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**PLATEAUS DURING THE RISE
OF CONTRACEPTIVE
PREVALENCE**

by

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Introduction

Although contraceptive use has risen impressively in many countries over the last few decades, there have been occasional flat periods that have raised serious concerns about the effectiveness of the national family planning programs involved. Of special concern are a few instances in the Asia and Near East region, where interruptions of an established upward trend in contraceptive use have raised troubling policy and program questions for both governments and international donor agencies. Issues exist concerning the actual frequency of plateaus in contraceptive increase, why they occur, why most are so brief, and what actions should be taken when they occur. The analysis reported here uses a large set of national surveys to explore especially the first of those questions and to offer suggestions as to the other three.

Most attention has gone to a middle group of countries where the historic rise in contraceptive use was well established, and where a hesitation in the upward trend then intervened. Other plateaus naturally exist at ceiling levels of use in such cases as China, South Korea, Taiwan, Thailand, and Vietnam, and additional plateaus exist at very low levels where a clear upward trend is not yet present, as in a number of sub-Saharan African countries. It is in the middle group that surveys have occasionally shown a “stalling,” “hesitation,” or “plateau,” which has captured the attention of all concerned parties and caused a rethinking of program approaches.

The Literature

A search of the literature turns up only a few inquiries addressed to the plateau question. One review, published in 1989¹ showed prevalence of use to be increasing over time in all 31 countries surveyed, with only five exceptions in Latin America, one of which was steady at the near ceiling level of about 70 percent, two had contraceptive prevalence rates (CPR) above 60 percent, and two others had rates around 50 percent. This report also examined the annual pace of increase in prevalence between surveys, as have several UN publications² over the years as well as a comprehensive review in 1996.³ However, all of these studies used the average annual pace across surveys, sometimes only between the initial and final survey rather than examining every interval from each survey to the next. That does not speak strictly to the plateau question, which requires isolating temporary periods of hesitation after an established upward trend in prevalence. The effort here is to examine every inter-survey interval to identify such periods.

A few analyses have examined an established plateau to determine whether it occurred in every population subgroup, or whether instead one or two large subgroups have fallen sharply in their use levels while others have risen. An analysis for Egypt regarding its 1992 to 1995 experience showed prevalence to be flat in every major geographic and population subgroup.⁴ Over the longer duration from 1992 to 1997, however, there were some geographic differences: urban prevalence in the Upper and Lower regions rose less (by 8 and 9 percent, respectively) than rural prevalence did (by 19 and 24 percent, respectively). A Bangladesh study⁵ analyzed the pace of prevalence increase between 1986 and 1991 by population subgroups, showing a slower pace among young couples (wife below age 25) and some stalling in urban areas. The report speculated as to the causes: the program lacked a strong structure for the urban population; also migration into the cities placed stress on the service delivery system. Further, urban prevalence was about 10 points higher than rural prevalence and the report suggests that “typically, increase in contraceptive use slows down once latent demand has been met.”

An unpublished compilation confirms the remarkably persistent rise in contraceptive use. Among 35 DHS countries with multiple surveys,⁶ prevalence rose in every interval, for both total prevalence and modern prevalence, with only three exceptions. In those, modern prevalence still rose while total prevalence declined. In graphical presentations with lines for many countries, the pattern of increasing

prevalence is clearly dominant, and decreases are rare, as documented in various compilations for the last few decades.⁷ Relatively flat instances occur mainly at very low levels or at very high levels.

Methods and Materials

This study starts from the 267 surveys in the 80 developing countries that have had at least two national surveys.⁸ Among the 80 countries, 52 have had three or more surveys (211 total), which allow for the detection of stalling.

A country with three surveys has two ways to show a plateau: when it occurs between the first pair of surveys followed by a rise to the third survey, or when an initial rise is followed by a plateau in the second pair of surveys. Thus, three surveys offer two pairs for revealing a plateau. Similarly, a country with four surveys provides three pairs, and a country with five surveys provides four pairs. Across all countries with three or more surveys in this data set, there are 159 pairs of intervals in which to look for plateaus.

Plateaus can occur in use of all methods (total contraceptive prevalence), in use of modern methods, or in both. However, the focus here is primarily upon modern methods since national family planning programs typically concentrate just on those. That also simplifies the presentation; in addition, all the analyses reported here are at the national level rather than among population subgroups.

No accepted definition of a “plateau” or “flat period” exists in the literature. What is a “plateau” and what is “flat”? Rules are needed to serve as cut-offs for the pace of increase, but if a rule is set too high it will include many non-plateaus, and if it is set too low it will miss many genuine plateaus. An extremely inclusive rule would make nearly all cases into plateaus while an extremely strict rule would include hardly any. To address these problems, we explored three cut-off rules: that a plateau exists if the annual rise in prevalence is 0.1 point per year, 0.3 point, or 0.5 point. The presentation below focuses mainly upon the 0.3 rule as the most satisfactory choice; that is, if prevalence rises from 40 to 41.5 over five years, that averages 0.3 points per year, a very slow pace.⁹ Each plateau is viewed in contrast to the adjoining intervals, to see whether the plateau is persistent or not, by simply noting whether the plateau stands alone or whether it continued in an adjoining interval (nearly none did).¹⁰

Results

For a relatively full examination of experience to date, we calculated the annual pace of change during each interval between consecutive surveys, among the 211 surveys in the 52 countries with three or more surveys. Wherever the annual pace was 0.3 points or less we counted that as a plateau. Nearly every plateau occurred in only one interval; almost none persisted into a second interval or had a later recurrence.

Table 1 shows the number of plateaus by the 0.3 rule. The first column gives the number of paired intervals (i.e., the maximum number of opportunities for plateaus to occur). Twenty-one plateaus (2nd column) occurred, but as explained above, some fall at very low or very high levels rather than in the “middle group” of interest. For this analysis, the low group consists of those countries whose modern method CPRs are less than 25 percent, the middle group are those countries whose modern method CPRs fall between 25 percent and 60 percent, and the high group are those countries where the modern method CPR is higher than 60 percent. Taking the middle group (25 to 60 percent) as the real focus of interest, only eight plateaus qualify (3rd column). This represents only 5 percent of all opportunities for them to occur (last column). All regions participate in these plateaus, though to varying degrees: only 2 percent in Latin America to 12 percent in the Middle East/North Africa. The other three regions range only from 3 to 6 percent.

A remarkable finding is that nearly all plateaus were brief, limited to a single interval between two surveys. Five countries had plateaus for two intervals running, and in four of these countries, the plateaus were only for total prevalence while modern prevalence still rose. These included Turkey, maintaining total prevalence at the relatively high level of about 63 percent; the other three were for Haiti and Mali, both remaining at about 5 to 8 percent over time, and Benin, remaining at about 17 percent over time. The fifth case was for the Republic of Korea, where the high level of modern prevalence fell somewhat. None of the other countries with three or more surveys experienced a plateau that lasted beyond one survey interval. However, those intervals ran for several years, masking intermediate changes. In two other countries with a series of annual surveys, plateaus also occurred (in Indonesia and Jordan, discussed below).

Table 1. Number of Plateaus in Prevalence of Modern Method Use

	No. of paired intervals (opportunities for plateaus)	Plateaus (by 0.3 rule)	Plateaus in middle range (25–60%)	Percent within middle range
East and SE Asia	32	7	1	3.1
South Asia	21	1	1	4.8
Middle East/North Africa	24	3	3	12.5
Sub-Saharan Africa	33	6	2	6.1
Latin America and the Caribbean	49	4	1	2.0
All Regions	159	21	8	5.0

Special Cases in the Asia/Near East Region¹¹

Bangladesh, Egypt, Jordan, Indonesia, and Pakistan represent the infrequent cases where large countries have hesitated during the upward course of contraceptive use. The 0.3 rule leaves out three of these five cases. However, all five are caught by the 0.5 rule; that is, each one's annual increase is 0.5 points or less per year. For example, Egypt's modern prevalence rose from 44.8 percent to 45.5 percent over three years, averaging 0.23 points per year, well below the 0.5 cut-off. The annual growth in prevalence shown in points of gain per year follows:

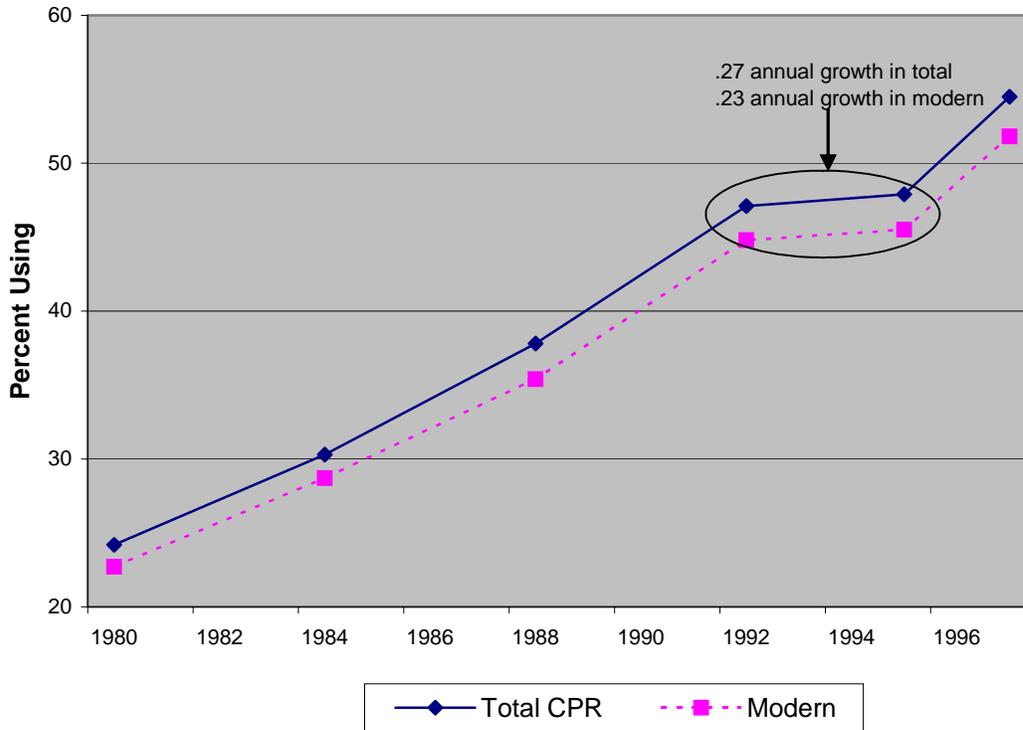
- Egypt: 0.23 for modern prevalence, 0.27 for total prevalence, 1992–1995
- Jordan: 0.18 for modern, 1997–2002
- Bangladesh: 0.48 for modern, 1996–2000
- Indonesia: 0.50 for total, 1987–1991
- Pakistan: 0.43 for modern, 1984–1990

Two of the plateaus are borderline, just at or below the 0.5 cut-off, and Egypt, Indonesia, and Pakistan all recovered, to rise faster later. Jordan and Bangladesh will await the next survey to know about the next pace of change. These five cases are discussed further below.

Bangladesh presents a borderline situation: a hesitation only for modern prevalence (0.48 annual growth), with the slope still upward. Until another survey is done, the Bangladesh experience does not shed much light on plateaus.

Egypt raises the question of survey error as much as the question of a plateau, as noted above, since relatively small errors in the survey estimate may have distorted an otherwise even upward trend (**Figure 1**). The subsequent survey in 1997 got a higher reading consistent with the long range trend, suggesting that the 1995 point was just a data anomaly. Nevertheless, at the time, the Egypt survey produced considerable dismay and produced actions to strengthen the national program.¹² Those, in turn, may have helped produce the recovery shown in the following survey. Corrective actions are, in fact, a major hypothesis as to why nearly all plateaus are brief, not continuing past one survey interval.

Figure 1. Egypt: Contraceptive Prevalence 1980 to 1996

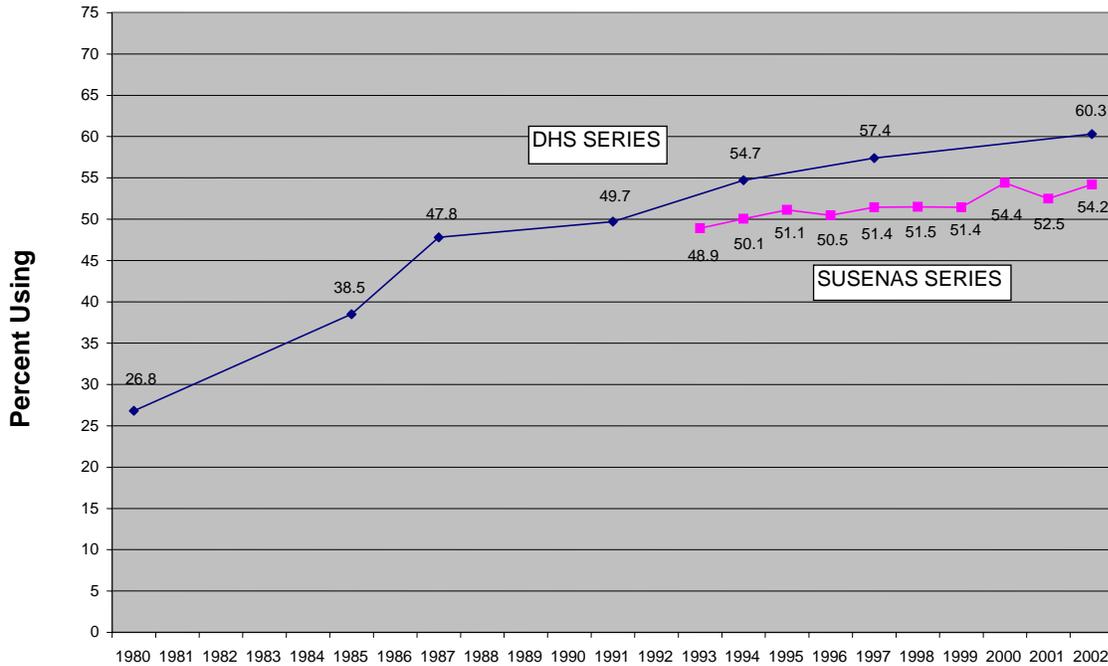


Pakistan is an instance of a plateau that barely qualifies, since it was for modern prevalence only and began at the very low level of about 7 percent where flat trends are common. Also, it rose at 0.43 points per year, near the cut-off of 0.50.

Finally, there are only two clear cases of sustained plateaus, based on a series of annual surveys with consistent methodology that traces contraceptive use.

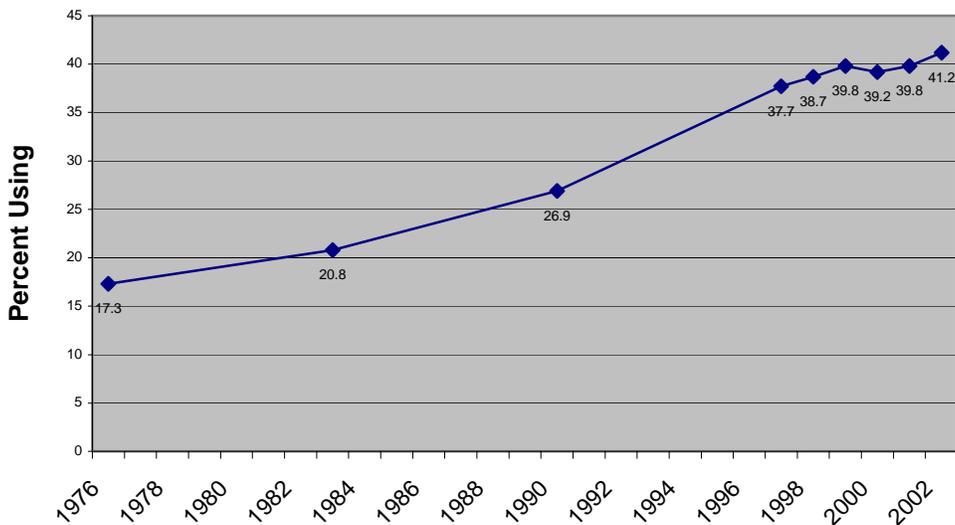
Indonesia, from 1987 to 1991, was another borderline case of a 0.50 annual growth in prevalence. In recent years it appears to have definitely reached a plateau, and the latest (2002–2003) DHS survey figure of 60.3 percent produces an annual rise since 1997 of only 0.53 points per year. In **Figure 2**, the annual SUSENAS series¹³ shows prevalence stalled at about 55 percent from 1996 through 2002. (The higher DHS level is not surprising since the DHS questionnaire is more specialized and has more probes. The figure shows only total prevalence; modern prevalence in Indonesia is 95 percent of all contraceptive use.)

Figure 2. Indonesia: Percent of Couples Using Contraception National Surveys, 1980–2002



Jordan (Figure 3) has a modern prevalence level that has been consistently at about 40 percent from 1999 to 2002, including the DHS in 2002. In both Indonesia and Jordan, the annual surveys are multipurpose and lack the specialized focus of the DHS; however, the agreement in prevalence levels so far is close. Note that the possession of annual surveys permits the documentation of a *steady* flatness. With only the first and last surveys, the plateau would look like those of the other countries that lack annual data points.

Figure 3. Jordan: Contraceptive Prevalence 1976 to 2002



Some protection against errors in a single survey is afforded by having a longer series. If just one point in the Egypt series, for 1995, were adjusted upward and if just one point in the Indonesian series, for 1987, were adjusted downward, the lines for both would be nearly straight during those periods. The Philippines is another example, where the proportion of couples reported to use traditional methods jumped from 7 percent in 1973 to 21 percent in 1978 and then back down to about 14 percent in the next three surveys through 1993, which established a consistent picture and corrected the 1978 error.

In summary, the data cannot be used uncritically, but it is partly a matter of judgment as to which data points should be disregarded.

The Mid-Fifties Syndrome

Is there a general tendency for some stalling as countries approach total contraceptive prevalence in the mid-fifties? Jordan and Indonesia illustrate that, and Bangladesh may also. (Egypt was in the high forties when it hesitated.) Why would the fifties represent a threshold that is difficult to pass? None of the five countries has had much sterilization in the method mix and that makes it difficult over time for prevalence to rise much above the mid-50s or low-60s, due to the brief continuation rates of resupply methods. Couples constantly move in and out of the pool of users, a churning process. The pool loses many members each year, and new adoptions merely replace them instead of adding to the total. Population growth also requires more users every year. Altogether, new adoptions must be numerous each year or prevalence will actually decline. Numerous surveys document this process, in which many users quit their method and turn to something else (or to nothing). While other factors may also be at work, the unbalanced method mix appears to be a major factor. To address the phenomenon, a better balance may be sought or steps taken to improve the continuation rates on the resupply methods, or both. The following section considers possible influences for countries in general, in all regions.

Influences Behind a Slackened Pace

No analysis known to us has identified a definitive set of causes of plateaus. It may not be possible in any particular case to say why a plateau occurred, but prevalence trends are clearly subject to several factors. Several that are thought to play a role follow, with a few country examples.

1. **A narrow method mix**, which suffices only for certain subgroups and ultimately leaves others out who find the available methods unsatisfactory or inaccessible. India's attempt to broaden its method mix beyond sterilization is a notable example of one corrective effort, though the outcomes are still emerging.
2. **Program weakness or reorientation.** In most countries, contraceptive supply and services depend substantially upon the public program, which may suffer cuts in funds or personnel. Also, the program may be caught in a more general scale-back in the health sector, or have its resources diverted to HIV/AIDS, or be weakened during a decentralization movement. Equally, the program may be reoriented toward broader objectives and away from family planning, as occurred in Indonesia in the early 1990s, when the focus shifted to a variety of social objectives.¹⁴ India decided to change its target system in a major reorientation and is still developing adjustments to the changes at each administrative level.
3. **Sheer growth in numbers.** With population increase running at about 2 percent or more annually in many countries, the supply networks must grow equally to avoid an actual drop in prevalence. This is a common problem, alleviated to the extent that the share of services grows in the private sector.
4. **A changing geographic mix or changing age distribution with the reproductive years.** On the one hand, movement to the cities can hasten the pace of increase in prevalence rates if supplies/services are more available there and if urban conditions discourage childbearing. On the other hand, a slow rise in urban prevalence in Bangladesh was attributed to a weak program structure there and the burdens of many in-migrants. The prevalence figure is also age-sensitive; it pertains to the entire age range from 15 to 49. For example, a shift toward very young couples at low parities, whose use levels are typically low, can put a brake on the annual increases. An opposite effect occurs if the marriage age is rising, depleting entries to the young married population.
5. **Certain proximate determinants** can theoretically affect changes in contraceptive use. In some cases, where women compensate for reduced breastfeeding and its protection against conception by using more contraception, the effect on contraceptive use may be positive. In other cases, where countries experience very poor health (such as with HIV/AIDSs), breastfeeding may sap the energy or interest required to adopt a method or seek resupplies, thereby reducing contraceptive use. HIV/AIDS has also weakened staff capabilities to deliver services in a number of African countries, thereby depressing contraceptive access. (Note: While this is a potential cause, it is not significant in the current analysis since the plateaus noted above are not in countries with high levels of HIV prevalence.)
6. **Other possibilities** include diminishing returns at high prevalence levels, where it becomes increasingly difficult to reach new users. At intermediate levels, however, a take-off process can occur as use becomes general, so that additional users start up on their own. This may depend upon the range of prevalence in combination with program strength. Demand may become saturated under a program that is pervasive and strong, so that most of the effective demand is

serviced, and it takes time for social change to enlarge that demand. Indonesia may illustrate this process. An aggravating factor can be a narrow method mix, for example, in the pill-dominated program of Zimbabwe.¹⁵ In any case, demand measures vary, and apart from ideal family size, other measures such as intention to use and unmet need remain at substantial levels in nearly every country. Moreover, movements in ideal family size do not closely parallel movements in actual use.

Action Responses to Plateaus

If program responses are considered in relation to the above set of possible influences behind plateaus, the potential responses cover a wide range. A full treatment would be nearly equivalent to a volume on best strategies and practices for national program actions. The choices are highly variable, depending upon which influences appear to be at work. An initial step should be to check whether the plateau exists generally throughout the population, or only in selected subgroups, such as only the rural sector, or only in certain provinces, or only in the older age groups, since that may signal a tailored response to an unusual situation. Otherwise, the list of program responses for each of the six groups of influences above can include the actions listed below. These are quite general and only suggestive; program planners must take into account the complex features of each individual case.

1. First, program managers should be vigilant in reviewing information that might suggest that a plateau is occurring, or about to occur. Data from annual surveys and service statistics may be useful in indicating that the CPR is reaching a plateau.
2. For an unbalanced or narrow method mix: Broadening of method choices, especially to offer sterilization along with the IUD and the various resupply methods.
3. For program weakness or reorientation: Reconsideration of the program's focus; review of alternative field priorities; strengthening of the private sector.
4. For rapid growth in numbers of couples and users: Expansion of supply lines; increased infrastructure capacity or more efficient use of it, including increasing the role of the private sector.
5. For changing geographic and age mixes: Monitoring of trends in the age distribution, with a view to implications for changing method preferences; monitoring of emergent residential patterns to help plan service locations and capacity.
6. For modifications in proximate determinants: Tracking of breastfeeding trends; detection of major changes in staff health levels and absenteeism, especially in heavily HIV/AIDS areas.
7. For changes in the levels of demand: Use of multiple surveys to track relevant indicators; with primary attention, however, to servicing the substantial group that already has unmet need or unrealized intentions to use a method.

Conclusion

Hesitations in the upward course of contraceptive use have elicited considerable concern internationally. Where they have occurred they have called into question the effectiveness of the large investments made by governments and the supporting international agencies. Plateaus have also implied a failure to reduce the large unmet need for services that is present in most countries. While some plateaus exist at very low levels of contraceptive use where no clear upward trend has yet been established, and others exist at high ceiling levels of use, the particular focus has been on those middle-level countries where an obvious positive trend was underway that then stalled. In actual fact, plateaus in these countries have not been frequent. The few that have appeared have occurred in all geographic regions and in different historical periods. Moreover, nearly all plateaus have been brief. Their brevity may reflect corrective policy and program responses that have arisen following a period with little or no rise in use. In any case, the resumption of the upward trend has been the common pattern, although the ANE region has experienced some clear plateaus that have been, or continue to be, troubling.

Endnotes

¹ Weinberger, M.B. 1989. "Trends in Contraceptive Prevalence: Are Prevalence Rates Stagnating?" Pp. 217–238 in Volume 1 of *International Population Conference, New Delhi*. Liege, Belgium, International Union for the Scientific Study of Population; and Weinberger, M.B. 1991. "Recent Trends in Contraceptive Behavior." Pp. 555–573 in *Demographic and Health Surveys World Conference*, August 5–7. Columbia, MD: IRD/Macro International, Inc.

² United Nations Population Division webpage, "World Contraceptive Use, 2001." Wall chart accessed April 22, 2003. <http://www.un.org/esa/population/publications/contraceptive2001/contraception01.htm>; and United Nations Population Division. 2000. *Levels and Trends of Contraceptive Use as Assessed in 1998*. New York: United Nations Department of Economic and Social Affairs, ST/ESA/SER.A/190. See also Robey, B., S.O. Rutstein, and L. Morris. 1992. "The Reproductive Revolution: New Survey Findings." *Population Reports*, Series M, No. 11; and Zlidar, V.M., R. Gardner, S.O. Rutstein, L. Morris, and H. Goldberg. 2003. "New Survey Findings: The Reproductive Revolution Continues." *Population Reports*, Series M, No. 17. Baltimore: Johns Hopkins Bloomberg School of Public Health, INFO Project.

³ Johnson, T. and B.A. Macke. 1996. "Estimating Contraceptive Needs from Trends in Method Mix in Developing Countries." *International Family Planning Perspectives* 22(3): 92–96.

⁴ Memorandum, J. Ross to R. Martin, February 1998.

⁵ E-Khuda, B. and A. Barkat. 1994. *The Bangladesh Family Planning Program: Key Programmatic Challenges and Priority Action Areas, 1994*. Prepared for the International Conference on Population and Development (ICPD), Cairo, September 1994, on behalf of the National Advisory Board and Management Sciences for Health. Dhaka: University Research Corporation (Bangladesh). Unpublished.

⁶ Accessed in the STATCompiler of Macro International, webpage for macroint.com.

⁷ United Nations Population Division. 2000. *Levels and Trends of Contraceptive Use as Assessed in 1998*. New York: United Nations Department of Economic and Social Affairs, ST/ESA/SER.A/190; and Ross, J., J. Stover, and A. Willard. 1999. *Profiles for Family Planning and Reproductive Health Programs: 116 Countries*. Glastonbury, CT: Futures Group International.

⁸ This database is compiled from the DHS series of Macro International, the Reproductive Health Survey (RHS) series sponsored by the Centers for Disease Control and Prevention, and a number of national surveys done independently or under other auspices over the years.

⁹ A longer, more technical report gives full details for both modern and total prevalence and for all three rules, forthcoming in *International Family Planning Perspectives*.

¹⁰ Note that when surveys come close together, measures of prevalence change can be subject to considerable sampling error, in which case a genuine plateau may be missed or a false one suggested. Among the 159 data pairs, 22 were from surveys that came only one or two years apart. Presumably, any false plateaus were balanced to an extent by the number of missed genuine ones, so far as the total counts are concerned. (Thirty-one data pairs were from surveys three years apart; another 88 were four to six years apart, and the remaining 18 were seven or more years apart, making up the total of 159 pairs.)

¹¹ India is omitted from this group due to data anomalies. Either the data from the 1992 survey was too low or the data from the 1988 survey was too high. If the 1988 figure were lower, the overall trend would

have been evenly upward. Accepting the 1988 figure, however, means that the pace over the 1988–1998 decade was a plateau (averaging only 0.29 points annually for modern use). The pace is considerably higher than that from 1980 to 1988, 1980 to 1992, 1980 to 1998, and 1992 to 1998.

	Modern
1980	26.9
1988	39.9
1992	36.3
1998	42.8

¹² Martin, RR, The Population Program Plateau: Contributing Factors, Dangers, and Action Implications, May 22, 1996, address to the International Population Club, Cairo, Egypt.

¹³ SUSENAS: National Survey of Social and Economic Factors.

¹⁴ In the early 1990s, BKKBN developed activities aimed at developing the “prosperous family” (*keluarga sejahtera*). *Keluarga sejahtera* is a key part of Law 10 of 1992 (“concerning Population Development and Development of Prosperous Family”).

¹⁵ Although use of the injectable increased in Zimbabwe from 3 percent to 9 percent of women in union between 1994 and 1999.