevalence at two dates for eight countries. In each one prevalence has risen and need has decreased. Together these are termed total demand, which rather remarkably runs at 65% to 75% in all of the surveys except for Ghana.

Another way to approach the interaction between prevalence and unmet need is by calculating the annual increase in prevalence as a percent of need at the time of the first survey. The range is from 1.2% to 15% around an average of about 6.4% (Figure 5.4). There is of course considerable circulation of individuals in and out of using statuses and unmet need categories over time, but the net changes have been favorable.

Figure 5.3. Trends in Unmet Need and Prevalence

Ghana 1988
Ghana 1993
Kenya 1988
Kenya 1993
Egypt 1988
Egypt 1992
Morocco 1988
Morocco 1992
Bolivia 1989
Bolivia 1994
Colombia 1986
Colombia 1995
Dom. Rep. 1986
Dom. Rep. 1996
Peru 1986
Peru 1996
■ Unmet Need
☐ Prevalence
0
10
20
30
40
50
60
70
80
90
Percent of Women in Union
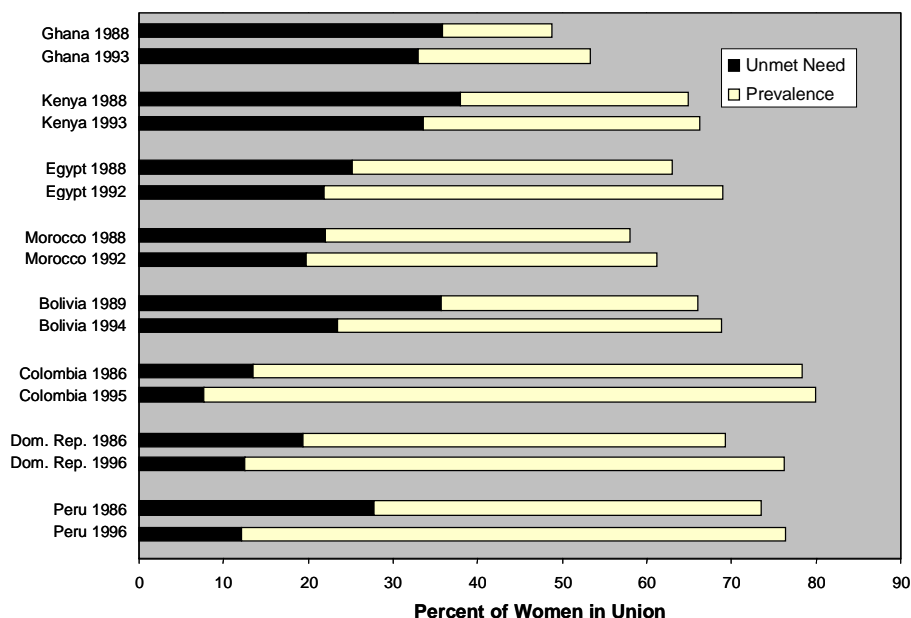
Figure 5.4. Percent of Unmet Need Converted to Net Prevalence Increase per Year

16%
14%
12%
10%
8%
6%
4%
2%
0%
Egypt
Colombia
Indonesia
Kenya
Zimbabwe
Ghana
Morocco
Egypt
Uganda
Dom. Rep.
Peru
Bolivia
Dom. Rep.
Colombia
Indonesia
Morocco
AVERAGE
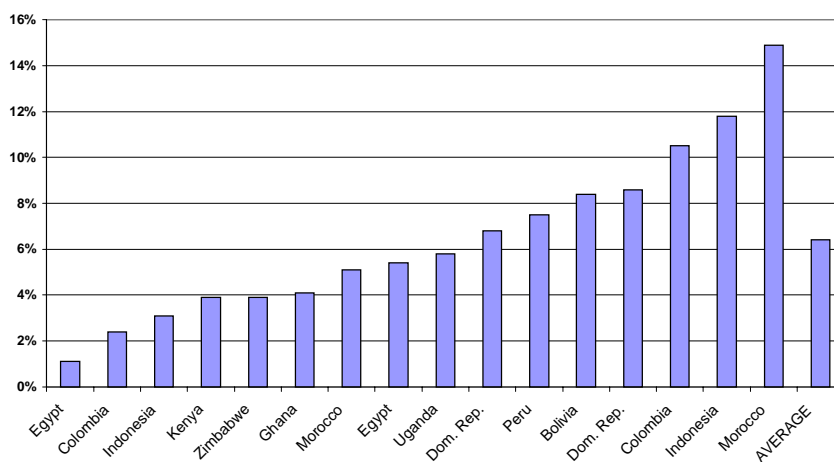
Note: Some countries had multiple surveys.

Global estimates of need. Surveys provide estimates of unmet need for 45 of the 116 countries included in Appendix Table A.15. By assigning to unknown countries the regional averages of the known countries we can provide a crude picture of unmet need for most of the developing world. Table 5.4 presents the results; it shows that India contains about 30% of all couples in need in the developing world. Further, half of all couples in need live in the top six countries: India, Pakistan, Indonesia, Nigeria, Bangladesh, and Mexico. The top 12 have two-thirds of the total, and the top 20 have three-fourths of the total. India's dominance appears in Figure 5.5.

An overall average (unweighted) is 23.9% of couples with unmet need (total for spacing and limiting). This figure varies little for three of the regions, at 20.0% for both Asia and North Africa/Middle East, and 20.8% for Latin America. It is higher, at 28.4%, for Sub-Saharan Africa, where more need is for spacing than it is elsewhere. Within each region there is considerable variation. Low figures appear where contraceptive prevalence is already high, as in Thailand, Sri Lanka, Brazil, and Turkey, although the definition assumes that users of traditional methods have no need. The highest figures occur in sub-Saharan Africa, as in Malawi, Rwanda, and Togo.

Table 5.4. Countries Ranked by Number of Married Women (MWRA) in Need and by Percent of Nonusers in Need, ca. 1998

	No. of Nonusers (000s)	Percent of Nonusers in Need	No. of MWRA in Need (000s)	Percent Distribution		No. of Nonusers (000s)	Percent of Nonusers in Need	No. of MWRA in Need (000s)	Percent Distribution
India	77,271	49.2	37,996	30.4	Chile	730	50.3	367	0.3
Pakistan	15,291	48.7	7,439	6.0	Haiti	678	50.3	341	0.3
Indonesia	13,080	40.0	5,231	4.2	Guinea	877	38.1	335	0.3
Nigeria	16,171	28.2	4,553	3.6	Rwanda	704	47.4	334	0.3
Bangladesh	10,456	43.0	4,498	3.6	Benin	805	38.1	307	0.2
Mexico	5,759	65.1	3,749	3.0	Laos	659	45.5	300	0.2
Brazil	8,577	42.4	3,637	2.9	Togo	560	51.2	287	0.2
Iran	7,559	45.5	3,442	2.8	Chad	734	38.1	280	0.2
Ethiopia	8,939	38.1	3,410	2.7	Bolivia	670	41.4	277	0.2
Philippines	5,484	54.4	2,985	2.4	Tunisia	541	50.7	275	0.2
Egypt	4,879	49.0	2,392	1.9	Libya	642	42.7	274	0.2
Vietnam	4,916	45.5	2,238	1.8	Zimbabwe	1,085	24.7	268	0.2
Zaire	5,735	38.1	2,187	1.8	Niger	1,293	20.6	267	0.2
Afghanistan	3,772	45.5	1,716	1.4	El Salvador	400	63.2	253	0.2
Kenya	2,714	56.4	1,532	1.2	Burundi	816	31.0	253	0.2
Myanmar	3,179	45.5	1,447	1.2	Honduras	488	50.3	246	0.2
Colombia	2,000	69.0	1,380	1.1	Taiwan	471	45.5	214	0.2
Turkey	3,995	33.2	1,328	1.1	Cuba	414	50.3	209	0.2
Tanzania	3,417	38.5	1,314	1.1	Sierra Leone	541	38.1	206	0.2
Sudan	2,764	42.2	1,168	0.9	Dominican Rep.	452	45.5	206	0.2
Nepal	2,771	42.1	1,165	0.9	Papua New Guinea	431	45.5	196	0.2
Thailand	2,533	44.7	1,133	0.9	Nicaragua	360	50.3	181	0.1
Argentina	1,985	50.3	999	0.8	Jordan	508	32.9	167	0.1
South Africa	2,573	38.1	981	0.8	Central African Rep.	379	38.1	144	0.1
Ghana	2,010	48.2	969	0.8	Eritrea	367	38.1	140	0.1
Mozambique	2,539	38.1	968	0.8	Liberia	337	40.0	135	0.1
Yemen	2,262	42.7	966	0.8	Oman	289	42.7	124	0.1
Algeria	2,211	42.7	944	0.8	Paraguay	427	27.7	118	0.1
Iraq	2,131	42.7	910	0.7	Costa Rica	216	50.3	109	0.1
Korea, Rep.	1,892	45.5	861	0.7	Congo	276	38.1	105	0.1
Saudi Arabia	2,013	42.7	860	0.7	Bhutan	212	45.5	97	0.1
Uganda	2,805	30.4	851	0.7	Mauritania	238	38.1	91	0.1
Morocco	1,665	48.1	801	0.6	Hong Kong	196	45.5	89	0.1
Venezuela	1,542	50.3	776	0.6	Lebanon	204	42.7	87	0.1
Madagascar	1,730	44.3	766	0.6	Mongolia	191	45.5	87	0.1
Burkina Faso	1,672	38.5	644	0.5	Puerto Rico	161	50.3	81	0.1
Cote d'Ivoire	1,680	38.1	641	0.5	Lesotho	210	38.1	80	0.1
Malaysia	1,371	45.5	624	0.5	Jamaica	156	50.3	78	0.1
Somalia	1,349	42.7	576	0.5	Uruguay	146	50.3	74	0.1
Peru	1,451	39.4	572	0.5	Panama	145	50.3	73	0.1
Korea, DPR	1,217	45.5	554	0.4	United Arab Emirates	156	42.7	67	0.1
Angola	1,453	38.1	554	0.4	Singapore	144	45.5	65	0.1
Malawi	1,332	41.3	550	0.4	Namibia	159	34.2	54	0.0
Mali	2,021	26.9	544	0.4	Kuwait	113	42.7	48	0.0
Syria	1,267	42.7	541	0.4	Gambia	125	38.1	48	0.0
Guatemala	1,087	46.2	502	0.4	Guinea-Bissau	119	38.1	45	0.0
Ecuador	836	58.6	490	0.4	Gabon	116	38.1	44	0.0
Cambodia	1,008	45.5	459	0.4	Botswana	85	46.1	39	0.0
Cameroon	1,435	31.5	453	0.4	Trinidad and Tobago	69	55.1	38	0.0
Senegal	1,102	40.1	442	0.4	Swaziland	91	38.1	35	0.0
Zambia	953	43.2	411	0.3	Guyana	52	50.3	26	0.0
Sri Lanka	881	42.2	372	0.3	Mauritius	69	38.1	26	0.0

Enough large countries have survey information to represent most of the developing world. China has only trivial unmet need by the usual definition; it and the seven next largest countries contain two-thirds of the developing world. These eight have a weighted average (by 1995 population size) of 11.6% of MWRA with unmet need, but excluding China (with its zero figure) the other seven have a weighted average of 19.8%, compared to the unweighted average of 23.9% above. Some countries of moderate size are at about 25%, such as Egypt, Sudan, Philippines, Colombia, and Tanzania, but these are somewhat balanced off by others at about 11%, such as Thailand, Sri Lanka, and Turkey.

The picture changes when the denominator is only non-users in need. Many countries (column 2 of Table 5.4) have a third to a half of all non-users in need. These in turn translate to large absolute numbers when the percent is high and the number of nonusers is large, as it is in most large countries. In India for example half of all nonusers are in need. Of the top 12 countries in the table ten have 40% or more nonusers in need.

Intention to use a method. The unmet need perspective can be adjusted by information on women's own statements as to their intention to use, or not use, contraception within the next year (Figure 5.6 and Appendix Table A.15). The figure shows both sides of the adjustment: some of those with unmet need do not intend to use a method, but others without apparent need do plan to use. In Kenya 20.2% of nonusers intend to use a method even though they are classified as having no unmet need – the same women represent 13.6% of all married women (right-hand column). They more than balance out the smaller group that has unmet need but plans not to use (14.7% on the left and 9.9% on the right). The average across the 11 countries in Figure 5.6 is 14% of all married women who plan to use even though they are classified without need.

Who are these "intenders" without need? Many actually are in need but are said not to be by an oddity in the DHS definition, which says that women who want a

birth within two years have no need. Actually substantial numbers of those women say they intend to use a method within that period. They do not want to become pregnant just yet. They wish to insure a delay of their next conception within the two-year period in question. Remarkably, they are numerous enough in many countries to more than offset losses from the unmet need group due to non-intention to use. In 15 of 25 countries with DHS surveys there is in fact a net gain in the total numbers of potential users (Ross and Heaton, 1997).

Appendix Table A.15 gives survey data on the percent of all married women intending to use, the percent of those with unmet need intending to use, and the percent of nonusers intending to use. For 11 large countries Figure 5.7 shows the patterns. Countries are ordered by the percent among married women (MWRA) (lower bars). Within each country the highest bar is for intention among unmet need women. That is expected since the denominators shrink across the three types, but the highest bars are very high indeed, above 60% in 7 of the 11 countries and at 40%-50% in the others, except for Pakistan.

The reasons for the shortest bars differ: in Brazil few married women intend to use because most already do so. However in Nigeria the desired family size is still large, and access to methods is poor. In Pakistan religious objections and husband opposition may help explain why

37% of married women have unmet need but the percent intending to use is still low. The Philippines presents yet another combination of factors, including some religious ambivalence. All three countries lack vigorous program action in the rural sector. In Kenya the high proportions planning to use perhaps reflect a better supply system and greater personal freedom by women to adopt a method.

However many women who say they intend to use will in fact not do so, at least not in the near future. A wide range of deterrents exists such as personal ambivalence, family opposition, and weak programs that provide neither information nor physical access to a choice of methods. Nevertheless the intention to use suggests the presence of a market for contraception; therefore it is of interest to track the relationship of prevalence increases to recorded intentions to use. Table 5.5 and Figure 5.8 show how the annual increase in prevalence can be related to the initial intention to use. In most cases prevalence has risen annually in the range of 3% to 8% of the initial intention level. The average is 6.4%, just as for unmet need above.

In summary: for managers and planners, close attention should be paid to both levels and trends for unmet need and intention to use. They are the best gauges of public interest in contraceptive use, whether supplied by the public or private sector.

Figure 5.5. Number of MWRA with Unmet Need
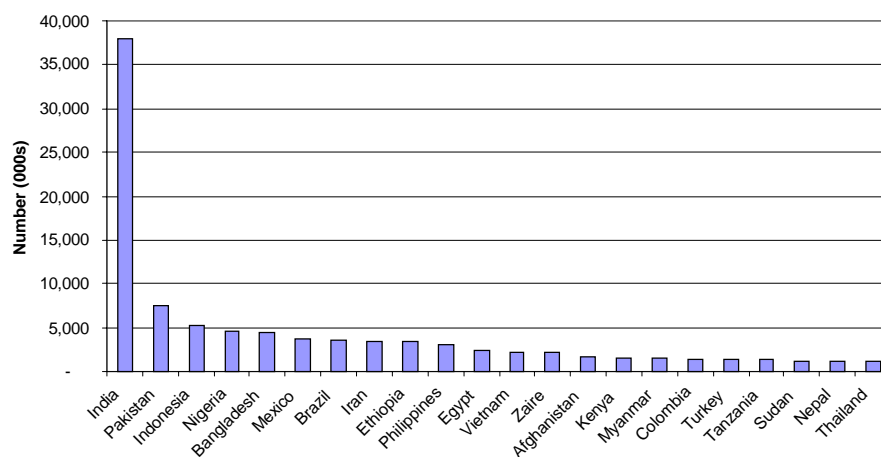
Figure 5.6. Overlap Between Unmet Need and Intention to Use a Method (a) Among Married Non-users of Contraception, and (b) Among All Married Women (Note: The two columns differ only in the denominator; the second column uses the base of all married women.)

		Among Married Non-Users				Among All Married Women		
		unmet need				*unmet need*		
Bangladesh 1993/94		YES	NO			YES	NO	
intent to use	YES	25.8	40.5	**66.3**	YES	14.3	22.5	**36.8**
	NO	6.5	27.0	**33.5**	NO	3.6	15.0	**18.6**
		32.3	**67.6**	**99.8**		**17.9**	**37.5**	**55.4**
		unmet need				*unmet need*		
Brazil 1996		YES	NO			YES	NO	
intent to use	YES	23.7	32.3	**56.0**	YES	5.5	7.5	**13.0**
	NO	7.3	35.8	**43.1**	NO	1.7	8.3	**10.0**
		31.0	**68.1**	**99.1**		**7.2**	**15.8**	**23.0**
		unmet need				*unmet need*		
Colombia 1990		YES	NO			YES	NO	
intent to use	YES	24.8	29.8	**54.6**	YES	8.4	10.1	**18.5**
	NO	8.0	37.2	**45.1**	NO	2.7	12.6	**15.3**
		32.7	**67.0**	**99.7**		**11.1**	**22.7**	**33.8**
		unmet need				*unmet need*		
Colombia 1995		YES	NO			YES	NO	
intent to use	YES	23.0	43.9	**66.9**	YES	6.4	12.2	**18.6**
	NO	4.7	28.4	**33.1**	NO	1.3	7.9	**9.2**
		27.7	**72.3**	**100.0**		**7.7**	**20.1**	**27.8**
		unmet need				*unmet need*		
Egypt 1992		YES	NO			YES	NO	
intent to use	YES	22.3	23.1	**45.4**	YES	11.8	12.2	**24.0**
	NO	15.1	39.5	**54.6**	NO	8.0	20.9	**28.9**
		37.4	**62.6**	**100.0**		**19.8**	**33.1**	**52.9**
		unmet need				*unmet need*		
Egypt 1995/96		YES	NO			YES	NO	
intent to use	YES	22.6	35.9	**58.5**	YES	11.8	18.7	**30.5**
	NO	8.1	33.6	**41.7**	NO	4.2	17.5	**21.7**
		30.7	**69.5**	**100.2**		**16.0**	**36.2**	**52.2**
		unmet need				*unmet need*		
Indonesia 1991		YES	NO			YES	NO	
intent to use	YES	12.1	22.9	**35.0**	YES	6.1	11.5	**17.6**
	NO	15.9	49.1	**65.0**	NO	8.0	24.7	**32.7**
		31.0	**88.6**	**100.0**		**14.1**	**36.2**	**50.3**

Figure 5.6. Overlap Between Unmet Need and Intention to Use a Method (a) Among Married Non-users of Contraception, and (b) Among All Married Women (Note: The two columns differ only in the denominator; the second column uses the base of all married women.)

Among Married Non-Users   **Among All Married Women**

Indonesia 1994

	unmet need					unmet need		
intent to use	YES	NO				YES	NO	
YES	11.7	31.6	**43.4**		YES	5.3	14.3	**19.6**
NO	11.7	44.9	**56.6**		NO	5.3	20.3	**25.6**
	23.5	**76.5**	**100.0**			**10.6**	**34.6**	**45.2**

Kenya 1993

	unmet need					unmet need		
intent to use	YES	NO				YES	NO	
YES	38.1	20.2	**58.3**		YES	25.6	13.6	**39.2**
NO	14.7	26.9	**41.7**		NO	9.9	18.1	**28.0**
	52.8	**47.2**	**100.0**			**35.5**	**31.7**	**67.2**

Nigeria 1990

	unmet need					unmet need		
intent to use	YES	NO				YES	NO	
YES	8.6	14.0	**22.7**		YES	8.1	13.2	**21.3**
NO	13.1	64.1	**77.2**		NO	12.3	60.3	**72.6**
	21.7	**78.2**	**99.9**			**20.4**	**73.5**	**93.9**

Pakistan 1990/91

	unmet need					unmet need		
intent to use	YES	NO				YES	NO	
YES	9.3	6.4	**15.7**		YES	8.2	5.6	**13.8**
NO	26.7	57.7	**84.3**		NO	23.5	50.8	**74.3**
	36.0	**64.0**	**100.0**			**31.7**	**56.4**	**88.1**

Philippines 1993

	unmet need					unmet need		
intent to use	YES	NO				YES	NO	
YES	17.5	13.8	**31.3**		YES	10.5	8.3	**18.8**
NO	25.7	43.0	**68.7**		NO	15.4	25.8	**41.2**
	43.2	**56.8**	**100.0**			**25.9**	**34.1**	**60.0**

Tanzania 1996

	unmet need					unmet need		
intent to use	YES	NO				YES	NO	
YES	19.2	28.8	**48.0**		YES	15.7	23.5	**39.2**
NO	9.9	41.9	**51.8**		NO	8.1	34.2	**42.3**
	29.2	**70.7**	**99.9**			**23.8**	**57.7**	**81.5**

Turkey 1993

	unmet need					unmet need		
intent to use	YES	NO				YES	NO	
YES	18.9	27.5	**46.4**		YES	7.1	10.3	**17.4**
NO	11.2	42.7	**53.9**		NO	4.2	16.0	**20.2**
	30.1	**70.1**	**100.3**			**11.3**	**26.3**	**37.6**

References

Barkat, A., S.R. Howlader, Barkat-e-Khuda, John A. Ross, and M.L. Bose. *Family Planning Unmet Need in Bangladesh: Shaping of a Client-Oriented Strategy.* University Research Corporation (Bangladesh).1997.

Robey, Bryant, John Ross, and Indu Bhushan. "Meeting Unmet Need: New Strategies." *Population Reports.* Series J, No. 43, September 1996.

Phai, Nguyen Van, John Knodel, Mai Van Cam, and Hoang Xuyen. "Fertility and Family Planning in Vietnam: Evidence from the 1994 Intercensal Demographic Survey." *Studies in Family Planning* 27(1):1-17. 1996.

Ross, John A., and Laura Heaton. "Intended Contraceptive Use Among Women Without an Unmet Need. *International Family Planning Perspectives* 23(4): 149-154. December 1997.

Sinding, Steven W., John A. Ross, and Allan G. Rosenfield. "Seeking common ground: Unmet need and demographic goals." *International Family Planning Perspectives* 20(1):23-27. March 1994.

United Nations. *Levels and Trends of Contraceptive Use as Assessed in 1998.* New York: United Nations Population Division. 1999.

Westoff, C.F., and A. Bankole. *Unmet Need: 1990-1994.* DHS Comparative Studies No. 16, Figure 7.1. Calverton, Maryland: Macro International. June, 1995.

Westoff, C.F. and L.H. Ochoa. *Unmet Need and the Demand for Family Planning.* DHS Comparative Studies No. 5. Calverton, Maryland: Macro International. 1991.

Table 5.5. Intention to Use and Changes in Contraceptive Prevalence

Country	Years	Prevalence Year 1	Prevalence Year 2	Initial Intention to Use (% of MWRA)	% of Intention to Use Converted to Net Prevalence Increase per Year
Egypt	92-95	47.1	47.9	21.1	1.3
Columbia	86-90	64.8	66.1	20.6	1.6
Indonesia	87-91	47.7	49.7	15.3	3.3
Zimbabwe	88-94	43.1	48.1	25.4	3.3
Kenya	89-93	26.9	32.7	38.9	3.7
Ghana	88-93	12.9	20.3	29.4	5.0
Peru	92/93-96	59.0	64.2	22.5	5.1
Morocco	87-92	35.9	41.5	20.1	5.6
Zambia	88-94	15.2	25.9	31.1	5.7
DR	86-91	50.0	56.4	22.2	5.8
Egypt	85-92	37.8	47.1	20.7	6.4
Colombia	90-95	66.1	72.2	18.5	6.6
DR	91-96	54.6	63.7	22.0	6.6
Uganda	88/89-95	4.9	14.8	17.9	8.5
Indonesia	91-94	49.7	54.7	15.2	11.0
Morocco	92-95	41.5	50.3	25.8	11.4
Bolivia	89-94	30.3	45.3	20.8	14.4
AVERAGE					**6.4**

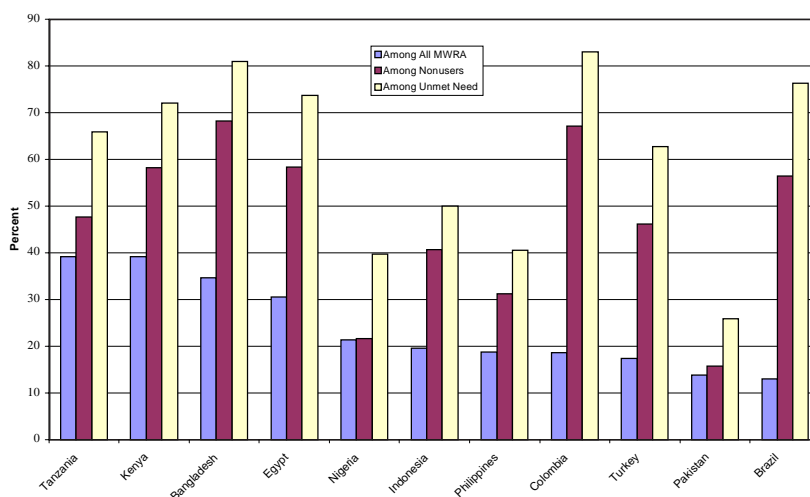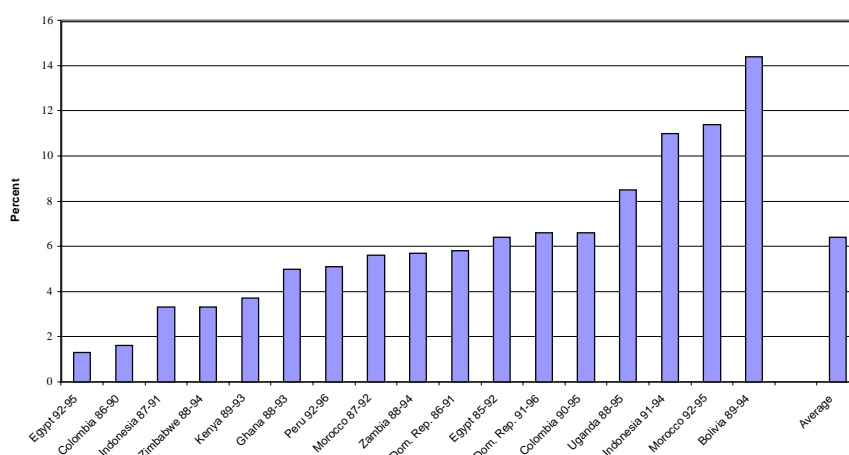**Figure 5.7. Percent Intending to Use Contraception**

Figure 5.8. Percent of Intention to Use Converted to Net Prevalence Rise per Year

Goal: To Reach the Desired Fertility Level

The desired family size has fallen over time in most countries, and has consistently stayed below actual fertility as it too has fallen. A reasonable goal for a national program is to hasten movement to the desired level, and this section traces the mutual changes in both actual and desired fertility.

Four measures of desired fertility are available:

➤ The desired, or ideal size taken from women across all ages, so that the large numbers of younger women dominate the figure.

➤ The total wanted fertility rate (TWFR) similar to the total fertility rate (TFR) in that each age group receives the same weight.

➤ The percent of births that respondents say were wanted, in contrast to the percent said to be either unwanted or ill-timed; this measure like the TWFR merges women in all age groups.

➤ The percent of women saying they want no more children.

Here we concentrate on the last three measures. (Appendix Table A.16 gives data for the first three.)

The TWFR has been measured in nearly 60 surveys since 1980 and it consistently falls below the TFR (see Figure 5.9). The TWFR is constructed simply by deleting all births that were termed unwanted or ill-timed in each age group and is calculated like the TFR, on an age-specific basis. The figure shows the difference for 55 countries: in all cases wanted fertility is below actual fertility. The amount of difference varies; the average is 0.86 of a child, and 37 of the 55 countries have a difference between 0.20 and 1.0 of a child. The other 18 have even larger discrepancies. Over the developing world this amounts to a large body of unwanted childbearing as expressed by the women themselves, quite apart from any public policy regarding fertility.

Figure 5.10 gives the regional averages, taken from columns 1-3 of Table 5.6. The gap between actual and wanted fertility varies from 0.75 to 1.11 of a child, except for the low 0.23 for the three Central Asian Republics with data. Sub-Saharan Africa has a rather small gap, reflecting its high level of wanted fertility.

A second way of documenting the gap to desired fertility is by whether recent births were wanted or not. Appendix Table A.16 shows the percent of births in the last three years that were wanted, not wanted at that time, or not wanted at all. Across 58 countries only 68% of births were wanted then; 19% were ill-timed and 12% were not wanted at all. Thus nearly one-third of births were admitted to be unwelcome; actually the percent not wanted is almost certainly higher due to a reluctance to call a birth unwanted.

The regional breakdown appears in columns 4-6 of Table 5.6. In Latin America only 60% of births fall into the wanted column: a full 40% come at the wrong time or are admitted to be entirely unwanted. The figure for wanted births is below 70% in the other regions, except for the Central Asian Republics. In sub-Saharan Africa relatively fewer births are unwanted so the ratio of ill-timed to unwanted births is exceptionally high. Nevertheless because overall fertility is high the absolute number of unwanted births is substantial.

Trends: Declines in both wanted and actual fertility for 15 countries appear in Table 5.7, based on trends between the World Fertility Surveys in the late 1970s

Figure 5.9. Wanted Fertility Rate and Actual Fertility Rate: 55 Developing Countries
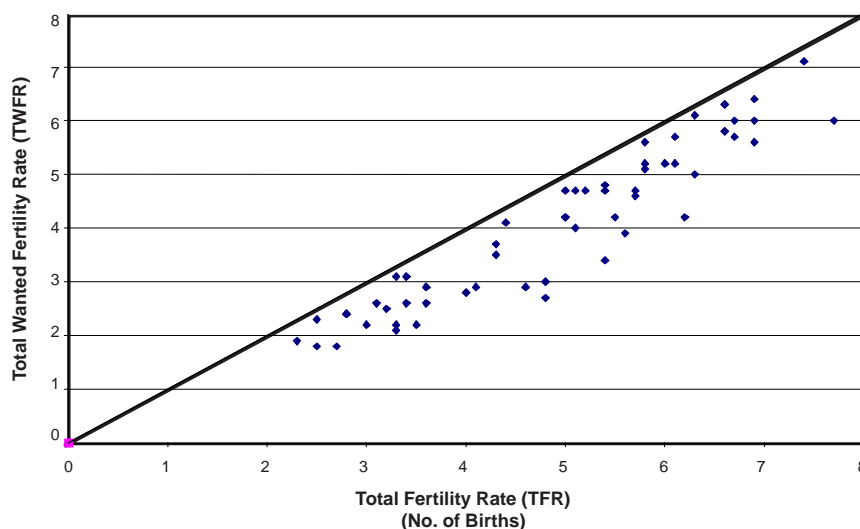
Table 5.6. Regional Mean Values for Indicators of Excessive Fertility

| | TFR | TWFR | Gap | Planning Status of Births | | |
				Wanted Then	Not Wanted	Wanted Later
Asia	3.5	2.7	0.75	69.5	17.3	12.6
Latin America	3.7	2.9	0.84	59.7	20.3	19.7
Middle East/North Africa	4.6	3.5	1.11	68.8	15.1	16.0
Sub-Saharan Africa	6.0	5.2	0.80	68.8	21.4	8.4
Central Asia Republics	3.1	2.8	0.23	88.3	6.1	5.0

Figure 5.10. Total Fertility Rate, Total Wanted Fertility Rate, and Difference, by Region

was less. However the sum of the second gaps (16.4) exceeded the sum of the first gaps (13.8). So on balance, declines in wanted fertility for these countries may be said to equal or exceed those in actual fertility.

Nevertheless these countries differ a good deal. Thailand experienced such a large fall in fertility that its gap declined sharply. But Ghana's gap grew greatly while its TFR actually rose slightly (by 0.3 child, not shown in figure). Other countries with large fertility declines and diminishing gaps include Mexico, the Dominican Republic, Colombia, and Tunisia. Counter examples include Peru, Indonesia, and Kenya: sizable fertility declines but growing gaps.

Percent wanting no more children. A further measure of time trends in desired fertility is increases in the percent of women who say that they want no more children. Nineteen countries have information on this at two or three points in time, from the World Fertility Surveys

and the DHS surveys in the late 1980s. These declines indicate that the national program that seeks to reach the desired fertility level will find it to be rather elusive. While programs in Kenya and Indonesia were working to reach the initial levels of desired fertility, they fell by 40%. On average, desired levels fell by 30% in Latin America, by 25% in the three North African countries, by 36% in the three Asian countries, and by 26% in the three sub-Saharan African countries. These are impressive changes in reproductive desires.

Across the 15 countries in Table 5.7 the average changes were:

	TFR	TWFR	GAP
Late 1970s	5.2	4.3	0.9
Late 1980s	4.1	3.0	1.1
Change	1.1	1.3	

Both quantities fell over the decade, but the gap actually increased as the desired fertility level fell more rapidly than actual fertility. Such results show both features: the progress that has been made, and the large amount of unwanted fertility that persists.

Figure 5.11 portrays the individual country information. It shows the early gap between actual and desired fertility, and then whether the ensuing fall in actual fertility was enough to erase it. Then it shows the new gap that emerged from the simultaneous fall in the desired level.

The gap was nowhere static. In Kenya for example, the World Fertility Survey of 1977/78 found a gap of only 0.3 child

between actual and wanted fertility, but in the ensuing 11 years the TFR fell far more than that, by 1.5 children, to end at 6.4, far below the earlier wanted level. In the meantime however desired fertility fell to 4.5, leaving a new gap of 1.9 children. The desired level outpaced the fall in the actual level.

In eight of these fifteen countries the second gap exceeded the first; in seven it

Table 5.7. Trends in the Total Fertility Rate (TFR) and Wanted Fertility Rate (TWFR) Over the Past Decade, Selected WFS and DHS Surveys

Country	WFS			DHS			Percent Decline	
	Year	TFR	TWFR	Year	TFR	TWFR	TFR	TWFR
Sub-Saharan Africa								
Ghana	1979/80	6.1	6.0	1988	6.4	5.3	+(5)	12
Kenya	1977/78	7.9	7.6	1988/89	6.4	4.5	19	41
Senegal	1978	7.1	6.9	1986	6.6	5.6	7	26
North Africa								
Egypt	1980	5.0	3.6	1988/89	4.4	2.8	12	22
Morocco	1979/80	5.5	4.4	1987	4.6	3.3	16	25
Tunisia	1978	5.5	4.1	1988	4.1	2.9	25	29
Asia								
Indonesia	1976	4.3	4.0	1987	2.9	2.4	32	40
Sri Lanka	1975	3.4	2.9	1987	2.6	2.2	23	24
Thailand	1975	4.3	3.2	1987	2.2	1.8	49	44
Latin American/ Caribbean								
Colombia	1976	4.6	3.4	1986	3.1	2.1	33	38
Dominican Republic	1975	5.2	3.8	1986	3.6	2.6	31	32
Ecuador	1979	5.2	4.1	1987	4.3	2.9	17	29
Mexico	1976	5.7	4.5	1987	4.0	2.9	30	38
Peru	1977/78	5.3	3.5	1986	4.0	2.3	26	34
Trinidad & Tobago	1977	3.2	2.5	1987	4.0	2.2	6	12

Note: The total fertility rate is based on the period 1-24 months prior to the survey. The wanted fertility rate is calculated by deleting births (in the two years preceding the interview) of women whose actual number of living children exceeds the number desired.

Source: Westoff, 1991.

Figure 5.11. Early and Later Gaps Between TFR and TWFR, with Interim TFR Declines, 15 Countries
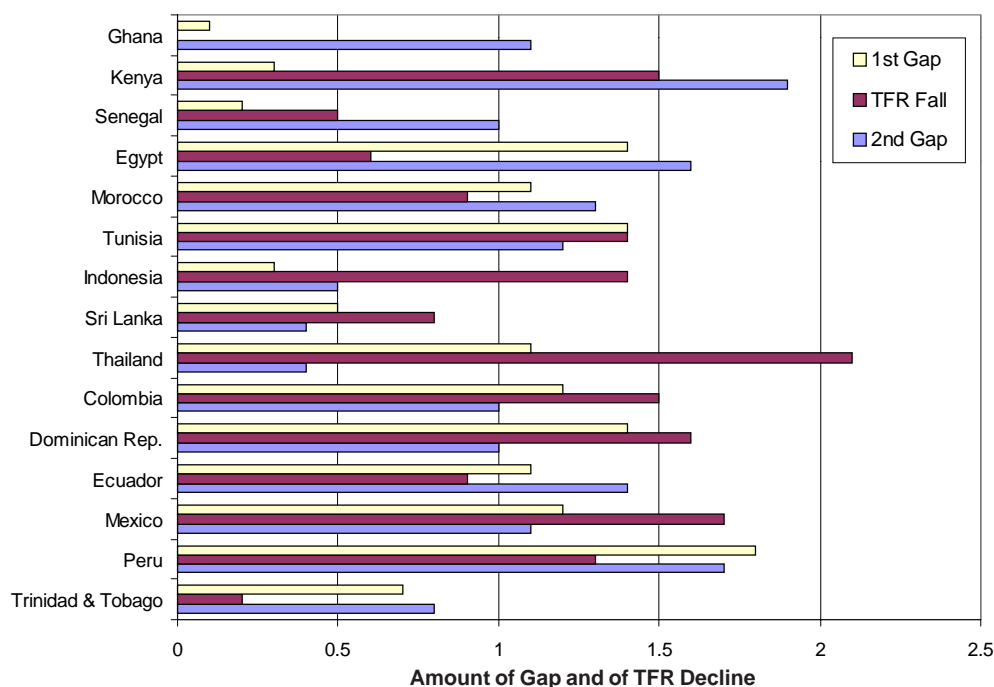
of the late 1970s through multiple DHS surveys to the early 1990s (data pertain only to fecund women in union) (Bankole and Westoff, 1995). The degree and consistency of upward trends in Figure 5.12 are remarkable, and they occur in both periods shown. Table 5.8 adds the mean values: the average increase over the 10-15 year period happens to be in the range of 10-15 points, a substantial shift, especially considering that the increase probably included more younger women, at lower parities.

The percent wanting no more children increases sharply by family size (not shown), but regions differ sharply in the gradient. In much of sub-Saharan Africa few women want to stop unless they have three children, but in Latin America many wish to stop at one child, and one-half to two-thirds of those with two children wish to stop. North Africa is between these extremes, and Asian countries vary across the range.

In summary. The national program having a goal to hasten the movement to the desired fertility level can expect it to remain out of reach; it may well fall as fast or faster than the actual fertility level does. That however is a favorable development, and it demonstrates the continuing presence of a public demand for contraception. The various measures above give a common picture: there is a great deal of unwanted and ill-timed fertility across the developing world. To that must be added the large numbers of aborted pregnancies (Appendix Table A.12). Actual fertility still exceeds desired fertility in virtually every country. To contribute to the closing of each current gap the points of action are much the same as for addressing unmet need. They involve the essential features of a range of reliable contraceptive methods, well deployed to the mass of the population, accompanied by good services and full public information.

References

Bankole, Akinrinola, and Charles F. Westoff. *Childbearing Attitudes and Intentions*. DHS Comparative Studies No. 17. Calverton, Maryland: Macro International Inc. 1995.

Westoff, Charles F. *Reproductive Preferences: A Comparative View*. DHS Comparative Studies No. 3. Columbia, Maryland: Institute for Resource Development. 1991.

Figure 5.12. Trends in Desire for No More Children
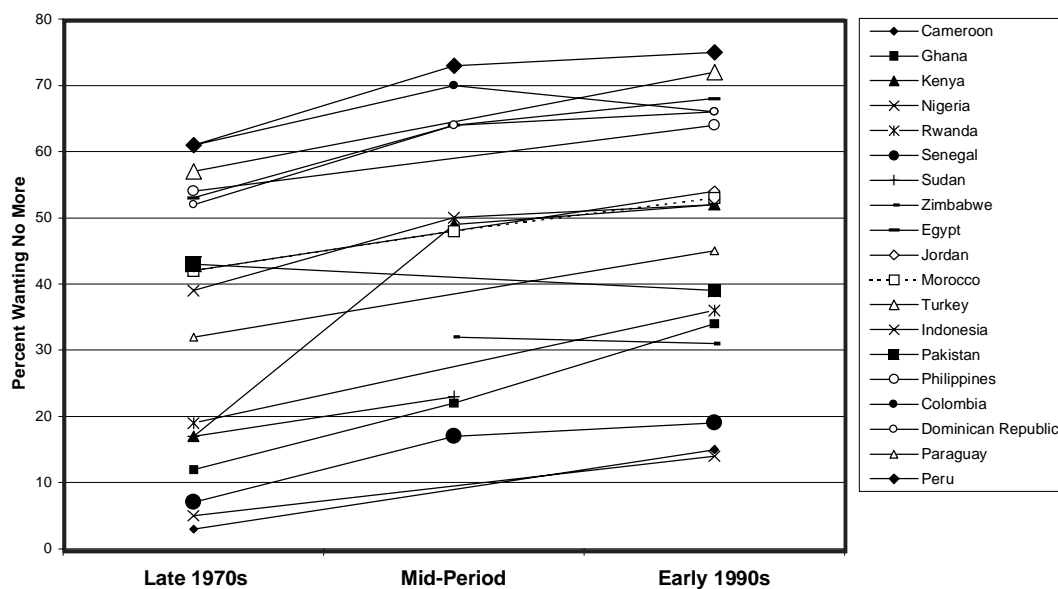
Table 5.8. Trends in Desire for No More Children

	WFS	DHS-I	DHSII,III	Increase
Sub-Saharan Africa				
Cameroon	3.0		15.0	12.0
Ghana	12.0	22.0	34.0	22.0
Kenya	17.0	49.0	52.0	35.0
Nigeria	5.0		14.0	9.0
Rwanda	19.0		36.0	17.0
Senegal	7.0	17.0	19.0	12.0
Sudan	17.0	23.0		6.0
Zimbabwe		32.0	31.0	(1.0)
Means	11.4	28.6	28.7	17.3
Middle East/North Africa				
Egypt	53.0	64.0	68.0	15.0
Jordan	42.0		54.0	12.0
Morocco	42.0	48.0	53.0	11.0
Turkey	57.0		72.0	15.0
Means	48.5	56.0	61.8	13.3
Asia				
Indonesia	39.0	50.0	52.0	13.0
Pakistan	43.0		39.0	(4.0)
Philippines	54.0		64.0	10.0
Means	45.3	50.0	51.7	6.3
Latin America				
Colombia	61.0	70.0	66.0	5.0
Dominican Republic	52.0	64.0	66.0	14.0
Paraguay	32.0		45.0	13.0
Peru	61.0	73.0	75.0	14.0
Means	51.5	69.0	63.0	11.5
Overall Means	34.2	46.5	47.5	12.1

Source: Table 4.4 in Bankole and Westoff, 1995.

Goal: To Attain the Replacement Fertility Level

Replacement fertility is normally set at a total fertility rate of 2.1, slightly above 2.0 to allow for some mortality. By this standard a number of developing countries have approached or surpassed the goal of replacement. In Asia these include most prominently China as well as South Korea (and perhaps North Korea), Taiwan, Hong Kong, Singapore, Thailand, probably Sri Lanka, and at least Kerala State in India. In Latin America there are Cuba, Puerto Rico, Trinidad and Tobago, and numerous small Caribbean populations. Two others are Mauritius and Kazakstan.

Many other developing countries have moved far along the path toward low fertility and smaller family sizes, enough to produce, for the developing world as a whole, a 77% decline toward replacement over the past 35 years. Table 5.9 shows the United Nations TFR estimates for 1960-1965 and 1995-2000 (regions according to U.N. definitions). All regions began at traditionally high fertility levels, and all fell to levels that reflect truly historic changes in marriage and reproductive behavior. East Asia, with China, has fallen below replacement, and Southeastern Asia and Latin America have fallen 84% of the way. The North Africa and Western Asia regions are the closest to the "Middle East/North Africa" region used elsewhere in this report; they fell by 70% and 59% respectively of the distance to replacement. Sub-Saharan Africa has moved only one-fourth of the way. Finally, a group of 48 countries (33 in Africa) identified by the U.N. as "least developed" (second row of table) have fallen only a third of the way.

It is important to bear in mind that the total fertility rate is only one measure of fertility behavior. Unlike the crude rate or general fertility rate, it gives equal weight to every age group, and it is sometimes sensitive to short-term fluctuations, for example in age at first birth. It does not reflect population momentum: populations will continue to grow for some decades after replacement is reached. However the TFR has its own

Table 5.9. Total Fertility Rates: Percentage Declines Toward Replacement Fertility

	TFR 1960-1965	TFR 1995-2000	TFR Decline	% Decline to TFR of 2.1	Extrapolated[a] Date to Reach 2.1	UN Projected Date to Reach 2.1
Developing World	6.01	3.00	3.01	77	2008	2035
Least Developed Countries	6.59	5.05	1.54	34	2065[b]	2045
Sub-Saharan Africa	6.69	5.48	1.21	26	2095[b]	2045
North Africa	7.08	3.58	3.50	70	2012	2035
Western Asia	6.18	3.77	2.41	59	2022	2045
Eastern Asia	5.19	1.77	3.42	111	NA	NA
South-central Asia	6.01	3.36	2.65	68	2014	2035
South-eastern Asia	5.90	2.69	3.21	84	2004	2018
Latin America	5.97	2.70	3.27	84	2004	2035

Source: United Nations, 1998.
[a]Extrapolation of trend from 1960-65 to 1995-2000.
[b]Earlier dates result if the pace of decline is extrapolated from a more recent period.

value, and it is a working proxy for movement toward the two-child family.

What of the future? Predictions are hazardous as suggested in the right-most columns of Table 5.9. A simple extrapolation of the long-term trend from 1960-1965 to 1995-2000 gives earlier dates for reaching a TFR of 2.1 than the dates in the UN published (1998) projections, at least for all regions except sub-Saharan Africa (which composes most of the "Least Developed" group). The difference for the developing world as a whole is 2008 vs. 2035.

Another approach to future developments concerns one determinant of the TFR. Actions to hasten the fertility decline toward replacement may consider that the four most immediate determinants are contraceptive practice, abortion use, breastfeeding, and cohabitation. National policies have been directed variously toward all of these, and all four have been important in different degrees in producing fertility declines. However past declines have come predominantly from increased contraceptive use, and that is examined next.

Across many countries, a total fertility rate of 2.1 corresponds to contraceptive practice by about 75% of couples. Past and future trends for prevalence are reviewed in earlier chapters; here we explore the distance that countries have yet to go to reach the 75% level, taken for convenience as the gap to the replacement level.

The additional contraceptive users required to reach 75% prevalence for the developing world as a whole are highly concentrated in a few countries (Figure 5.13). India alone has 29%, over a fourth of the entire gap. Five countries account for half of the total and eleven account for two-thirds of it, spreading the other third among 93 countries (Appendix Table A.17).

Within each region (Figures 5.14a-5.14e) the pattern of concentration of the gap is the same: within Asia India has half of the total, and in each other region the top five countries contain half to two-thirds of the total (Table 5.10).

Two factors create these extreme distributions: population size, and low prevalence of use. A large country, with few users, requires a very large number of additional users to reach 75% prevalence. India is large and has only an intermediate level of prevalence; Pakistan, Nigeria, and Ethiopia are large and have quite low prevalence.

(These calculations use numbers of women 15-49 in union, and all figures are projections for the year 2000. Numbers of women and proportions married are closely estimated by the United Nations, and prevalence of use comes from past surveys and from the projections explained in Chapter 3 and in the Appendix for Technical Projection Methods.)

**Figure 5.13. Distribution of Additional Users Needed to Reach 75%
Contraceptive Prevalence in the Developing World**
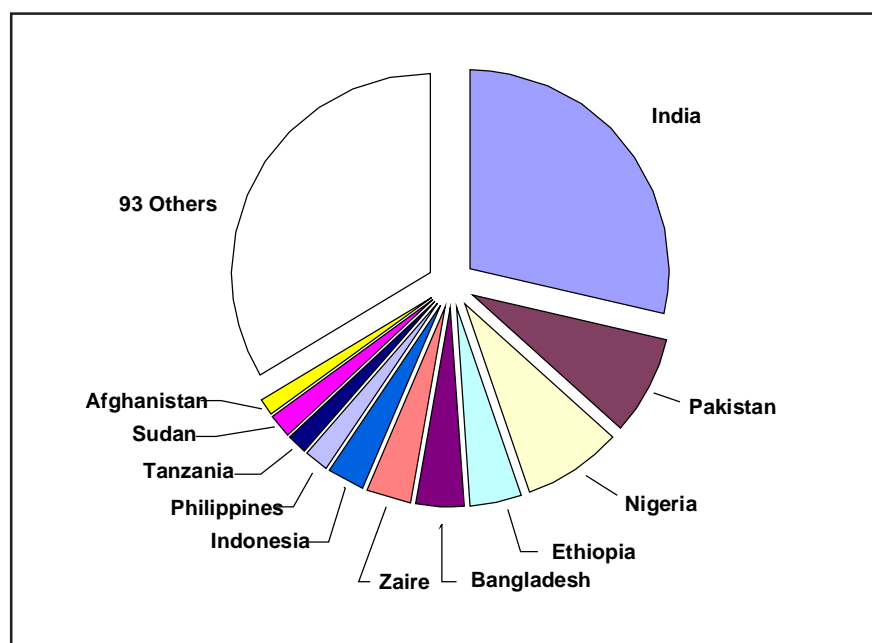
**Table 5.10. Concentration of Users Needed to Reach 75% Prevalence: Top Five Countries within the Developing
World and Within Each Region**

Country	Percent of Total Gap	Country	Percent of Total Gap	Country	Percent of Total Gap
Developing World		**Latin America**		**Sub-Saharan Africa**	
India	29	Mexico	27	Nigeria	23
Pakistan	8	Guatemala	11	Ethiopia	13
Nigeria	8	Argentina	9	Zaire	10
Ethiopia	4	Venezuela	9	Tanzania	5
Bangladesh	4	Haiti	8	Mozambique	4
Total	53	Total	64	Total	55
Asia		**Middle East/North Africa**		**Five Central Asian Republics**	
India	54	Sudan	21	Uzbekistan	48
Pakistan	16	Egypt	15	Kazakstan	18
Bangladesh	7	Yemen	12	Tajikistan	17
Indonesia	6	Iraq	11	Turkmenistan	10
Philippines	4	Saudi Arabia	10	Kyrgyzstan	7
Total	87			Total	100

Figure 5.14. Percent Distribution of Gap to 75% Prevalence

Figure 5.14.a

ASIA

Figure 5.14b

LATIN AMERICA

Figure 5.14c

MIDDLE EAST AND NORTH AFRICA
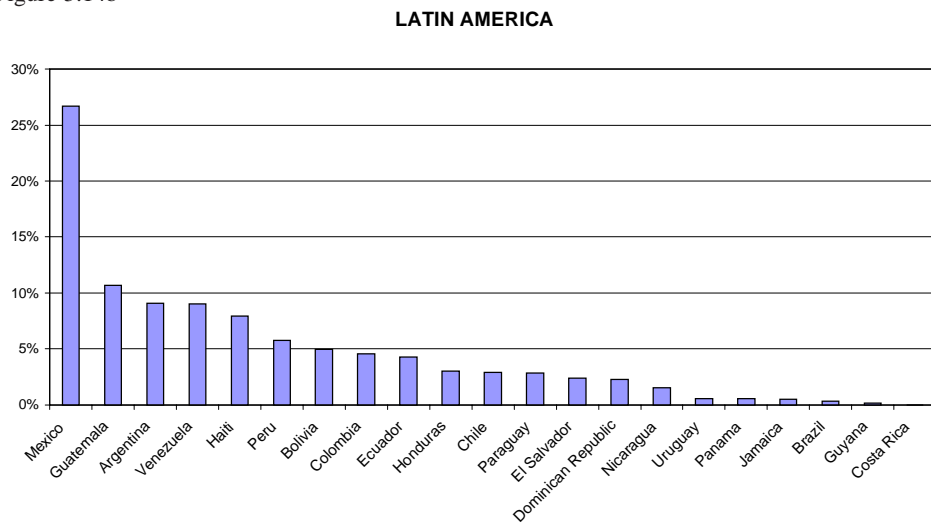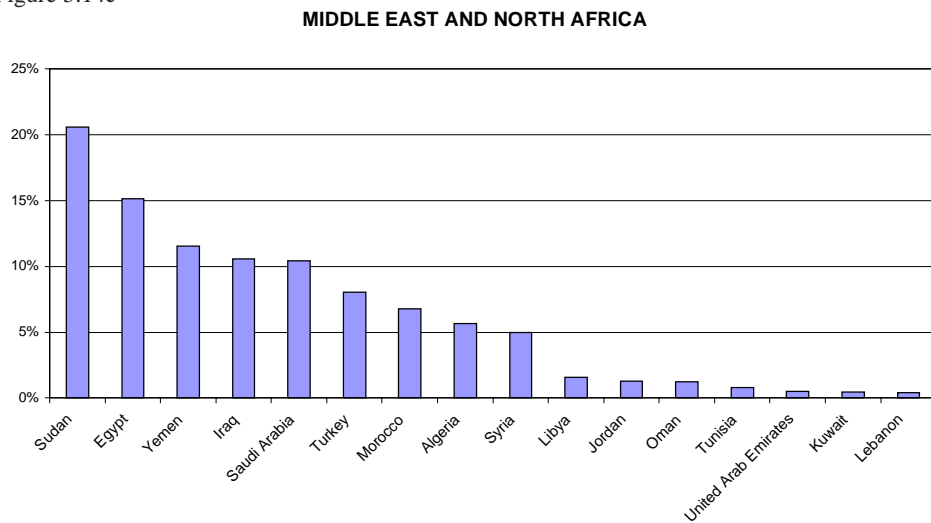
Figure 5.14. Percent Distribution of Gap to 75% Prevalence (Cont.)

Figure 5.14.d

SUB-SAHARAN AFRICA

Figure 5.14e

CENTRAL ASIAN REPUBLICS

Summary

Major observations from this chapter include the following:

To provide full access to a variety of contraceptive methods, countries have far to go. About half of countries fail to provide both one long-term method and one short-term method to at least half of the population, which is a very lenient rule. By another measure, that of the average availability score, most regions (outside of East Asia) rate low even after the improvements that were registered from 1982 to 1994. Country programs need to address the deficient state of contraceptive choice as a high priority.

To satisfy unmet need and intention to use a method, planners should take account of the very uneven geographic pattern. Some 30% of all unmet need in the developing world exists in India; it 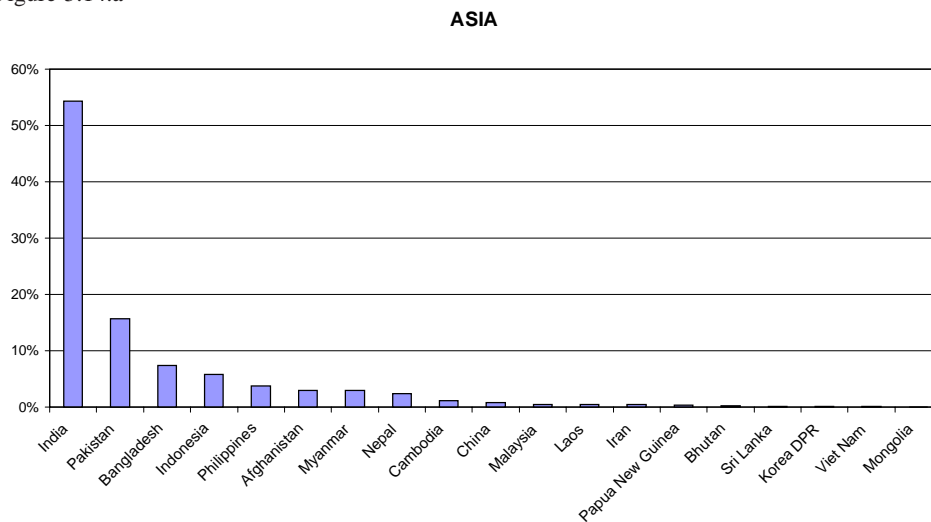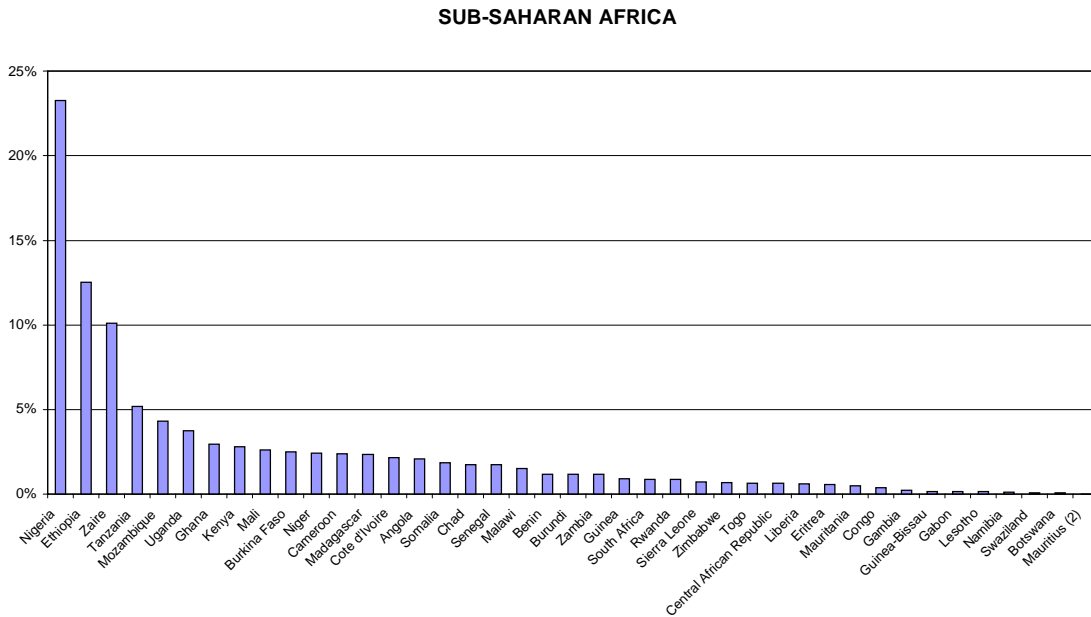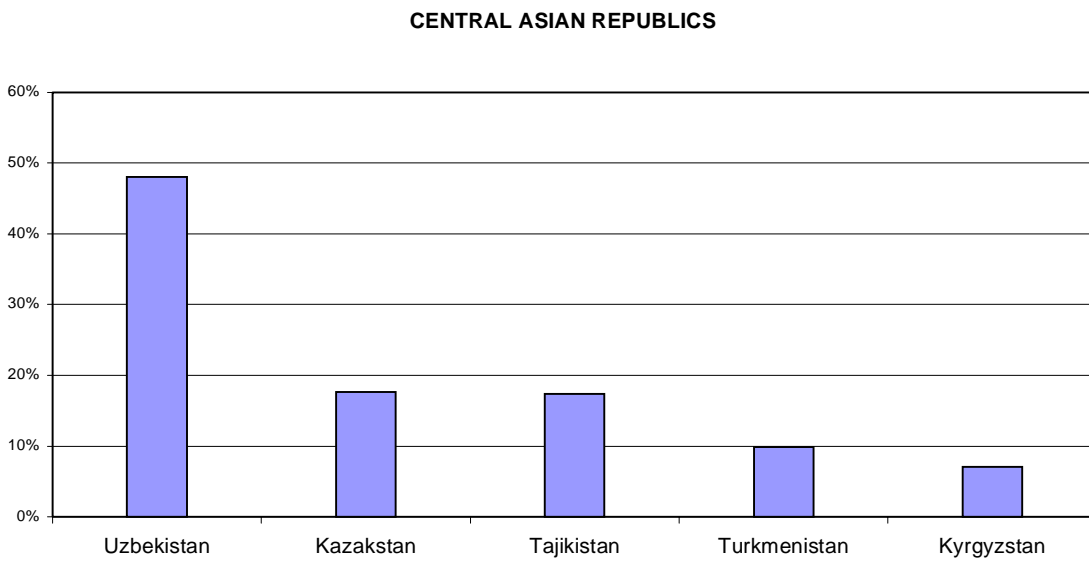and the next five countries contain half of unmet need. Moreover the rest is concentrated heavily in a few large countries within each region. As prevalence of contraceptive use increases, unmet need tends to decline, but not in a one-to-one relationship since unmet need can increase even faster than use does. Many women with unmet need do not plan to use a method, but others, listed in surveys as lacking any need, do plan to use. Moreover, they may equal or exceed the numbers with need who will not use. Action programs therefore should be oriented to both groups. The programmatic shortfalls differ from one country to another: from cases like India and Vietnam where the extremely narrow method mix calls for diversification, to cases like Nigeria and Pakistan where the weak field infrastructure of personnel and services requires extension to the rural population. Indices of program effort (Appendix Table A.14) provide one basis for diagnosis and remedial attention.

To reach the desired fertility level, planners should recognize that it is almost universally below the actual fertility level, and that there is a substantial subgroup needing contraceptive assistance in nearly every developing country. This group may increase in size, and not just because of population growth. As the desired level falls toward smaller family sizes, it may outpace the fall in actual fertility rates, producing a larger gap than before. That demonstrates a continuing market for contraceptive provision, usually in both public and private sectors. Programs should find ways to stimulate the private sector, both to add channels of supply and to diversify method offerings. Beyond that, programs should identify the disparate groups in the population that are at different life stages, with different contraceptive needs and with different resources to meet them. Such segmentation of the relevant population can improve efficiency and reduce cost.

To attain the replacement fertility level, equivalent to about 75% of couples using contraception, the geographic pattern is fundamental. India has over one-fourth of the additional users required to reached prevalence of 75% in the developing world as a whole; it and four other countries account for over half of the total. Within each region one to three countries dominate. Fertility itself has fallen considerably over the last four decades, but unevenly. In the 48 countries classified as "least developed" by the UN, fertility has declined in four decades only one-third of the way toward a total fertility rate of 2.1. Moreover the TFR is only one gauge and is sometimes artificially low. The transition to the small family occurs over more than one generation and typically involves changes in both childbearing and infant and child mortality. That perspective is reflected in the broadened international attention to reproductive health services; the programmatic challenge is to devise field methods that can serve its implementation. Difficult questions that call for analysis and resolution include resource allocation, cross training of staff, and coordination of services under different administrative structures.

References

United Nations: *World Population Prospects: The 1998 Revision*. Volume I. Comprehensive Tables. New York: United Nations Department of Economic and Social Affairs, Population Division. 1998.

Sources for Appendix Table A.1

The following sources are cited numerous times and are therefore abbreviated as indicated:

Designated as Berent, 1982: J. Berent, *Family Planning in Europe and USA in the 1970's*, WFS Comparative Studies No. 20 (International Statistical Institute and World Fertility Survey, 1982), Tables 1 and 6.

Designated as Carrasco, 1981: E. Carrasco, *Contraceptive Practice,* WFS Comparative Studies No.9, Cross-National Summaries (International Statistical Institute and World Fertility Survey, 1981).

Designated as Morris, 1981: L. Morris et al., "Contraceptive Prevalence Surveys: A New Source of Family Planning Data," *Population Reports,* Series M, No. 5 (May–June 1981), Table 3.

Designated as London, 1985. K.A. London et al., "Fertility and Family Planning Surveys: An Update," *Population Reports,* Series M, No. 5 (Sept.–Oct. 1985), Table 6.

SUB-SAHARAN AFRICA

BENIN, 1981–82: Ministère du Plan, de la Statistique et de l'Analyse Economique, *Enquête Fécondité au Bénin: Rapport Préliminaire* (May 1983), p. 233, Table 4.4.1.

1996: Institut National de la Statistique et de l'Analyse Economique, *Benin Enquete Demographique et de Sante 1996* (Demographic and Health Surveys, Macro International, April 1997).

BOTSWANA, 1984: W.G. Manyeneng, P. Khulumani, M.K. Larson, and A.A. Way, *Botswana Family Health Survey 1984* (Family Health Division, Ministry of Health, and Westinghouse Public Applied Systems, July 1985), pp. 147, 150, and 151.

1988: Family Health Division, Ministry of Health, *Botswana Family Health Survey II 1988* (Demographic and Health Surveys, Institute for Resource Development, Macro Systems, August 1989), p. 42.

BURKINA FASO, 1993: Institut National de la Statistique et de la Demographie, *Burkina Faso Enquete Demographique et de Sante 1993* (Demographic and Health Surveys, Macro International, June 1994).

BURUNDI, 1987: Ministère de l'Intérieur, Département de la Population, and Demographic and Health Surveys, *Enquête Démographique et de Santé au Burundi 1987* (Institute for Resource Development/Westinghouse, October 1988), p. 4.

1991: Direction Nationale du Deuxieme Recensement General de la Population et de l'Habitat, *Enquete Demographique et de Sante Cameroun 1991*(Demographic and Health Surveys, Macro International, December 1992).

1998: Bureau Central des Recensement et des Etudes de Population (BUCREP) and Demographic and Health Surveys, *Enquete Demographique et de Sante au Cameroun 1998- Rapport Preliminaire* (Macro International, August 1998).

CENTRAL AFRICAN REPUBLIC, 1994: Division des Statistiques et des Etudes Economiques, *Republique Centrafricaine Enquete Demographique et de Sante 1994/1995* (Demographic and Health Surveys, Macro International, December 1995).

CHAD, 1996: Bureau Central du Recensement, Direction de la Statistique, *Tchad Enquete Demographique et de Sante 1996/1997* (Demographic and Health Surveys, Macro International, May 1998).

CÔTE D'IVOIRE, 1980–81: Ministère de l'Economie et des Finances, *Enquête Ivoirienne sur la Fécondité 1980–81, Rapport Principal, Volume 2* (Abidjan: Direction de la Statistique, 1984). Data were calculated from Tables 1.6.1 and 4.4.1.

1994: Institut National de la Statistique, *Cote d'Ivoire Enquete Demographique et de Sante 1994* (Demographic and Health Surveys, Macro International, December 1995).

ERITREA, 1995: National Statistics Office, *Eritrea Demographic and Health Survey 1995* (Demographic and Health Surveys, Macro International, March 1997).

ETHIOPIA, 1990: Central Statistical Authority, *The 1990 Family and Fertility Survey: Preliminary Report* (Addis Ababa, 1991), Tables 4.1 and 4.6.

GHANA, 1980: *Ghana Fertility Survey 1979–1980, First Report, Volume 2* (Central Bureau of Statistics, 1983), Table 4.4.1.

1988: Ghana Statistical Service, *Ghana Demographic and Health Survey 1988* (Demographic and Health Surveys, Institute for Resource Development, Macro Systems, September 1989), p. 36.

1993: Ghana Statistical Service, *Ghana Demographic and Health Survey 1993* (Demographic and Health Surveys, Macro International, December 1994).

KENYA, 1984: Central Bureau of Statistics, *Kenya Contraceptive Prevalence Survey 1984—First Report* (Nairobi: Ministry of Planning and National Development, December 1984), p. 86.

1989: *Kenya Demographic and Health Survey 1989* (National Council for Population and Development, and Demographic and Health Surveys, Institute for Resource Development, Macro Systems, October 1989), p. 35.

1993: Central Bureau of Statistics, National Council for Population and Development, *Kenya Demographic and Health Survey 1993* (Demographic and Health Surveys, Macro International, May 1994).

1998: Central Bureau of Statistics, National Council for Population and Development, *Kenya Demographic and Health Survey 1998-Preliminary Report* (Demographic and Health Surveys, Macro International, September 1998).

LIBERIA, 1986: Bureau of Statistics, Ministry of Planning and Economic Affairs, *Liberia Demographic and Health Survey 1986* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, February 1988), p. 41.

MADAGASCAR, 1992: Ministere de la Recherche Appliquee au Developpement, *Madagascar Enquete Nationale Demgraphique et Sanitaire 1992* (Demographic and Health Surveys, Macro International, February 1994).

1997: Institut National de la Statistique, *Madagascar Enquete Demographique et de Sante 1997* (Demographic and Health Surveys, Macro International, November 1998).

Appendix A

MALAWI, 1984: National Statistical Office, *Family Formation Survey*, 1984.

1992: National Statistical Office, *Malawi Demographic and Health Survey 1992* (Demographic and Health Surveys, Macro International, January 1994).

1996: National Statistical Office, *Malawi Knowledge, Attitudes and Practices in Health Survey 1996* (Demographic and Health Surveys, Macro International, September 1997).

MALI, 1987: Centre des Etudes et de Recherche sur la Population pour le Développement, *Enquête Démographique et de Santé au Mali 1987* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, January 1989), p. 49.

1995: Ministere de la Sante, de la Solidarite et des Personnes Agees, *Mali Enquete Demographique et de Sante 1995/1996* (Demographic and Health Surveys, Macro International, December 1996).

MAURITANIA, 1981: Ministry of Economic and National Planning, *Enquête Nationale Mauritanienne sur la Fécondité 1981, Rapport Principal, Volume 2* (March 1984), Table 4.4.1.

1985: *Mauritius Contraceptive Prevalence Survey 1985—Final Report* (Evaluation Unit, Family Planning/Maternal–Child Health Division, Ministry of Health, February 1987), Table 26.

1991: Ministry of Health, Centers for Disease Control, *Mauritius Contraceptive Prevalence Survey 1991- Final Report*, June 1993.

MOZAMBIQUE, 1997: Instituto Nacional de Estatistica, *Mozambique Inquerito Demografico e de Saude 1997* (Demographic and Health Surveys, Macro International, August 1998).

NAMIBIA, 1992: Ministry of Health and Social Services, *Namibia Demographic and Health Survey 1992* (Demographic and Health Surveys, Macro International, May 1993).

NIGER, 1992: Direction de la Statistique et des Comptes Nationaux Direction Générale du Plan Ministère des Finances et du Plan, *Enquête Démographique et de Santé Niger 1992—Rapport Préliminaire* (Demographic and Health Surveys, Macro International, October 1992).

1997: *Enquete Demographique et de Sante Niger 1997/1998- Rapport preliminaire*, Macro International, September 1998.

NIGERIA, 1982: *The Nigeria Fertility Survey 1981/82, Principal Report, Vol. II* (Lagos, Federal Office of Statistics, 1986), Tables 1.6.3 and 4.4.1.

1990: *Nigeria Demographic and Health Survey 1990, Preliminary Report* (Federal Office of Statistics and Demographic and Health Surveys, Institute for Resource Development/Macro Systems, March 1991), p. 8, Table 4.

RWANDA, 1983: Republic of Rwanda, *Rwanda 1983 Enquête Nationale sur la Fécondité* (Kigali: Office National de la Population, 1985), Tables 6.6, 6.7, 7.4, 7.7, and 7.10.

1992: Office National de la Population, *Rwanda Enquete Demographique et de Sante 1992* (Demographic and Health Surveys, Macro International, February 1994).

SENEGAL, 1986: Direction de la Statistique, Division des Enquêtes et de la Démographie, *Enquête Démographique et de Santé au Sénégal, 1986* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, 1988), p. 52.

1992: Division des Statistiques Demographiques, *Enquete Demographique et de Sante au Senegal 1992/1993* (Demographic and Health Surveys, Macro International, April 1994).

1997: Division des Statistiques Demographiques, *Enquete Demographique et de Sante au Senegal 1997* (Demographic and Health Surveys, Macro International, December 1997).

SOUTH AFRICA, 1981: J.L. Van Tonder, *Fertility Survey 1981: Data Concerning the Colored Population of South Africa* (Pretoria: Human Sciences Research Council), Tables 4.4.1. and 4.5.4.

SUDAN, 1989–90: Department of Statistics, Ministry of Economic and National Planning, *Sudan Demographic and Health Survey 1989–1990* (Demographic and Health Surveys, Institute for Resource Development, Macro Systems, May 1991), p. 42.

SWAZILAND, 1988: Swaziland Ministry of Health, Centers for Disease Control, *Swaziland 1988 Family Health Survey- Final Report*, March 1990.

TANZANIA, 1991–92: Planning Commission, Tanzania Bureau of Statistics, *Tanzania Demographic and Health Survey 1991/1992* (Demographic and Health Surveys, Macro International, June 1993).

1994: Planning Commission, Tanzania Bureau of Statistics, *Tanzania Knowledge, Attitudes and Practices Survey 1994* (Demographic and Health Surveys, Macro International, July 1995).

1996: Planning Commission, Tanzania Bureau of Statistics, *Tanzania Demographic and Health Survey 1996* (Demographic and Health Surveys, Macro International, August 1997).

TOGO, 1988: Unité de Recherche Démographique, Université de Benin, *Enquête Démographique et de Santé au Togo 1988* (Demographic and Health Surveys, Institute for Resource Development, Macro Systems, December 1989), p. 45.

1998: Direction de la Statistique, *Enquete Demographique et de Sante au Togo 1998-Rapport Preliminaire*, July 1998.

UGANDA, 1988–89: Ministry of Health, *Uganda Demographic and Health Survey 1988/1989* (Demographic and Health Surveys, Institute for Resource Development, Macro Systems, October 1989), p. 33.

1995: Statistics Department, *Uganda Demographic and Health Survey 1995* (Demographic and Health Surveys, Macro International, August 1996).

ZAIRE, 1991: Suzanne M. Hurley, Leo Morris and Jay S. Friedman, 1991 Zaire National Immunization Survey Further Analysis of Data: Family Planning Module (Atlanta, Georgia, Centers for Disease Control and Prevention, 1993), tables 11, 12.

ZAMBIA, 1992: University of Zambia, Central Statistical Office, *Zambia Demographic and Health Survey 1992* (Demographic and Health Surveys, Macro International, March 1993).

ZAMBIA, 1996: Central Statistical Office, Ministry of Health, *Zambia Demographic and Health Survey 1996* (Demographic and Health Surveys, Macro International, September 1997).

ZIMBABWE, 1984: *Zimbabwe Reproductive Health Survey 1984* (National Family Planning Council and Westinghouse Public Applied Systems, 1985), p. 121.

1988: Central Statistical Office, Ministry of Finance, Economic Planning and Development, *Zimbabwe Demographic and Health Survey, 1988* (Demographic and Health Surveys, Institute for Resource Development, Macro Systems, December 1989), p. 51.

ZIMBABWE, 1994: Central Statistical Office,

Zimbabwe Demographic and Health Survey 1994 (Demographic and Health Surveys, Macro International, September 1995).

LATIN AMERICA/CARIBBEAN

BELIZE, 1991: Central Statistical Office, Ministry of Finance; Belize Family Life Association; Ministry of Health, Division of Reproductive Health; and Centers for Disease Control, *1991 Belize Family Health Survey Final Report May, 1992* (U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Atlanta, May 1992).

BOLIVIA, 1983: R.B. Coloma and B.P. de Ormacnea, *Bolivia '83: Encuesta de Prevalencia de Medicamentos* (Consultora Boliviana de Reproduccion Humana and Westinghouse Health Systems), pp. 87, 95, and 100.

1989: *Encuesta Nacional de Demografía y Salud 1989* (Instituto Nacional de Estadistica, Demographic and Health Surveys, Institute for Resource Development, Macro Systems, 1990), p. 42.

1994: Instituto Nacional de Estadistica, *Bolivia Encuesta Nacional de Demografia y Salud 1994* (Demographic and Health Surveys, Macro International, October 1994).

BRAZIL, 1986: Sociedade Civil Bem-Estar Familiar no Brasil (BEMFAM) and Demographic and Health Surveys, *Brazil Demographic and Health Survey, 1986 Preliminary Report* (Institute for Resource Development/ Westinghouse, December 1986), p. 22.

1996: Sociedade Civil Bem-Estar Familiar no Brasil (BEMFAM) and Demographic and Health Surveys, *Brasil Pesquisa Nacional Sobre Demografia e Saude 1996* (Macro International, March 1997).

COLOMBIA, 1980: Ministerio de Salud de Colombia, *Second Contraceptive Prevalence Survey Colombia 1980* (Westinghouse Health Systems, May 1982), pp. 43 and 47.

1986: Corporación Centro Regional de Población, Ministerio de Salud de Colombia, *Encuesta de Prevalencia, Demografía y Salud 1986* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse), p. 52.

1990: PROFAMILIA (Asociación Pro-Bienestar de la Familia Colombiana), *Colombia, Encuesta de Prevalencia Demográfica y Salud 1990—Informe Preliminar* (Demographic and Health Surveys, Institute for Resource Development, Macro Systems, October 1990), p. 13.

1995: Asociacion Pro-Bienestar de la Familia Colombiana, *Colombia Encuesta Nacional de Demografia y Salud 1995* (Demographic and Health Surveys, Macro International, October 1995).

COSTA RICA, 1981: L. Rosero, *Fecundidad y Anticoncepcion en Costa Rica 1981* (San Jose: Asociación Demográfica Costarricense,1981), Tables 27 and 35.

1986: Centers for Disease Control, *The Costa Rica Fertility and Health Survey, 1986: Final English Language Report* (Atlanta, 1987), Tables 6–1 and 7–4.

1993: Centers for Disease Control, *Fecunidad y Formacion de la Familia- Encuesta Nacional de Salud Reproductiva de 1993*, May 1994.

CUBA, 1987: Sonia Catasus Cervera and Juan Carlos Alfonso Fraga, "La transicion de la fecundidad en Cuba", paper presented at the Seminar on Fertility Transition in Latin America, Buenos Aires, Argentina, 3-6 April 1990, organized by the International Union for the Scientific Study of Population.

DOMINICAN REPUBLIC, 1980: J. Hobcraft and G. Rodríguez, *The Analysis of Repeat Fertility Surveys: Examples from Dominican Republic* (World Fertility Survey Scientific Report No. 29, International Statistical Institute and World Fertility Survey, 1982), Table 12.

1983–84: Consejo Nacional de Población y Familia (CONAPOFA) and Demographic and Health Surveys, *Republica Dominicana Encuesta Nacional del Uso de Anticonceptivos— Mujeres—Informe de Resultados* (Santo Domingo: Institute for Resource Development/Westinghouse, February 1987), p. 117.

1986: Consejo Nacional de Población y Familia (CONAPOFA) and Demographic and Health Surveys, *Republica Dominicana Encuesta Demografía y Salud 1986* (Santo Domingo: Institute for Resource Development/ Westinghouse, December 1987), p. 39.

1991: Instituto de Estudios de Poblacion y Desarrollo, PROFAMILIA, *Republica Dominicana Encuesta Demografica y de Salud 1991* (Demographic and Health Surveys, Macro International, September 1992).

1996: Asociacion Dominicana Pro Bienestar de la Familia (PROFAMILIA), *Republica Dominicana Encuesta Demografica y de Salud 1996* (Demographic and Health Surveys, Macro International, June 1997).

ECUADOR, 1979–80: Instituto Nacional de Estadistica y Censos, *Encuesta Nacional de Fecondidas Ecuador 1979, Anexo Estadistico* (WFS, 1984).

1982: Ministerio de Salud Pública, *Encuesta Nacional de Salud Materno Infantil y Variables Demográficas, Ecuador, 1982—Informe Final* (Instituto Nacional de Investigaciones, Nutricionales y Medico Social, 1984), p. 99, Table 6.7.

1987: Centro de Estudios de Población y Paternidad Responsable, *Ecuador Encuesta Nacional de Demografía y Salud Familiar 1987* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, July 1987), Table 4.

1989: Centro de Estudios de Población y Paternidad Responsable, *Ecuador Encuesta Demográfica y de Salud Materna e Infantil, Endemain—1989* (Centers for Disease Control, 1990), p. 56, Table 4.7.

EL SALVADOR, 1985: Asociación Demográfica Salvadoreña, *El Salvador, Encuesta Nacional de Salud Familiar—FESAL 85* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, September 1988), p. 60.

1988: Centers for Disease Control, *1988 Family Health Survey- Final English Language Report*, December 1989.

1993: *El Salvador Encuesta Nacional de Salud Familiar (National Family Health Survey)- Fesal-93*, April 1994.

GUATEMALA, 1983: R.S. Monteith, J.E. Anderson, M.A. Pineda, R. Santiso, and M. Oberle, "Contraceptive Use and Fertility in Guatemala," *Studies in Family Planning* 16, 5 (September–October 1985), p. 282.

1987: Ministerio de Salud Pública y Asistencia Social, *Guatemala Encuesta Nacional de Salud Materno–Infantil 1987* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, March 1989), p. 48.

1995: Ministerio de Salud Publica y Asistencia Social, *Guatemala Encuesta Nacional de Salud Maternal Infantil 1995* (Demographic and Health Surveys, Macro International, October 1996).

HAITI, 1983: M. Ayad, F. Pierre, and H. Jemai, *Planification Familiale, Fécondité et Santé en Haïti 1983* (Département de la Santé Publique et de la Population, Westinghouse Public Applied Systems, August 1985), p. 87.

1989: Child Health Institute, *Haiti National Contraceptive Prevalence Survey 1989—Pre-*

liminary Report (CDC/Division of Reproductive Health, May 1990), p. 26.

1987: Institut Haitien de l'Enfance, *Haiti L'Enquete Sur la Mortalite, la Morbidite, et l'Utilisation des Services 1987* (Demographic and Health Surveys, Macro International).

1994: Institut Haitien de l'Enfance, *Haiti Enquete Mortalite, Morbidite et Utilisation des Services 1994/1995* (Demographic and Health Surveys, Macro International, December 1995).

HONDURAS, 1981: M. Suazo et al., *Honduras: Encuesta Nacional de Prevalencia del Uso de Anticonceptivos* (Tegucigalpa: Ministerio de Salud Pública y Asistencia Social and Westinghouse Health Systems, 1983), Tables 6.1, 6.3, 7.2, and 7.3.

1984: B. Janowitz, P. Bailey, J. Ochoa, and M. Suazo, "Contraceptive Use and Fertility in Honduras, 1981–84," *Studies in Family Planning* 18, 5 (September–October 1987), pp. 291–301.

1987: Honduran Ministry of Public Health, ASHONPLAFA, *Epidemiology and Family Health Survey Honduras 1987—Final Report* (Family Health International, May 1989), p. 185.

1996: Ministerio de Salud, *Honduras Encuesta Nacional de Epidemiologia y Salud Familiar 1996- Informe Final* (Centers for Disease Control, November 1997).

JAMAICA, 1983: D. Powell, *Report on the Jamaican Contraceptive Prevalence Survey, 1983* (Kingston: National Family Planning Board; Maryland: Westinghouse Health Systems, 1984), Table 6–3.

1989: A National Family Planning Board Report, *Contraceptive Prevalence Survey Jamaica, 1989—Final Report* (December 1989), p. 153.

1993: A National Family Planning Board Report, *Contraceptive Prevalence Survey Jamaica, 1993* (Atlanta: Centers for Disease Control, December 1994).

1997: A National Family Planning Board Report, *Reproductive Health Survey Jamaica, 1997- Final Report* (Atlanta: Centers for Disease Control, February 1999).

MEXICO, 1982: M.U. Fuentes et al., "Fecundidad, Anticoncepción, y Planificación Familar en Mexico," *Comercio Exterior* 34, 7 (July 1984).

1987: Dirección General de Planificación Familiar, Secretaría de Salud, Mexico, *Encuesta Nacional sobre Fecundidad y Salud 1987* (De-

mographic and Health Surveys, Institute for Resource Development/Westinghouse, March 1988), pp. 42 and 45.

NICARAGUA, 1981: Instituto Nacional de Estadisticas y Censos, "Report on 1981 Survey" (Managua, 1986), Tables 7.2 and 7.10.

1992: Centers for Disease Control, *Encuesta Sobre Salud Familiar Nicaragua 92-93- Informe Final*, November 1993.

1998: Ministerio de Salud, *Republica de Nicaragua Encuesta Nicaraguense de Demografia y de Salud, 1998- Informe Preliminar* (Programa de Encuestas de Demografia y Salud, Macro International, September 1998).

PANAMA, 1984: Ministry of Health and United States CDC, *Maternal–Child Health/Family Planning Survey, Panama 1984: Final English Language Report* (Atlanta, 1986), Table 7–6.

PARAGUAY, 1987: United Nations, *Levels and Trends of Contraceptive Use as Assessed in 1988* (United Nations, 1989).

1990: Centro Paraguayo de Estudios de Población, *Paraguay Encuesta Nacional de Demografía y Salud, 1990, Informe Preliminar* (Demographic and Health Surveys, Institute for Resource Development/Macro Systems), p. 10, Table 5.

1995: Centers for Disease Control, *Paraguay Encuesta Nacional de Demografia y Salud Reproductiva 1995/1996*, October 1997.

PERU, 1981: *Aspectos Demográficos y Prevalencia de Anticonceptivos en el Peru, Resultados de la Primera Encuesta Nacional de Prevalencia de Anticonceptivos 1981* (Instituto Nacional de Estadistica, Westinghouse Health Systems, 1983), p. 110.

1986: Consejo Nacional de Población, Dirección General de Demografía, Instituto Nacional de Estadistica, *Encuesta Demografía y de Salud Familiar (Endes 1986)—Informe General* (Demographic and Health Surveys, Institute for Resource Development, April 1988), p. 62.

1991: Instituto Nacional de Estadistica e Informatica, *Peru Encuesta Demografica y de Salud Familiar 1991/1992* (Demographic and Health Surveys, Macro International, September 1992).

1996: Instituto Nacional de Estadistica e Informatica, *Peru Encuesta Demografica y de Salud Familiar 1996- Informe Principal* (Demographic and Health Surveys, Macro International, June 1997).

PUERTO RICO, 1982: C.W. Warren, "Fertility Determinants in Puerto Rico, Draft Report" (Atlanta: CDC, 1986), Table 4.1.

1995: Centers for Disease Control, *Puerto Rico Encuesta de Salud Reproductiva 1995/1996*, May 1998.

TRINIDAD AND TOBAGO, 1987: Family Planning Association of Trinidad and Tobago, *Trinidad and Tobago Demographic and Health Survey 1987* (Demographic and Health Surveys, Institute for Resource Development/ Westinghouse, November 1988), pp. 18 and 31.

MIDDLE EAST/NORTH AFRICA

ALGERIA, 1986: Centre National d'Analyses pour la Planification, *Enquête National sur la Fécondité—Rapport National Final* (March 1989).

1992: Office Nationale des Statistiques, "Algeria Maternal and Child Health Survey," *Studies in Family Planning* 25, 3 (May/June 1994), pp. 191-195.

EGYPT, 1980: A.M. Khalifa, H.A.A.H. Sayed, M.N. El-Khorazaty, A.A. Way, *Family Planning in Rural Egypt 1980, A Report on the Results of the Egypt Contraceptive Prevalence Survey* (Population and Planning Board and Westinghouse Health Systems, December 1982).

1981–82: United Nations, *Recent Levels and Trends of Contraceptive Use as Assessed in 1988* (New York: United Nations, 1989).

1984: H.A.A.H. Sayed, M.N. El-Khorazaty, and A.A. Way, *Fertility and Family Planning in Egypt, 1984* (Egypt National Population Council and Westinghouse Public Applied Systems, December 1985), pp. 155–156, Table 9.4.

1988: *Egypt Demographic and Health Survey 1988* (Egypt National Population Council and Demographic and Health Surveys, Institute for Resource Development, Macro Systems, October 1989), p. 95, Table 6.

1993: *Egypt Demographic and Health Survey 1992: Preliminary Report.* National Population Council and Demographic and Health Surveys, Macro International Inc., March 1993.

1995: *Egypt Demographic and Health Survey 1995.* National Population Council and Demographic and Health Surveys, Macro International, Inc., September 1996.

1997: *Egypt Demographic and Health Survey 1997.* Macro International, Inc., June 1998.

JORDAN, 1983: J.E. Anderson, L. Morris, and A. Abdel-Aziz, *Jordan Fertility and Family Health Survey 1983* (Amman: Department of Statistics; Atlanta: CDC, 1983), Table 7–1.

1985: C. Warren, L. Morris, and F. Higari, *Jordan Husbands' Fertility Survey 1985; Report of Principal Findings* (Amman: Department of Statistics; Atlanta: CDC, 1987), Table 7–6.

1990: Department of Statistics, Ministry of Health, *Jordan Population and Family Health Survey 1990* (Demographic and Health Surveys, Institute for Resource Development/Macro International, June 1991).

1997: Department of Statistics, *Jordan Population and Family Health Survey 1997* (Demographic and Health Surveys, Macro International, December 1998).

KUWAIT, 1987: Rashoud, Rashid Al and Samir Farid, eds. State of Kuwait Ministry of Health, *Kuwait Child Health Survey 1987*, 1991.

MOROCCO, 1980: Ministère de la Santé Publique, *Enquête Nationale sur la Planification Familiale et la Fécondité au Maroc 1979–1980, Volume 4* (WFS, 1984), p. 286, Table 4.4.1.

1983–84: *Planification Familiale, Fécondité et Santé au Maroc 1983–84: Rapport de l'Enquête Nationale de Prévalence Contraceptive* (Ministère de la Santé Publique and Westinghouse Public Applied Systems, February 1985), p. 79.

1987: M. Azelmat, M. Ayad, and H. Belhachmi, *Enquête Nationale sur la Planification Familiale, la Fécondité et la Santé de la Population au Maroc 1987* (Ministère de la Santé Publique and Demographic and Health Surveys, Institute for Resource Development/ Westinghouse, March 1989), p. 50.

1992: Ministere de la Sante Publique, *Maroc Enquete Nationale sur la Population et la Sante 1992* (Demographic and Health Surveys, Macro International, August 1993).

1995: Ministere de la Sante Publique, *Maroc Enquete de Panel sur la Population et la Sante 1995* (Demographic and Health Surveys, Macro International, January 1996).

OMAN, 1988: Suleiman, Murtadha J., Ahmed Al-Ghassany, and Samir Farid, eds. Ministry of Health, *Oman Child Health Survey 1988*, 1992.

NEPAL, 1996: Ministry of Health, *Nepal Family Health Survey 1996* (Demographic and Health Surveys, Macro International, March 1997).

TUNISIA, 1983: M. Ayad and Y. Zoughlami, "Fécondité et Planification Familiale en Tunisie 1983," *Rapport sur les Résultats de l'Enquête Tunisienne sur la Prévalence de la Contraception* (Ministère de la Famille et de la Promotion de la Femme, Office National de la Famille et de la Population, and Westinghouse Public Applied Systems, July 1985), p. 87.

1988: Office Nationale de la Famille et de la Population, *Enquête Démographique et de Santé en Tunisie 1988* (Demographic and Health Surveys, Institute for Resource Development, Macro Systems, October 1989), p. 68.

TURKEY, 1983: Hacettepe Institute of Population Studies, *1983 Turkish Population and Health Survey* (Ankara, 1987), Tables II–5 and VI–13.

1988: Hacettepe Institute of Population Studies, *1988 Turkish Population and Health Survey* (Ankara, 1989), Tables II.6.18 and II.4.1.

1993: Ministry of Health, General Directorate of Mother and Child Health and Family Planning, *Turkey Demographic and Health Survey 1993* (Demographic and Health Surveys, Macro International, October 1994).

YEMEN, 1991–92: Central Statistical Organization, Pan Arab Project for Child Development, *Yemen Demographic and Maternal and Child Health Survey 1991/92: Preliminary Report* (Demographic and Health Surveys, Macro International, September 1992).

1997: Central Statistical Organization, *Yemen Demographic and Maternal and Child Health Survey 1997* (Demographic and Health Surveys, Macro International, April 1998).

ASIA

BANGLADESH, 1981: S. Waliullah and S.N. Mitra, "The Contraceptive Prevalence Studies," in *Recent Trends in Fertility and Mortality in Bangladesh* (Dhaka: Population and Development Planning Unit, Planning Commission, December 1984).

1983: S.N. Mitra and G.N. Kamal, *Bangladesh Contraceptive Prevalence Survey 1983—Final Report* (Mitra and Associates, July 1985), Table 3.

1985: S.N. Mitra, *Bangladesh Contraceptive Prevalence Survey 1985—Final Report* (Mitra and Associates, December 1987), Table 5.1.

1989: Md. Najmul Huq and John Cleland, *Bangladesh Fertility Survey 1989* (Dhaka: NIPORT, March 1990), p. A62.

1991: Mitra and Associates, *Bangladesh Contraceptive Prevalence Survey*, 1991, draft tables (Dhaka, n.d.).

1993: Ministry of Health and Family Welfare, *Bangladesh Demographic and Health Survey 1993/1994* (Demographic and Health Surveys, Macro International, December 1994).

1996: Ministry of Health and Family Welfare, *Bangladesh Demographic and Health Survey 1996/1997* (Demographic and Health Surveys, Macro International, December 1997).

CHINA, 1982: S. Qui, S. Wu, and M. Wang, "Birth Control of Women of Reproductive Age," in *An Analysis of a National One-per-Thousand Population Sample Survey in Birth Rate: Population and Economics, Special Issue* (Beijing: Institute of Population and Economic Research, 1983).

1985: State Family Planning Commission, *Population and Family Planning Statistics 1985* (Beijing, 1986).

1988: State Family Planning Commission, *National Fertility Sample Survey (National Results)*, p. 20, Table 2–10; and pp. 275–278, Table 4–9.

1992: Centers for Disease Control, *1992 National Fertility and Family Planning Survey, China*.

HONG KONG, 1982: Family Planning Association of Hong Kong, *Family Planning Knowledge, Attitude and Practice in Hong Kong, 1982* (Hong Kong, 1984), Tables 7.1.1–1 and 7.4.1–1.

1987: *The Task Force on the Study of Family Planning Knowledge, Attitude and Practice in Hong Kong 1987* (Family Planning Association of Hong Kong, 1989), p. 51, Table 6.1.1; and p. 55, Table 6.5.1.

INDIA, 1980: M.E. Khan and C.V.S. Prasad, *Family Planning Practices in India: Second All India Survey* (Baroda: Operations Research Group, 1983), pp. 133 and 142.

1982: The sterilization percentage is taken from the 1982–83 estimate of the Ministry of Health and Family Welfare, with the percentage of vasectomies and tubal ligations being estimated from annual reports of the numbers of male and female sterilizations, using the attrition factors estimated by the government of India, and with

adjustment to the grand total estimated by the government of India. Other figures were taken from the 1980 Operations Research Group report, with an adjustment of the 5.6% conventional contraceptive users reported in Table 7.4 being split between pill and IUD users on the basis of figures reported in Table 7.8.

1988–89: *Third All-India Family Planning Survey, 1988–89* (Baroda: Operations Research Group), pp. 103 and 105.

1992: International Institute for Population Sciences, *India National Family Health Survey 1992/1993*, August 1995.

INDONESIA, 1985: Biro Pusat Statistik, *A Brief Note on the Results of the 1985 Intercensal Population Survey*, Seri Supas No. 4 (Jakarta, 1986), Table 12.

1987: Central Bureau of Statistics, National Family Planning Coordinating Board, *National Indonesia Contraceptive Prevalence Survey 1987* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, January 1989), p. 50.

1991: Central Bureau of Statistics, National Family Planning Coordinating Board, *Indonesia Demographic and Health Survey 1991* (Demographic and Health Surveys, Macro International, October 1992).

1994: Central Bureau of Statistics, National Family Planning Coordinating Board, *Indonesia Demographic and Health Survey 1994* (Demographic and Health Surveys, Macro International, October 1995).

KOREA, Republic of, 1982: Korean Institute for Population and Health, *Report on the 1982 Korean National Family Planning and Health Survey* (Seoul, 1982), pp. 119–120 and 172.

1985: J.N. Hun, H.S. Kaun, and L.J. Kum, "Personal Networks and the Adoption of Family Planning in Rural Korea," in *1985 Survey of Fertility and Family Health* (Seoul: Korea Institute for Population and Health, 1985).

1988: M. Moon, C. Lee, Y. Oh, and S. Lee, *1988 Survey Report on the National Fertility and Family Health Status* (Seoul: Korean Institute for Health and Social Affairs, June 1989), p. 73.

MALAYSIA, 1984: United Nations, *World Population Trends and Policies: 1987 Monitoring Report* (1987), Tables 5.1 and 5.2.

MYANMAR, 1991: *Myanmar Population Changes and Fertility Survey 1991*.

1997: Department of Population, *Myanmar Fertility and Reproductive Health Survey 1997-Preliminary Report*, October 1998.

NEPAL, 1981: *Nepal Contraceptive Prevalence Survey Report 1981* (Nepal Family Planning and Maternal–Child Health Project, Ministry of Health, and Westinghouse Health Systems, 1983), Table 8.1.

1986: Ministry of Health, *Nepal Fertility and Family Planning Survey Report 1986* (Kathmandu, 1987), Tables 10.1, 10.9, 10.18, and 10.23.

1992: Ministry of Health, *Nepal Fertility, Family Planning, and Health Status Survey: A Preliminary Report* (Kathmandu, 1992).

PAKISTAN, 1985: Population Welfare Division, Monitoring and Statistics Wing, *Pakistan Contraceptive Prevalence Survey, 1984–85* (Islamabad: Ministry of Planning and Development, Government of Pakistan, 1986), Tables VII.10, VII.11, and V.7.

1990–91: National Institute of Population Studies, *Pakistan Demographic and Health Survey 1990/91* (Demographic and Health Surveys, Institute of Resource Development/Macro International, August 1991).

1994: Ministry of Population Welfare, *Pakistan Contraceptive Prevalence Survey 1994/1995-Final Report* (Population Council, March 1998).

PHILIPPINES, 1983: J. Cabibon, "Current Contraceptive Practice, Philippines and Its Thirteen Regions," Paper 1B (Manila: University of the Philippines, 1985).

1986: M.B. Concepcion, I.Z. Feranil, and E.A. de Guzman, "1986 Contraceptive Prevalence Survey: Philippines and Its Thirteen Regions" (University of the Philippines, Population Institute, n.d., unpublished), Table 2.

1988: M.B. Concepcion (ed.), *First Report on the 1988 National Demographic Survey* (University of the Philippines, Population Institute, n.d., unpublished).

1993: National Statistics Office, *Philippines National Demographic Survey 1993* (Demographic and Health Surveys, Macro International, May 1994).

1998: National Statistics Office, *Philippines National Demographic and Health Survey 1998- Preliminary Report* (Demographic and Health Surveys, Macro International, July 1998).

SINGAPORE, 1982: S.C. Emmanuel, S.B. Li, T.P. Ng, and A.J. Chen, *Third National Family Planning and Population Survey in Singapore 1982* (Singapore Family Planning and Population Board, 1984), Tables 4.2 and 4.6.

SRI LANKA, 1981: United Nations Economic and Social Commission for Asia and the Pacific, *The Use of Contraception in the Asian and Pacific Region*, Population Research Leads, No. 21 (Bangkok, 1985), pp. 5 and 27.

1982: Department of Census and Statistics, *Sri Lanka Contraceptive Prevalence Survey Report 1982* (Westinghouse Health Systems, 1983), Table 6.5.

1987: Department of Census and Statistics, Ministry of Plan Implementation, *Sri Lanka Demographic and Health Survey 1987* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, May 1988), p. 65.

TAIWAN, 1980, 1986: Taiwan Provincial Institute of Family Planning and Health, *Annual Report 1987* (Feb. 1988), p. 39, Table 7.

1985: M.C. Chang, R. Freedman, and T.H. Sun, "Trends in Fertility, Family Size Preferences, and Family Planning Practices: Taiwan 1961–1980," *Studies in Family Planning* 12, 5 (May 1981).

1991: *Employment of Low-Income Households in Taiwan*, National Taiwan University.

THAILAND, 1980: Chintana Pejaranonda and Aphichat Chamratrithirong, *Fertility and Family Planning*, 1980 Population and Housing Census, Subject Report No. 3, Bangkok (n.d.), table 12.

1981: J. Knodel, A. Chamratrithirong, N. Chayovan, and N. Debavalya, *Fertility in Thailand: Trends, Differentials and Proximate Determinants*, Committee on Population and Demography Report No. 13 (Washington, DC: National Academy Press, 1982), Tables 34 and 36.

1984: P. Kamnuansilpa and A. Chamratrithirong, *Fertility in Thailand: Results from the Contraceptive Prevalence Survey* (Bangkok: National Family Planning Board, 1985), Tables 4.2, 5.2, 5.6, and 5.11.

1987: Institute for Population Studies, Chulalongkorn University, *Thailand Demographic and Health Survey 1987* (Demographic and Health Surveys, Institute for Resource Development/Westinghouse, May 1988), p. 56.

VIETNAM, 1988: *Vietnam Demographic and Health Survey 1988* (National Committee for Population and Family Planning, Hanoi, November 1990).

1994: *Viet Nam Intercensal Demographic Survey 1994- Major Findings.* Statistical Publishing House, Ha Noi, May 1995.

1997: National Committee for Population and Family Planning, *Viet Nam Demographic and Health Survey 1997*, Hanoi, March 1999.

OTHER COUNTRIES

KYRGYZSTAN, 1997: Ministry of Health of the Kyrgyz Republic, *Kyrgyz Republic Demographic and Health Survey 1997* (Demographic and Health Surveys, Macro International, August 1998).

MOLDOVA, 1997: Moldovan Ministry of Health, Centers for Disease Control, *Reproductive Health Survey Moldova, 1997- Final Report*, December 1998.

UZBEKISTAN, 1996: Ministry of Health of the Republic of Uzbekistan, *Uzbekistan Demographic and Health Survey 1996* (Demographic and Health Surveys, Macro International, September 1997).

Appendix B
EIGHT INDIAN STATES

Current Status Indicators and Projections for Fertility and Contraception

Because of India's size, internal diversity, and the difficult conditions it faces, the following section displays profiles for eight selected states. Data are taken from the 1992/93 DHS state surveys, the Registrar General, Ministry of Home Affairs, and other sources. Summary comments follow, based on Table B.1 and Figures B.1a-B.1e (on the next page).

Contraceptive prevalence ranges from 20% to 57%; six states are below 43%.

➤ Modern methods account for essentially all of this use; traditional methods are little used except in West Bengal and Assam.

➤ Sterilization is the chief method everywhere except in Assam, and the government is the chief source. Use of traditional methods is nearly trivial in India as a whole. Exceptions occur in Assam and West Bengal, where 20%-22% use traditional methods.

➤ Total fertility rates (TFRs) are high, up to 4.0 in Bihar and 4.8 in Uttar Pradesh. Five states are at 3.5 or higher. The survey measures may be underestimates; they are below the SRS 1991 values.

➤ Contributing to the high TFRs are the early ages of marriage and first births.

➤ In every state, wanted fertility is well below actual fertility.

➤ Both unmet need among all married couples, and intention to use a method among non-users, are high. Substantial proportions in all states have an interest in contraceptive use, indicating that better supply is a serous constraint on higher prevalence and lower fertility.

➤ Death rates have fallen to about 10/1000 (1%/year) in all eight states, but since this crude rate is for young populations, the age-specific rates are still of concern. The infant mortality rate is estimated in the 73-112 range; immunization coverage has far to go.

➤ Growth rates are about 2% per year, ranging from 1.6% to 2.4%, with doubling times of 29-43 years, on large population bases.

Projections for Fertility and Contraceptive Practice

The 1996 fertility projections by the Indian government (Table B.2) can be converted to contraceptive prevalence estimates by the relationship of fertility and prevalence found in the 1992/93 DHS surveys taken in all 25 states. Applying this relationship mechanically to the TFR values in Table B.2 would produce a regression series for contraceptive prevalence, but when extended back to 1992/93 the series would not necessarily agree with the figures found in the state surveys. Therefore the series was adjusted at the start to agree with the 1992/93 DHS figures and was then extended forward to come gradually closer to the predicted value and to match it at the point where the TFR falls to 2.0.

The results appear in Table B.3 and in Figures B.2a and B.2b. The higher the prevalence level the earlier it levels off, just below 60% prevalence for four of the eight states (West Bengal, Gujarat, Assam, and Orissa). Three others (Madhya Pradesh, Rajasthan, Bihar) rise to the low 40s by 2011-2016 and are still climbing, while Uttar Pradesh reaches 30%. The All-India average is estimated to reach 52% and to be continuing its rise. All these projections derive from the fertility and prevalence information in the state DHS surveys and from the government TFR projections of 1996 and are subject to the usual uncertainties of future estimations.

Table B.2. Fertility Rates (TFRs) as Projected for India and Eight States, 1996-2016

States	SRS* 1991	1996-2001	2001-2006	2006-2011	2011-2016
Assam	3.50	2.82	2.55	2.33	2.17
Bihar	4.40	3.92	3.53	3.19	2.93
Gujarat	3.10	2.73	2.48	2.26	2.11
Madhya Pradesh	4.60	3.99	3.72	3.49	3.27
Orissa	3.30	2.64	2.36	2.16	2.01
Rajasthan	4.60	3.91	3.58	3.30	3.06
Uttar Pradesh	5.10	4.75	4.50	4.27	4.05
West Bengal	3.20	2.56	2.31	2.13	1.99
INDIA	**3.64**	**3.13**	**2.88**	**2.68**	**2.52**

*SRS: Sample Registration System, Office of the Registrar General.
Source: *Population Projections for India and States, 1996-2016: Report of the Technical Group on Population Projections Constituted by the Planning Commission.* Registrar General, India, Ministry of Home Affairs, New Delhi: Government of India, August 1996.

Table B.3. Contraceptive Prevalence As Projected for India and Eight States, 1996-2016

States	SRS* 1991	1996-2001	2001-2006	2006-2011	2011-2016
Assam	43	51	54	56	57
Bihar	19	26	31	37	41
Gujarat	48	52	54	56	58
Madhya Pradesh	26	34	38	41	44
Orissa	32	45	51	55	59
Rajasthan	20	30	34	38	42
Uttar Pradesh	16	21	24	27	30
West Bengal	53	57	58	58	59
INDIA	**37**	**44**	**47**	**50**	**52**

*Prevalence level that corresponds to the TFR in the 1991 Sample Registration System (SRS).

Appendix for Eight Indian States

Table B.1. Statistics for India and Eight States

	India	Rajahstan	Uttar Pradesh	Madhya Pradesh	Bihar	Orissa	West Bengal	Assam	Gujarat
Population (1991) (000s)	846,303	44,006	139,113	52,179	86,374	31,660	68,000	22,414	41,310
Density (population per sq.km.)	273	129	473	118	497	203	767	286	211
Decadal population growth (% 1981-91)	23.9	28.4	25.5	25.3	23.5	20.1	24.7	24.2	21.2
Crude Birth Rate (DHS)	29	27	36	32	32	27	26	30	27
Crude Death Rate (DHS)	10	8	12	10	12	11	10	11	9
Crude Growth Rate (DHS)	19	19	24	22	20	16	16	19	18
Infant Mortality Rate (DHS)	79	73	100	85	89	112	75	89	69
Total Fertility Rate 1991 (SRS)	3.6	4.6	5.1	4.6	4.4	3.3	3.2	3.5	3.1
Total Fertility Rate (DHS)	3.4	3.6	4.8	3.9	4.0	2.9	2.9	3.5	3.0
Wanted TFR (DHS)	2.6	2.8	3.8	3.2	3.2	2.3	2.2	2.5	2.3
Unmet Need for Spacing and Limiting	20	20	30	21	25	22	17	22	13
Intention to Use Contraception	29	20	19	25	23	29	47	44	44
Contraceptive Prevalence									
Pill	1.2	0.5	1.0	0.7	1.1	0.9	3.5	2.8	1.0
IUD	1.9	1.2	1.1	1.1	0.5	1.5	1.3	0.9	3.0
Injectable	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1
Vaginals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Condom	2.4	1.5	3.2	2.2	1.3	0.6	1.9	1.7	1.8
Female Sterilization	27.3	25.3	11.7	26.4	17.3	21.4	26.3	12.1	37.5
Male Sterilization	3.4	2.4	1.4	5.1	1.3	1.3	4.3	2.3	3.5
Periodic Abstinence	2.6	0.4	0.9	0.7	0.9	0.9	11.3	15.7	1.7
Withdrawal	1.4	0.4	0.2	0.1	0.5	0.3	8.3	6.3	0.7
TOTAL	40.2	31.7	19.6	36.3	22.9	35.8	57.0	41.8	49.3
Contraceptive Prevalence (Modern Methods)									
Urban	45.3	46.8	29.6	46.2	39.2	45.1	36.5	33.6	49.0
Rural	33.1	27.1	15.8	32.7	18.6	32.7	37.6	18.0	45.7
Total	36.3	30.9	18.5	35.7	21.7	34.6	37.3	19.8	46.9
Source of Supply									
Government Source	62	92	75	90	76	93	80	72	76
Private Medical Source	26	3	9	5	15	4	16	25	20
Private Non-Medical Source	10								
Other and Unknown	1	5	17	6	9	3	4	3	4
Median Age at Marriage, Women 20-49	16	15	15	15	15	17	16	17	18
Median Age at First Birth	20	20	19	19	19	20	19	19	20
Immunization: Percent with 3 DTPs	58	30	34	44	29	56	52	31	64

B.2

Figure B.1

Figure B.1a. Crude Birth and Death Rates

Legend: Crude Death Rate, Crude Birth Rate

X-axis: **Annual Rate Per Thousand Population** (0 to 40)

States (top to bottom): Gujarat, Assam, West Bengal, Orissa, Bihar, Madhya Pradesh, Uttar Pradesh, Rajahstan, INDIA
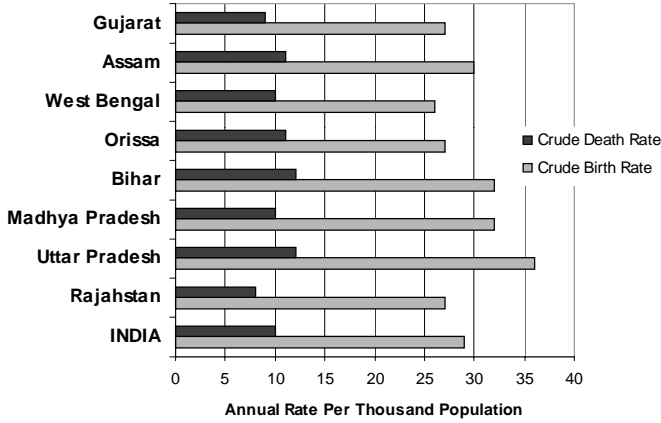
Figure B.1b. Contraceptive Use

Legend: Sterilization, Modern Methods, Contraceptive Prev.

X-axis: **Percent Using** (0 to 60)

States (top to bottom): Gujarat, Assam, West Bengal, Orissa, Bihar, Madhya Pradesh, Uttar Pradesh, Rajahstan, INDIA
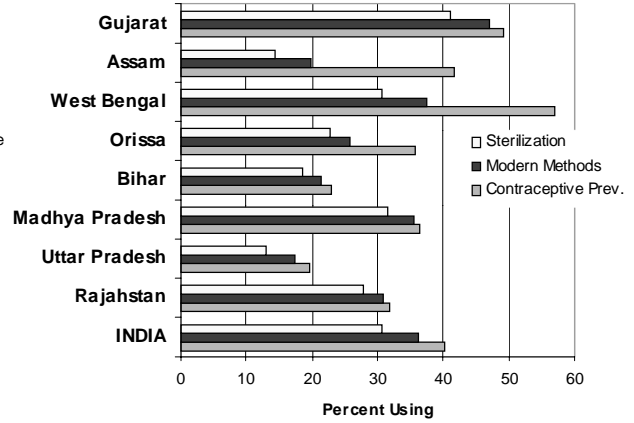
Figure B.1c. Unmet Need and Intention to Use a Method

Legend: % of NonUsers Intending to Use, Unmet Need, All Married Women

X-axis: **Percent** (0 to 50)

States (top to bottom): Gujarat, Assam, West Bengal, Orissa, Bihar, Madhya Pradesh, Uttar Pradesh, Rajahstan, INDIA
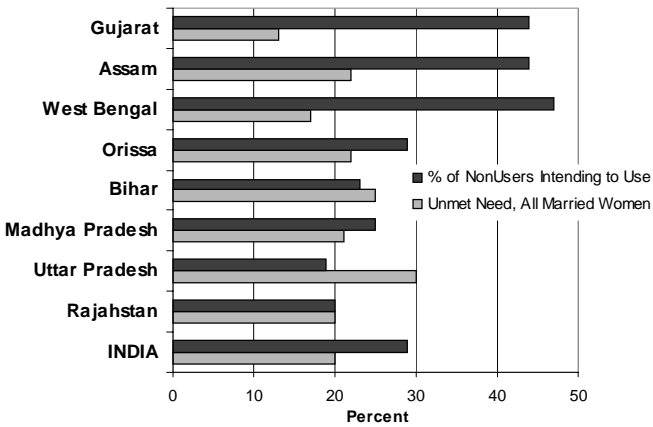
Figure B.1d. TFR and Wanted TFR

Legend: Wanted TFR 1993 (DHS), Total Fertility Rate 1993 (DHS)

X-axis: **No. of Births per Woman** (0 to 6)

States (top to bottom): Gujarat, Assam, West Bengal, Orissa, Bihar, Madhya Pradesh, Uttar Pradesh, Rajahstan, INDIA
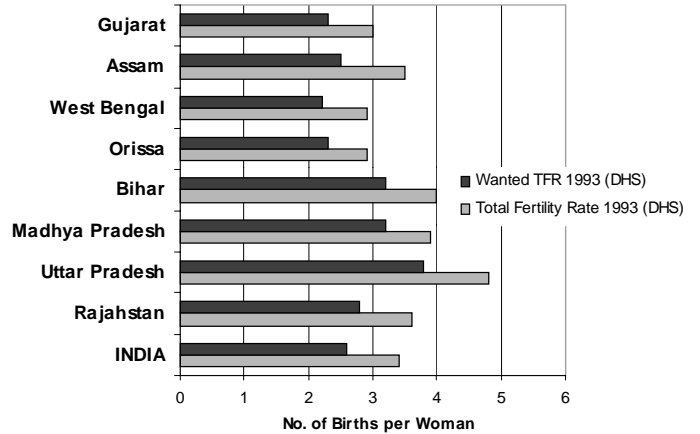
Figure B.1e. Infant Mortality Rate and Percent DTP Immunizations

Legend: Immunization: % with 3 DTPs, Infant Mortality Rate 1993

X-axis: (0 to 120)

States (top to bottom): Gujarat, Assam, West Bengal, Orissa, Bihar, Madhya Pradesh, Uttar Pradesh, Rajahstan, INDIA
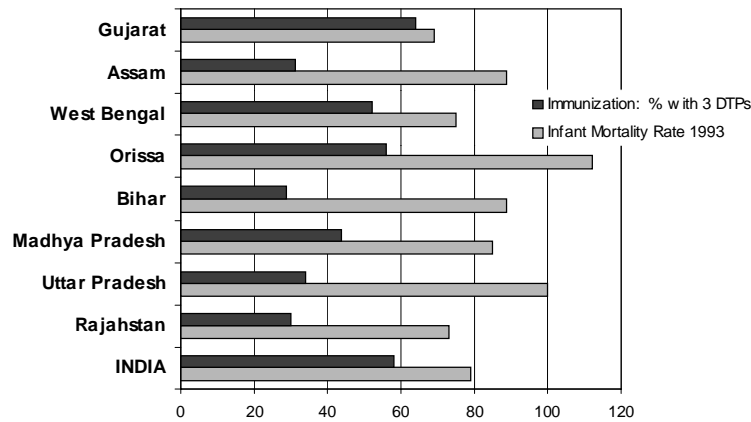
Appendix for Eight Indian States

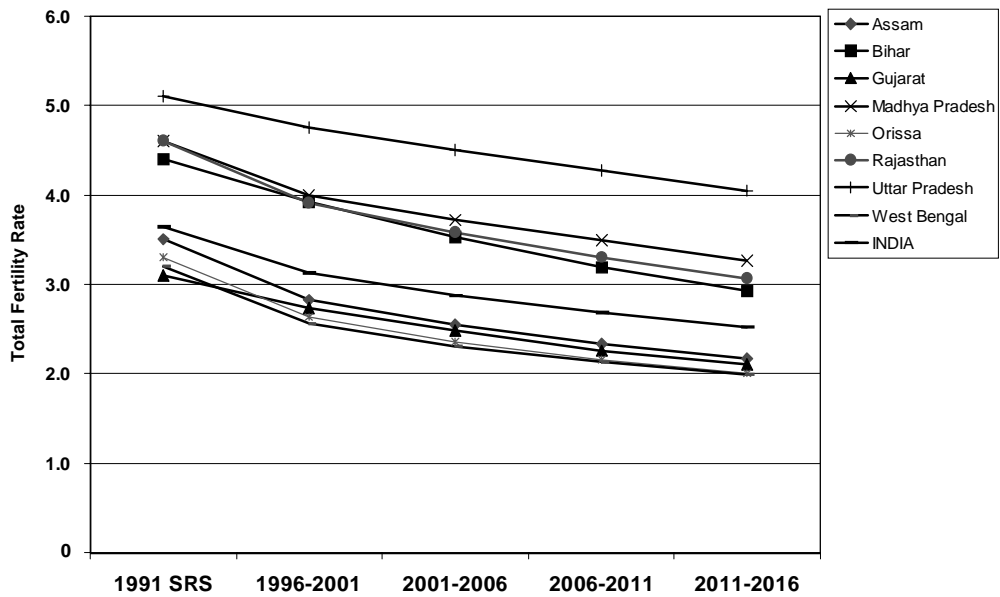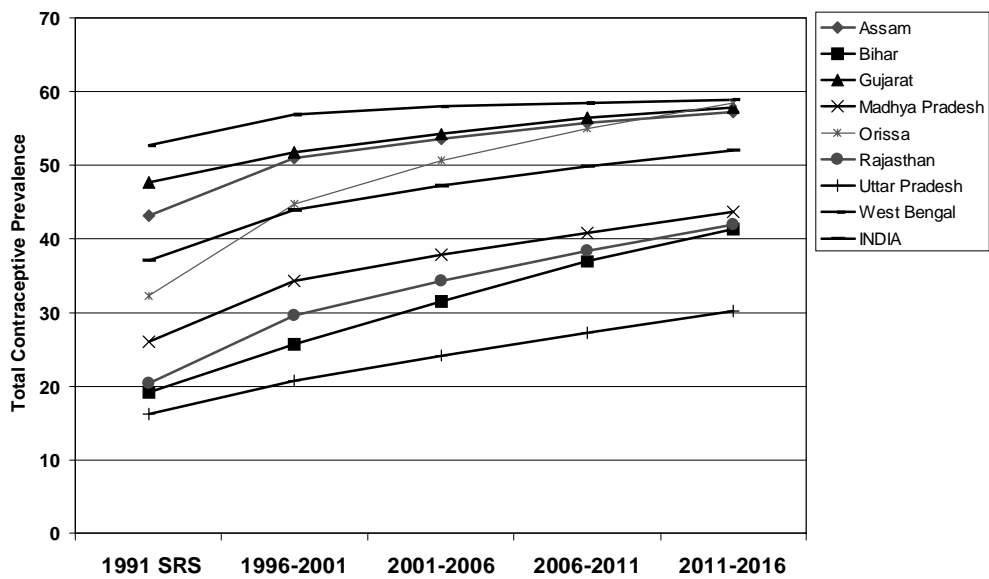**Figure B.2a. Total Fertility Rates Projected for India and Eight Selected States**

Figure B.2b. Contraceptive Prevalence Projected for India and Eight Selected States

Appendix C
TECHNICAL APPENDIX FOR PROJECTION METHODS

METHODOLOGY FOR PROJECTING FAMILY PLANNING USERS BY YEAR AND METHOD

1. Estimates and projections of TFR by country are from the Population Division of the United Nations' 1998 Assessment. These five-year period rates are linearly interpolated to produce single year figures.

I. FOR MWRA

A. Total Prevalence

2. Contraceptive prevalence among married women of reproductive age is estimated from the TFR using the regression equation:

[1] regression-prevalence$_t$ = 97.7 - 12.6 x TFR$_t$

A1. Surveyed Countries

3. For most countries, prevalence estimates are available from surveys. These estimates will not exactly match the estimates produced by the regression equation. An adjustment factor is calculated that is equal to the survey-based prevalence estimate divided by the regression-based estimate.

[2] AF = survey-prevalence$_s$ /regression-prevalence$_s$

where s = year of most recent survey

4. This adjustment factor can be used to adjust the regression estimate of prevalence to match the survey estimate in the year of the survey. We cannot assume that the adjustment will be the same in the future. At low levels of prevalence, a large variation across countries is expected. However, this variation should narrow at higher levels of prevalence. We assume that all countries will fall on the regression line when TFR declines to 2.0. The adjustment factor is modified to reflect this, so that it changes linearly from its original value in the year of the most recent survey to 1.0 when TFR reaches 2.0.

[3] AF'$_t$ = AF - (AF-1) x (TFR$_s$ - TFR$_t$) / (TFR$_s$ - 2.0)

5. This factor is multiplied by the regression estimate of prevalence to produce the final estimate, *for each year,* of total prevalence among *married* women of reproductive age.

[4] prevalence$_t$ = AF'$_t$ x regression-prevalence$_t$

A2. Non-Surveyed Countries

For countries without surveys since 1980, no adjustment is applied. Prevalence is taken just from its relation to the UN TFR projection.

B. Prevalence by Method

6. Contraceptive prevalence by method is estimated using a set of regression equations that estimate method prevalence as a quadratic function of total prevalence (p).

(A) For most countries, the equations are:

[5] Pill prevalence = 0.4351 x p - 0.0037 x p x p

[6] IUD prevalence = 0.0888 x p + 0.0011 x p x p

[7] Vaginal prevalence = 0.0084 x p + 0.00005 x p x p

[8] Condom prevalence = -0.05998 x p + 0.002437 x p x p

[9] Female sterilization prevalence = 0.11535 x p + 0.002829 x p x p

[10] Male sterilization prevalence = -0.0239 x p + 0.000924 x p x p

[11] Injectable prevalence = 0.114535 x p - 0.00107 x p x p

[12] Traditional prevalence = 0.322835 x p - 0.00267 x p x p

(B) For Muslim countries a separate set of equations was developed, since the method mix in these countries differs significantly from the other countries, particularly in the use of sterilization. For these countries the equations follow; they omit the squared term in equations 5-12 since it did not add significantly to the fit to the data.

[13] Pill prevalence = 0.356 x p

[14] IUD prevalence = 0.2500 x p

[15] Vaginal prevalence = 0.0089 x p

[16] Condom prevalence = 0.0606 x p

[17] Female sterilization prevalence = 0.06956 x p

[18] Male sterilization prevalence = 0.004642 x p

[19] Injectable prevalence = 0.06873 x p

[20] Traditional prevalence = 0.1530 x p

(C) Neither of these models fits the situation in certain other countries well, so their future method mixes were decided by reference to their own exceptional historical trends: Turkey for its high use of traditional methods, Vietnam and Egypt for their high use of the IUD, and Thailand, Indonesia, South Africa, and Kenya for their high use of the injectable.

7. For countries with **no survey data**, the regression equations shown in step 6 were used to estimate prevalence by method. For countries **with survey data**, we assumed that the method mix in each country would start from the mix found in the survey and change to the method mix described by the regression equations by 2015. The method mix in the years between the most recent survey

and 2015 was estimated by linear interpolation between those two estimates.

8. The final estimates of prevalence by method were derived by normalizing the estimates in step 7 to ensure that the sum of prevalence for all methods is equal to the total prevalence (estimated in step 5).

9. #WRA Estimates and projections of the number of women of reproductive age were taken from the 1998 assessment of the Population Division of the United Nations. Linear interpolation was used to calculate values for the years not provided by the UN.

10. Estimates of the proportion of women 15-49 who are married were taken from *Levels and Trends in Contraceptive Use as Assessed in 1994* (United Nations, 1996) or from more recent DHS surveys. The average value, 64.0%, was used for countries without data.

11. #MWRA Married women of reproductive age is calculated by multiplying women of reproductive age by the proportion married.

12. #USERS The number of users by method is calculated by multiplying method prevalence by the number of MWRA.

13. The total number of contraceptive users is calculated by summing users for all methods.

14. #COMMODITIES Commodity requirements are calculated according to the following equations, as presented in Stover et al. 1997:

[21] Pill cycles = pill users x 15

[22] IUDs = IUD users / 3.5

[23] Vaginal tablets = Vaginal tablet users x 120

[24] Condoms = condom users x 120

[25] *Female sterilizations = female sterilization users / 8 or 9 or 10 depending on the region

[26] *Male sterilizations = male sterilization users / 8 or 9 or 10 depending on the region

[27] Injections = injectable users x 4

II. FOR ALL WOMEN

15. For many countries, nearly all contraceptive users will be married. For these countries there is no need to make separate projections for all women. For most countries where there are significant numbers of contraceptive users who are not married, **survey data** provide estimates of prevalence among all women. Where survey data for prevalence among all women are available, we obtained the number of all users by taking the ratio of prevalence for all women to prevalence for married women, and dividing that by the percent married. The resulting ratio was then multiplied by the number of married users to yield the number of all users. This was done for each method separately.

Brazil's 1986 and 1996 surveys covered both married and unmarried women, which gave baseline ratios of prevalence by method. These were kept constant through time because of Brazil's high total prevalence and unusual method mix.

However, if the prevalence for a method for married women was less than 3% in the most recent survey, or if the ratio (all

---

*For male and female sterilizations, estimates are only for the number of procedures performed annually, as a basis for country calculations of the kits and other supplies needed.

women:married women) for the method was zero or not available (i.e., no data for all women for that particular method), the ratio for total prevalence was used for that method to calculate users among all women. This was to protect against large or unstable ratios at low prevalence levels that would not accurately reflect the relationship of married users to all users in the projection to 2015.

16. For most countries **without survey data** on prevalence among all women, we could safely assume that they do not have a significant number of unmarried users. For these countries, the figures for married users were used.

17. Seven countries, without survey data for all women, were given special treatment because they appear to have a significant number of unmarried users. These are Ethiopia, Malaysia, Panama, Puerto Rico, South Africa, Thailand, and Vietnam. For these seven countries, the regional average of the ratio of total prevalence for all women to total prevalence among married women was used for each method. Number of users for all women was then calculated as if the country had survey data for both married women and all women (see step 15).

18. Once the number of users for each method was estimated for all women, commodities were calculated in the same way as for married women.

References

Stover, John et al. *Empirically Based Conversion Factors for Calculating Couple-Years of Protection.* The EVALUATION Project. Carolina Population Center, Tulane University, and The Futures Group International, 1997.