

## **EFFORT MEASURES FOR FAMILY PLANNING ACTION PROGRAMS: PAST TRENDS AND FUTURE PROSPECTS**

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The Population Division for at least 25 years has been interested in national family planning programs as a fertility determinant, and quite early sponsored a number of investigations into both methods and findings concerning it (United Nations 1978a, 1978b, 1981). Over that same period, indices of the strength, or effort, of these programs have been measured, intended to serve as independently established inputs, to which the outputs of contraceptive use and fertility could be related. The indices took form in 1972 (Lapham and Mauldin, 1972) and were repeated in 1982, 1989, 1994, and 1999. The focus here is upon the national family planning programs, past and present, with speculations as to their future, and upon their general relationships to increases in contraceptive use and declines in fertility rates.

### **A. DATA**

The Family Planning Effort (FPE) indices were gathered on 88 countries in 1999, all with populations over one million in 2000, and 47 of these countries are included among the “Intermediate Fertility” countries listed for this seminar. In addition, six other countries in the Intermediate Fertility Group with populations over one million are included, for a total of 53 countries (see table 1).

The FPE scores are available for most countries in the earlier rounds for 1982, 1989, 1994, and 1999. The questionnaires have been sent to a small number of expert observers for each country; they contain about 120 questions that are reduced to 30 program features (described in detail in Ross and Stover, 2001). The 30 scores are organized under four components, for policies, services, evaluation/monitoring, and method availability, and are converted to the percent of maximum (100) for easier comparisons (table 2).

Data on contraceptive prevalence are drawn from DHS and other surveys listed in United Nations (2000a) and other sources; total fertility rates are taken from United Nations (2000b).

These 53 countries contain three-fifths (61 per cent) of the developing world’s population outside of China. Five of the eight largest developing countries are included (India, Indonesia, Bangladesh, Mexico, and Brazil), which alone contain 46 per cent). Twenty-one countries are in Latin America, 9 in Asia, 12 in North Africa/Middle East, and four in the Central Asian Republics. Finally, the sharpest selectivity is in Sub-Saharan Africa since the group of Intermediate Fertility countries (TFR cut-off of 2.1 – 4.9) includes only seven of the nearly 50 countries in the region, all in the Anglophone group.

### **B. PAST PROJECTIONS**

An extensive literature exists on the impact of action programs on contraceptive prevalence and fertility, but very few exercises have specifically projected program effects into the future. Three of these are now described.

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### 1. *A first projection*

Bernard Berelson (1978) used 12 demographic and social indicators and the FPE scores to determine the prospects for 29 developing countries to reach a crude birth rate of 20 by the year 2000. He divided these countries, containing 85 per cent of the developing world, into four groups:

The Certain: South Korea, Taiwan, Chile

The Probable: China, Brazil, Mexico, Philippines, Thailand, Turkey, Colombia, Sri Lanka, Venezuela, Malaysia.

The Possible: India, Indonesia, Egypt, Peru

The Unlikely: Bangladesh, Pakistan, Nigeria, Iran, Zaire, Afghanistan, Sudan, Morocco, Algeria, Tanzania, Kenya, Nepal.

He also projected past fertility declines to 2000 for each group, showing that the four groups, in order, should come to much different CBRs (population weighted). These followed two assumptions: that the future would follow the declines of the previous 20 years (1955-1975), or that the future would follow double the decline of the previous ten years (1965-1975), during which declines were perhaps faster and action programs had come into play.

#### Expected CBR Values by 2000 Under Two Assumptions

Category:	CBR 1975	Decline = 1955-75	Decline = double 1965-75	UN 2000 Projection
The Certain	24	15	15	19.6
The Probable	29	24	19	21.5
The Possible	37	31	26	26.6
The Unlikely	48	47	46	36.8
Total	34	30	26	25.6

(No country projection was taken below CBR 15; and three countries with slight increases in the 1955-65-75 data were considered as no change.)

At that time, the UN's Medium Variant projections for CBRs in 2000, for the same groups of countries, are shown in the last column. The agreement with the second projection is good overall, and is close for two groups.

### 2. *A second projection*

A partial update of Berelson's work assessed the likelihood that each of 37 developing countries would reach replacement fertility by 2015 (Mauldin and Ross, 1994). These countries, having populations of 15 million or more in 1990, contained 91 per cent of the developing world and were divided into the same four groups, defined by quartiles on a composite index based on five indicators including contraceptive prevalence in 1990 and the FPE from the 1989 round, as well as an indicator for the socioeconomic setting that in turn was made up of seven demographic and social items.

When the past TFR trend was projected to 2015 for each of the four groups it was found to agree closely with the United Nations Medium Variant projections only for the Certain and Probable groups. The agreement was not close for the other two groups. Figure I contrasts the agreement for the Unlikely group and the Certain group: The high and constant level of fertility for the Unlikely group when projected by the composite index remained high and flat, whereas the United Nations then showed a considerable decline. Since this analysis was done three of the 11 countries in the Unlikely group (table 3) have reached TFRs (1995-2000) below 5 and are included in the group for this seminar, as are all five countries in the “Possible” category. Exercises like this can be repeated at intervals and could be applied now to the Intermediate Fertility group with current data.

### 3. *A third projection*

A third projection concerns only the program effort indices, not fertility, and it is only for the five years from the 1999 FPE round to 2004 (based upon Ross and Stover, 2000). However experience with methods used for the short range may help to clarify how best to extrapolate to longer periods.

Five projections were made; the first four used the 1994 to 1999 changes as the basis for estimating the changes to come. The fifth projection used all past rounds from 1982 onward. For this exercise the countries were divided into four groups according to the total score (per cent of maximum):

Strong	> 67
Moderate	46-66
Weak	21-45
Very Weak/None	0-24

For Projections A, B, and C, the top two groups were combined as “Stronger” and the bottom two groups were combined as “Weaker.” In Projection D the top two groups were treated separately and compared to the combination of the bottom two groups. Projection E treated each country separately.

Projection A: Let each Weaker program improve on each of the 30 FPE scores as much as it did in the last 5 years. Keep all Stronger program scores constant. Result: Large gaps persist between the new Weaker program scores and the 1999 Stronger program scores. Also, the all-country score changes little, partly because the Weaker programs are not numerous.

Projection B: Let each Weaker program move half-way on each of the 30 scores toward the average 1999 level of the Stronger programs. Keep all Stronger program scores constant. The result is better than in Projection A: the total score improves more and there are improvements in all four score components. However the relatively small number of Weaker programs means that the all-country score changes little.

Projection C: Same as Projection B, but the upward movement of each Weaker program occurs only on 21 of the 30 scores, those where the Stronger average was quite high and there was ample room for an increase by most Weaker programs. (It is not reasonable to expect Weaker programs to improve appreciably on the 9 scores where even the Stronger programs have performed poorly, i.e. below 50, half of maximum). Result: A lesser improvement than in Projection B due to omission of 9 scores, both overall and for three of the four components.

Projection D: Break the Stronger group into its two parts (the “Moderate” and “Strong” groups). Let the Weaker programs move halfway toward the 1999 level of the Moderate programs, and let the Moderate programs move halfway toward the 1999 level of the Strong programs. This produces a much better gain, larger than in Projections A-C, both overall and for each of the four components. The gain in

the all-country score is due primarily to the Moderate programs, which improve considerably and are also especially numerous. The Weaker programs improve about as much, and the two groups together offset the assumed zero change by the Strong group, yielding the overall gain.

Projection E: a different option is to use a regression method to predict the 2004 scores from the 1999 scores, based upon all past relationships of initial to subsequent scores. Change data (for the total score only) were used from 1982 to 1989, from 1989 to 1994, and from 1994 to 1999. Casting all these changes into one framework, and predicting each later score from the previous one, gives an equation that was applied to all 1999 scores to estimate the 2004 scores. (The final equation used was simply linear; earlier trials showed a squared term to be insignificant. Also, results were similar when the equation was based upon any one past period rather than upon all three periods.) Result: this exercise produced a small decline in the total score for both the Strong and Moderate programs, but a larger increase for the Weaker programs, sufficient to give a small increase in the all-country score.

Figure II depicts the effects of Projections A-D for the four components, showing the advantage of Projection D for all four.

The net result of these trials is that the Weaker Programs are not numerous enough to make a large difference in the all-country scores unless they are permitted to improve considerably. That is, Projections A-C placed limits on the possible changes, and only when the more numerous Moderate programs were broken out in Projection D did the all-country score change much. However the regressions in Projection E reflected the pace of earlier changes by the Weaker programs, and it has been the Weaker programs that have improved the most over the last few decades.

#### C. PAST TRENDS OF CONTRACEPTIVE USE AND FAMILY PLANNING EFFORT

Other papers in this seminar are concerned with the future course of fertility; here we concentrate on the FPE materials and the closely allied information on changes in contraceptive prevalence, which the programs chiefly focus upon. The increases in contraceptive use in most countries are well known, so the only trends included here are for Intermediate Fertility countries that were surveyed in all four FPE rounds from 1982 through 1999 (figures IIIa - IIIId).

The principal observations to be made about these prevalence trends are:

- The remarkable evenness of upward movement
- The lack of any plateauing so far
- The large spread of levels among countries within each of the four large regions
- The close similarity of the central tendencies in Asia, Latin America, and North Africa/Middle East (less so in Sub-Saharan Africa).

Most countries surveyed have experienced continuous increases in contraceptive use, which is consistent with their fertility declines into the Intermediate Group, but they still vary across a wide range of levels, and the ranges within each region are more prominent than any overriding differences in the regional averages, except that the Sub-Saharan African regional average is lower.

**Program effort measures** have also been upward on average but with less regularity than seen in the prevalence trends (figures IVa - IVd). *In general*, the weaker programs have improved most in their

effort levels, so the dispersion of scores in 1999 is less than before. Figure V shows the upward movement of the weakest cohort of programs starting in 1972, closing the gap to the stronger programs.

The highest scoring countries in 1999 tend to have been high in one or two previous rounds. However, the patterns vary considerably by region, as follows:

In Asia, Myanmar has improved sharply from nearly zero in 1982, while the top performers of Indonesia, Bangladesh, and Vietnam have been high and level. India's score declined in 1999.

The Latin American countries show many ups and downs, with no overriding pattern. Nearly every country experienced a definite rise in the seven years from 1982 to 1989, but in the next two periods declines nearly matched rises. Mexico's line at the top has been consistent, but most of the others have not, due perhaps partly to measurement errors as well as to real program changes, some of them reflecting shifts in the relative roles of the public and private sectors. A country by country examination would help to clarify the changes, by examination of the 30 detailed scores and by using local information.

In the North Africa/Middle East region the scores have been generally up, and the patterns are more even than in Latin America. Only the Lebanon score underwent a large reversal. By 1999 the countries showed less dispersion than before, centered on 60 per cent of the maximum score.

In Sub-Saharan Africa all four trends are up, even including Sudan's. The other three are nearly the same, also at about 60 per cent.

For the Central Asia Republics no trend lines are available.

Program effort interacts with the social setting in its impact on contraceptive prevalence and fertility, as documented first by Berelson (1974), who classified countries simultaneously by program effort and social setting, with values in the cells for contraceptive adopters, contraceptive users, and fertility decline. This was repeated with more countries by Freedman and Berelson (1976), by Mauldin and Berelson (1978), and by others in various ways since. The 2 by 2 summary given below indicates how this synergy persists among the Intermediate Fertility countries, within their narrower TFR range. Prevalence of use varies across social setting, and separately across program effort, but especially so along the diagonal for both. Each cell gives the mean prevalence of contraceptive use for the countries involved. The average for all countries is 52 per cent using, varying from 28 per cent to 61 per cent (country detail is in table 4).

<b>Social Setting</b>	<b>Program Effort Score</b>		<b>Mean</b>
	High and Upper Middle	Lower Middle and Low	
High/Middle	61	58	60
Lower Middle/Low	44	28	38
Mean	55	45	52

#### D. CEILING LEVELS FOR PREVALENCE AND PROGRAM EFFORT

How high might prevalence and program effort values go? A ceiling level for contraceptive use is 80 per cent to 85 per cent, as registered in surveys in the Chinese examples of (83 per cent), Hong Kong (86 per cent), and Taiwan (82 per cent). Others have been in the high 70s, or approaching it, as in the Republic of Korea (77 per cent), Thailand (73 per cent), and Vietnam (75 per cent), Brazil (77 per cent), Colombia (73 per cent), Costa Rica (75 per cent), Puerto Rico (78 per cent), and Mauritius (75 per cent). The closest example in the Middle East is Iran (70 per cent). The highest figures have occurred where sterilization is a major component, except in Vietnam and Mauritius. Prevalence of contraception in the 75 per cent to 85 per cent range is quite consistent with replacement fertility, and usually it is accompanied by later marriage and some abortion use.

Interestingly, a similar ceiling exists for the total FPE score. The strongest programs have leveled off at about 80 per cent to 85 per cent of the maximum of 100. Asian programs are again notable, with China (86 per cent) and Taiwan (79 per cent), also Indonesia (82 per cent). Others fall into the 70s: Thailand (75 per cent), and Vietnam (76 per cent) in Asia, Iran (71 per cent) and Tunisia (71 per cent) in the Middle East, Mauritius again (71 per cent), and Mexico (75 per cent) in Latin America. These high figures only occur where the FPE component score for method availability is high (referring to the proportion of the entire population for whom methods are easily available, including male and female sterilization, the IUD, the pill or injectable, the condom, and safe abortion).

In the past a prevalence increase of 2 points a year (e.g. 50 per cent to 52 per cent of couples using a method) has been a working upper limit, although the Republic of Korea rose at 2.5 points a year from about 20 per cent to about 75 per cent and a very few other countries have risen at that pace. At 2 points a year prevalence in a country can rise from 40 per cent to 75 per cent in about 17 years. However a tabulation (taken from UN 2000a, p. 26) giving the pace for 34 Intermediate Fertility countries with repeat surveys shows the patterns in table 5. As the means on the right show, there is no apparent relation between the pace of increase and the starting level, perhaps partly because the precise starting dates and time intervals vary (unlike table 6). Most countries fall into the middle column, for a pace of about 1.5 per cent per year. At that rate it takes 23 years for prevalence to rise from about 40 per cent to 75 per cent, during which time a good deal of additional population growth will have been built into the age structures. For absolute numbers India will dominate these developments.

Whether countries will increase prevalence at a steady rate over a long period is not clear. In the past a few may have stalled for a while around the mid-fifties, and there are reasons why that might be so (below).

The parallel for FPE scores, using the same cell boundaries, shows a pace of 1.18 points per year for the 38 countries that were studied in all rounds of the study (table 6). The pattern according to the initial level is quite different from that for contraceptive prevalence, since the average annual increase is closely related to the starting level. The means descend from 2.62 to 1.43 to 1.01 to 0.36 and 0.12 as the starting level rises, and the distribution of countries clearly lies along the diagonal.

This reflects the greater room for improvement when the starting level is low, but it also confirms the observation above that it is the weaker programs that have increased the most over the years. That augurs well for a continued rise in the average.

## E. LOOKING TOWARD THE FUTURE

We can list two sets of considerations, one for the negatives and one for the positives as they may impinge upon future trends of program effort and its effects.

**The negatives** are several. First, these programs can only do so much. Short of the draconian approach used in China, they are largely limited by individual preferences. In every country there is a subgroup of individuals and couples who wish to avoid pregnancy, who are willing to use contraception, and who will do so at higher rates with the assistance of an organized program. The size of that subgroup sets an upper limit, which fundamentally reflects deeper conditions related to the timing of cohabitation, to spacing customs, and to desired family size. Those in turn are imbedded in social and economic conditions. How fast those factors may change requires a different calculus than that discussed here.

Second, program strength depends partly upon outside factors. Programs have had their greatest impact in interaction with favorable social settings, and where those are weak the infrastructures necessary to large efforts in health, education, agriculture, or other interventions are not very helpful. What Berelson called the “Fourth Cell” still appertains – very few countries fall into the table cell for a weak social setting but a strong program. Bangladesh has been a prominent exception to the rule.

Other limitations act in the chain from program activities to fertility: the strongest programs have plateaued at about 85 per cent of the maximum scores; they may in some instances simply substitute for private contraception (while however stimulating it in others); some of the contraceptive use they produce suffers from failures and irregular use, applies to only one part of the birth interval, is used partly for inefficient spacing of births, and sometimes replaces breastfeeding. All these limitations weaken any one-to-one correlation between program strength and fertility. However there is evidence of a firm link between program strength and the reduction of *unwanted* fertility (Bongaarts, 1994).

Where the TFR has fallen to replacement some national leaders have become concerned about too-low fertility, with its own deleterious consequences. In that sense the very success of programs can bring about their demise. The Republic of Korea is a major example of this; upon reaching a low TFR it essentially dismantled the national program by deep reductions in budget and allocated staff.

Donors too can become fatigued with supporting the same programs year after year. A chronic turbulence exists in the financial resources of such major agencies as USAID, the UNFPA, the World Bank, and some European donors, which has helped restrict planning in some country programs to a short-term basis. There are also ideological shifts both internationally and within countries that, while they may be overdue and unavoidable as in the 1996 Indian policy reversal, still illustrate the uncertain paths of program effort. Severe outer shocks to the programs can unexpectedly undermine efforts; national chaos can render useful activity nearly impossible, as in Somalia, the D.R. Congo, Rwanda, or Afghanistan.

Discontinuation rates of resupply methods limit program effects. In practice, all methods but sterilization have relatively high discontinuation rates. Most persons who start on a resupply method interrupt or cease its use, not due to a loss of interest but rather to health side effects, fear, inconvenience, cost, or poor access. Only a relatively small subgroup finds each method satisfactory for a longer period of 5-15 years. All resupply methods, as necessary and useful as they are, have relatively brief continuation rates. As generalizations, among women starting on the pill or injectable, half or more discontinue within a year, and condom discontinuations are worse. The IUD and implant are used on average about 3.5 years in developing countries.

The state of contraceptive technology is unsatisfactory. Given any level of public motivation for pregnancy control, defects of the technology reduce the net effect upon fertility, in particular upon unwanted fertility. One study of 15 countries (Blanc, Curtis, and Croft, 2002) concluded that the fertility rate (TFR) would be between 4 and 29 percent lower in the absence of contraceptive failures, and without other kinds of discontinuations the TFR would be reduced by between 20 percent and 48 percent. Effects were greater on the total unwanted fertility rate; more than half of recent unwanted fertility was due to births preceded either by a contraceptive failure or a contraceptive discontinuation in all countries but one. Further, quality-related discontinuations were inversely associated with measures of program effort.

Discontinuations produce a programmatic limit. If as many as 15 per cent of all women start on a method during any one year and use a resupply method for even 3.5 years, prevalence stabilizes at 53 per cent, far below the replacement fertility equivalent. To maintain that level there must be compensating movements in and out of the using pool, a churning process that is wasteful for the couples and burdensome and costly for the program. This remains true in general, notwithstanding the portion of useful terminations that reflect the sorting out process as couples seek the best method for their own situation, and change methods as they move from one life stage to another.

Large proportions of women in the developing world have completed their desired family size by age 30, and face a fifteen year period during which they need protection from unwanted abortions and births. The movement into the final stage, one of permanent protection, needs the option of male or female sterilization, with its near-zero failure rate and automatic long-term continuation. Without that is it difficult to attain high prevalence (among these countries the correlation between total prevalence and sterilization prevalence gives an R2 of 0.24). The absence of sterilization in the contraceptive offerings is a serious limitation, and it will be easier for these countries to move toward replacement fertility if they manage to offer it more widely.

Yet it is not likely that some of them will do so. Sterilization has won favor in very few Muslim countries, which largely prefer the IUD and other methods. Apart from Tunisia, in no Middle East Muslim country has sterilization prevalence risen above 5 per cent of couples, and in most, as in Algeria, Egypt, Iraq, Syria, and Turkey it is a mere 2-3 per cent. It is higher in Iran, where 12 per cent of couples were using the method in the 1994 survey. In Indonesia only 3 per cent use the method, and in Bangladesh, which has stressed the method nationally over the years, only 8 per cent use it. These low figures are due partly to cultural factors including fundamentalist objections, partly to negative attitudes among the medical elites, and partly to the failure of the programs to quietly make the method more available to the general population. Of all these countries, only Iran has achieved high overall prevalence of use.

**Positive influences** counterbalance the negatives. They are found primarily in the record of the overall increases in program effort in each inter-survey period since 1972. Individual country scores show considerable fluctuations but globally the programs have been making greater efforts. This applies in particular to extending the sheer access of people to contraceptive methods.

For the future there is always the possibility of breakthroughs in contraceptive technology that would make both the adoption and continuation of reliable contraception easier for the user and easier for program implementation. Private sector activity would be augmented by such developments, which programs could stimulate and reinforce.

The sheer institutionalization of these programs in Ministries of Health and Finance, and in the supportive international and national assistance agencies, must be counted as an important positive factor. These have their own momentum, and despite the exigencies of annual budget and staffing struggles they will surely be part of the scene for the indefinite future.



There is in addition the drumbeat of research and analysis that continues to dramatize the inevitable growth of numbers on the planet and the kinds of burdens they represent. It was data and its analysis that led to the historic decisions in China, India, Bangladesh, Indonesia, Mexico, and others to establish a response to extraordinary population growth rates and their consequences. The impetus created by demographic knowledge has been reinforced by analyses concerned with other reasons for making humane contraception available to whole populations. The information base has sustained the rationale for large-scale organized programs at the national level, and may be expected to continue to do so.

A final influence that tends to tilt the scale in favor of continued program effects is the net movement of young populations of working age to urban areas, where services can be more concentrated and efficient, to deal with the burgeoning numbers of users that come from both population growth and rising prevalence of use. Clinical medical services are more prevalent in cities for offerings of the IUD, injectable, implant, and sterilization. Rising educational levels, where they occur, will reinforce the public uptake of these in both public and private sectors. Finally, to the extent that infrastructures improve, programs will find it easier to operate.

The role of HIV/AIDS is probably a neutral factor for these particular Intermediate Fertility countries, although that remains to be seen over the long run. The high-HIV countries in Sub-Saharan Africa are excluded from the group, so among the 53 countries considered here, the 12 countries with HIV prevalence above 1 per cent of adults contain only 6 per cent of the aggregate population. The other 41 countries, with low HIV prevalence, contain the other 94 per cent of the total.

In sum, there is a set of positive features that will help program contributions in the future and counterbalance some of the negative ones. The net effect will depend on the country; a few of these countries, like Indonesia, Bangladesh, Mexico, Vietnam, and Iran already have high effort scores, with less room for increases. Nevertheless most other programs have ample room for improvement, and the past record is encouraging. The literature since the mid-1970s at least, including the UN-sponsored work and the other analyses cited above, finds overall fertility effects. For the developing world as a whole through 1990, the programs were estimated to have produced a population reduction of about 412 million persons, and were projected to add considerably to that figure (Bongaarts, Mauldin, and Phillips, 1990). By 1990 organized programs were credited for about half of the recorded fertility decline since the 1950s, or an average net impact in the developing world in the late 1980s of about 1.4 births per women (Bongaarts, 1997).

In the years since those analyses were done some countries have moved closer to replacement, implying a slowing of further decline; moreover some timing effects are present that may later attenuate or reverse declines at low levels. However countries differ greatly; for some the recent rates of decline would not produce replacement for some time, and in that interval programs will have a substantial compass within which to continue their effects, and to improve. Even the strongest programs are selective among the 30 program effort scores; none maximize effort on all 30. They differ not just in overall strength but in their selectivity of features. Policy makers who seek to optimize future program effects, on a voluntary basis, will approximate the features of a high-effort program. Judging from the FPE indices over the years, such a program:

- provides supplies and quality services to the whole population, close to home
- includes a wide range of contraceptive methods
- includes pregnancy termination methods where legal and safe
- uses the media fully to inform the public

- legitimizes child spacing and the program itself in frequent statements by high officials and by prominent figures in the private sector
- enlivens the private medical sector and pharmacies, e.g. through social marketing programs
- eliminates custom duties and taxes on contraceptives, and eases regulatory barriers; permits advertising of contraceptive products and services
- establishes specialized sub-programs such as community based distribution, home visiting, postpartum and post abortion offerings.
- reaches out to adolescents through the schools, military, and other channels.
- takes steps to enforce a minimum marriage age for both sexes
- uses its good offices to seek the cooperation of potentially hostile institutions in the society, or at least their acquiescence.

These core items can operate through various contexts and with various rationales, whether through the health ministry for health reasons, or through various ministries for a blend of demographic, health, gender-related, and human rights reasons. Some programs will go further, widening out to foster female employment, cottage industries, or income generation activities.

How far will such a program go to reduce fertility? Basically, it encourages, and helps to implement, the “later, longer, fewer” fertility behavior that was urged in China, but on a voluntary basis with personal choice preserved. It makes it easy for every couple to implement their own objectives, and it reduces births in the country down to the limit, or floor, that reflects what couples definitely want, minus those precluded by infecundity.

The floor will still include births that are only “semi-wanted.” Even with attractive contraceptive services ready at hand in both public and private channels, some people will not use them due to religious objections, conflicting pressures within couples or families, or personal ambivalence. What are removed however are those pregnancies and births that are frankly not wanted, including most pregnancies that would otherwise end in abortions.

With social change this floor, of the births that are actively wanted, tends to descend, and births undergo a shift according to order. First and second births continue, while third and fourth (and higher) births diminish. In time, fewer second births occur. The marriage age may rise; pre-marital adolescent births may diminish; and birth spacing if it occurs will tend to reduce period fertility rates. There is no sign yet of a fall-off in the remarkable increases in contraceptive use in this group of countries, and their average program effort score has risen in every survey so far. Both trends however are linked to future social setting changes that are not entirely assured.

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TABLE 1. FIFTY-THREE DEVELOPING COUNTRIES WITH TOTAL FERTILITY RATES  
BETWEEN 2.1 AND 4.9 AND POPULATION SIZES OVER ONE MILLION

<i>Listed by TFR</i>			<i>Listed by population size</i>			<i>Listed alphabetically</i>		
	<i>TFR 2000</i>	<i>Population 2000</i>		<i>TFR 2000</i>	<i>Population 2000</i>		<i>TFR 2000</i>	<i>Population 2000</i>
Tunisia	2.21	9 459	India	3.15	1 008 937	Algeria	3.02	30 291
Brazil	2.21	170 406	Indonesia	2.43	212 092	Argentina	2.53	37 032
Lebanon	2.23	3 496	Brazil	2.21	170 406	Bangladesh	3.68	137 439
Uruguay	2.35	3 337	Bangladesh	3.68	137 439	Bolivia	4.14	8 329
Viet Nam	2.38	78 137	Mexico	2.62	98 872	Botswana	4.15	1 541
Chile	2.40	15 211	Viet Nam	2.38	78 137	Brazil	2.21	170 406
Indonesia	2.43	212 092	Philippines	3.44	75 653	Chile	2.40	15 211
Jamaica	2.44	2 576	Iran	2.98	70 330	Colombia	2.71	42 105
Turkey	2.50	66 668	Egypt	3.14	67 884	Costa Rica	2.75	4 024
Mongolia	2.51	2 533	Turkey	2.50	66 668	Dominican Rep.	2.80	8 373
Panama	2.52	2 856	Myanmar	3.05	47 749	Ecuador	2.93	12 646
Argentina	2.53	37 032	South Africa	2.98	43 309	Egypt	3.14	67 884
Uzbekistan	2.57	24 881	Colombia	2.71	42 105	El Salvador	3.03	6 278
Kyrgyzstan	2.61	4 921	Argentina	2.53	37 032	Ghana	4.41	19 306
Mexico	2.62	98 872	Sudan	4.69	31 095	Guatemala	4.67	11 385
Colombia	2.71	42 105	Kenya	4.38	30 669	Haiti	4.18	8 142
Costa Rica	2.75	4 024	Algeria	3.02	30 291	Honduras	4.01	6 417
Kuwait	2.78	1 914	Morocco	3.22	29 878	India	3.15	1 008 937
Dominican Rep.	2.80	8 373	Peru	2.81	25 662	Indonesia	2.43	212 092
Peru	2.81	25 662	Uzbekistan	2.57	24 881	Iran	2.98	70 330
Venezuela	2.85	24 170	Venezuela	2.85	24 170	Jamaica	2.44	2 576
Ecuador	2.93	12 646	Nepal	4.65	23 043	Jordan	4.50	4 913
South Africa	2.98	43 309	Malaysia	3.08	22 218	Kenya	4.38	30 669
Iran	2.98	70 330	Ghana	4.41	19 306	Kuwait	2.78	1 914
United Arab Emirates	3.02	2 606	Syria	3.83	16 189	Kyrgyzstan	2.61	4 921
Algeria	3.02	30 291	Chile	2.40	15 211	Lebanon	2.23	3 496
El Salvador	3.03	6 278	Ecuador	2.93	12 646	Lesotho	4.60	2 035
Myanmar	3.05	47 749	Guatemala	4.67	11 385	Libya	3.56	5 290
Malaysia	3.08	22 218	Tunisia	2.21	9 459	Malaysia	3.08	22 218
Egypt	3.14	67 884	Dominican Rep.	2.80	8 373	Mexico	2.62	98 872
India	3.15	1 008 937	Bolivia	4.14	8 329	Mongolia	2.51	2 533
Morocco	3.22	29 878	Haiti	4.18	8 142	Morocco	3.22	29 878
Tajikistan	3.29	6 087	Honduras	4.01	6 417	Myanmar	3.05	47 749
Turkmenistan	3.39	4 737	El Salvador	3.03	6 278	Nepal	4.65	23 043
Philippines	3.44	75 653	Tajikistan	3.29	6 087	Nicaragua	4.07	5 071
Libya	3.56	5 290	Paraguay	4.00	5 496	Panama	2.52	2 856
Bangladesh	3.68	137 439	Libya	3.56	5 290	Papua New Guinea	4.46	4 809
Syria	3.83	16 189	Nicaragua	4.07	5 071	Paraguay	4.00	5 496
Paraguay	4.00	5 496	Kyrgyzstan	2.61	4 921	Peru	2.81	25 662
Honduras	4.01	6 417	Jordan	4.50	4 913	Philippines	3.44	75 653
Nicaragua	4.07	5 071	Papua New Guinea	4.46	4 809	South Africa	2.98	43 309
Bolivia	4.14	8 329	Turkmenistan	3.39	4 737	Sudan	4.69	31 095
Botswana	4.15	1 541	Costa Rica	2.75	4 024	Swaziland	4.62	925
Haiti	4.18	8 142	Lebanon	2.23	3 496	Syria	3.83	16 189
Kenya	4.38	30 669	Uruguay	2.35	3 337	Tajikistan	3.29	6 087
Ghana	4.41	19 306	Panama	2.52	2 856	Tunisia	2.21	9 459
Papua New Guinea	4.46	4 809	United Arab Emirates	3.02	2 606	Turkey	2.50	66 668
Jordan	4.50	4 913	Jamaica	2.44	2 576	Turkmenistan	3.39	4 737
Lesotho	4.60	2 035	Mongolia	2.51	2 533	United Arab Emirates	3.02	2 606
Swaziland	4.62	925	Lesotho	4.60	2 035	Uruguay	2.35	3 337
Nepal	4.65	23 043	Kuwait	2.78	1 914	Uzbekistan	2.57	24 881
Guatemala	4.67	11 385	Botswana	4.15	1 541	Venezuela	2.85	24 170
Sudan	4.69	31 095	Swaziland	4.62	925	Viet Nam	2.38	78 137

TABLE 2. FAMILY PLANNING EFFORT SCORES, 1999 FOR 47 INTERMEDIATE FERTILITY COUNTRIES

	<i>Total Score</i>	<i>Four Components</i>			
		<i>Policy</i>	<i>Service</i>	<i>Evaluation</i>	<i>Availability</i>
<b>Latin America</b>					
Argentina	29.5	32.8	21.3	35.8	39.6
Bolivia	48.5	46.3	43.6	45.4	63.7
Brazil	59.4	50.0	46.5	59.2	100.0
Chile	60.8	50.2	56.0	60.0	85.5
Colombia	64.2	43.9	66.2	77.6	80.1
Costa Rica	32.3	38.0	20.7	18.5	56.8
Dominican Republic	50.0	43.3	51.7	43.8	58.5
Ecuador	46.0	47.3	43.3	47.1	49.5
El Salvador	45.9	48.8	45.1	40.9	46.2
Guatemala	36.7	34.8	31.8	34.6	51.0
Haiti	51.4	58.9	49.7	39.2	51.0
Honduras	43.8	43.1	41.3	39.6	52.3
Jamaica	62.5	71.1	59.0	63.3	58.2
Mexico	74.6	79.0	62.5	84.2	90.4
Nicaragua	49.5	35.3	53.2	60.0	54.9
Panama	49.4	61.4	34.4	59.9	60.7
Paraguay	55.7	56.3	42.9	59.4	80.6
Peru	58.6	65.0	41.9	60.1	85.4
Uruguay	33.9	22.3	30.2	54.2	47.0
Venezuela	29.0	31.9	11.7	13.3	70.8
Means	49.1	48.0	42.6	49.8	64.1
<b>Asia</b>					
Bangladesh	74.5	70.3	74.9	71.6	80.6
India	65.0	72.0	58.4	60.1	72.3
Indonesia	82.2	83.6	86.1	80.9	72.4
Malaysia	68.7	71.9	61.4	85.8	71.7
Mongolia	37.6	30.6	35.1	25.8	58.5
Myanmar	36.6	33.7	37.5	58.9	27.4
Nepal	57.0	61.1	56.0	66.9	48.9
Philippines	56.5	56.3	49.8	66.4	66.7
Vietnam	76.0	81.6	73.6	65.5	79.0
Means	61.6	62.3	59.2	64.7	64.2
<b>Sub-Saharan Africa</b>					
Ghana	63.5	68.0	61.4	71.5	58.0
Kenya	62.3	55.4	64.4	62.8	66.7
Lesotho	61.5	62.3	57.8	76.9	60.8
South Africa	53.9	61.9	45.4	46.0	65.5
Sudan	34.7	40.6	40.3	39.4	12.0
Means	55.2	57.7	53.9	59.3	52.6
<b>North Africa/Middle East</b>					
Algeria	64.2	80.9	55.1	65.0	60.4
Egypt	57.3	63.3	58.3	59.8	45.7
Iran	71.3	70.3	62.3	67.9	94.0
Jordan	46.8	47.2	44.6	52.8	48.0
Lebanon	60.0	49.1	62.8	74.2	61.2
Morocco	57.1	56.7	51.4	75.8	60.6
Syria	66.2	52.5	74.4	88.1	56.1
Tunisia	71.2	80.0	70.8	87.5	52.4
Turkey	58.9	70.6	43.6	60.9	75.5
Means	61.4	63.4	58.1	70.2	61.5
<b>Central Asia Rep.</b>					
Kyrgyzstan	48.6	44.5	42.9	53.8	63.9
Tajikistan	54.2	58.1	48.4	68.3	54.6
Turkmenistan	58.5	48.6	58.6	65.3	68.3
Uzbekistan	55.4	69.4	47.8	41.0	60.2
Means	54.2	55.2	49.4	57.1	61.7
Overall mean	54.9	55.3	50.6	58.2	62.2

TABLE 3. INDICATORS FOR 37 COUNTRIES ACCORDING TO PROSPECT CATEGORIES FOR FERTILITY DECLINE

<i>Prospect group/country</i>	<i>Total fertility rate 1985-90</i>	<i>Total fertility rate decline between 1960-65 and 1985-90</i>	<i>Contraception prevalence level, 1990 ( per cent)</i>	<i>Program effort score (per cent of maximum), 1989</i>	<i>Socio-economic indicator, 1985</i>	<i>Composite index</i>
<b>Certain</b>						
Taiwan	1.76	3.69	80.0	81	81	85
Korea, Rep	1.73	3.67	79.3	81	79	84
China	2.38	3.55	80.0	87	55	78
Thailand	2.57	3.85	72.8	80	57	77
Colombia	2.90	3.86	66.1	62	72	74
Korea, PDR	2.50	3.25	69.4	54	72	72
Sri Lanka	2.67	2.49	65.7	80	62	71
Mexico	3.60	3.15	57.2	77	74	70
Mean	2.51	3.44	71.3	75	69	76
Weighted mean	2.40	3.50	78.1	85	58	78
<b>Probable</b>						
Brazil	3.20	2.95	69.8	32	71	64
Malaysia	4.00	2.72	54.2	66	68	63
Venezuela	3.45	3.01	57.2	54	81	63
Indonesia	3.48	1.94	48.6	80	54	61
Peru	4.00	2.85	56.7	51	68	60
Turkey	3.79	2.32	65.0	46	63	60
Vietnam	4.22	1.83	55.0	68	54	57
South Africa	4.38	2.13	58.4	62	57	56
Philippines	4.30	2.31	37.7	49	64	54
Egypt	4.53	2.54	44.7	66	53	54
Argentina	2.96	0.13	63.1	21	84	53
India	4.20	1.61	46.6	72	42	52
Morocco	4.82	2.33	38.8	57	50	50
Mean	3.95	2.21	53.5	56	62	57
Weighted mean	4.00	1.91	50.1	65	51	55
<b>Possible</b>						
Algeria	5.43	1.95	48.9	46	61	47
Bangladesh	5.10	1.58	37.2	72	29	43
Myanmar	4.50	1.50	42.4	12	46	39
Iran	6.50	0.76	40.5	57	61	37
Kenya	6.80	1.32	28.8	58	46	35
Mean	5.67	1.42	39.6	49	49	40
Weighted mean	5.50	1.40	38.1	55	43	41
<b>Unlikely</b>						
Ghana	6.39	0.51	14.4	52	45	28
Nepal	5.95	-0.91	20.5	59	27	27
Iraq	6.15	1.03	19.7	1	68	25
Pakistan	6.75	0.25	11.9	48	36	24
Nigeria	6.90	-0.03	6.0	43	42	21
Zaire	6.70	-0.70	8.7	28	47	19
Tanzania	6.80	0.00	8.6	42	34	18
Sudan	6.44	0.23	8.8	20	31	16
Afghanistan	6.90	0.11	5.9	36	20	14
Ethiopia	7.00	-0.30	4.3	32	27	13
Uganda	7.30	-0.40	4.3	33	29	13
Mean	6.66	0.06	10.3	36	37	20
Weighted mean	6.75	0.02	9.2	39	37	20

TABLE 4. CONTRACEPTIVE PREVALENCE BY FAMILY PLANNING EFFORT AND SOCIAL SETTING, FOR COUNTRIES WITH INTERMEDIATE TFR LEVELS (2.1 - 4.9)

<i>Social setting</i>	<i>Total program effort score (1999)</i>				<i>Means</i>
	<i>High and upper middle</i>		<i>Lower middle and low</i>		
HIGH AND UPPER MIDDLE	Algeria	47	Costa Rica	75	
	Brazil	77	Ecuador	57	
	Columbia	72	Honduras	50	
	Dominican Republic	64	Jordan	53	
	Egypt	55	Kyrgyzstan	60	
	El Salvador	60	Mongolia	57	
	Iran	73	Paraguay	51	
	Jamaica	66			
	Mexico	65			
	Nicaragua	60			
	Panama	58			
	Peru	64			
	Philippines	46			
	South Africa	53			
	Syria	40			
	Tunisia	60			
	Turkey	64			
	Uzbekistan	68			
		Mean	61	Mean	58
LOWER MIDDLE AND LOW	Bangladesh	49	Bolivia	48	
	Ghana	20	Guatemala	31	
	India	41	Haiti	18	
	Indonesia	57	Myanmar	33	
	Kenya	39	Sudan	10	
	Lesotho	23			
	Morocco	59			
	Nepal	29			
	Vietnam	75			
		Mean	44	Mean	28
MEANS		55		45	52

Source: Adapted from Ross and Stover (2001).



TABLE 5. DISTRIBUTION OF COUNTRIES BY PACE OF PREVALENCE INCREASE AND STARTING LEVEL

<i>Earlier prevalence</i>	<i>Annual percentage-point increase in contraceptive prevalence</i>			<i>Means</i>
	<i>&lt;1.0</i>	<i>1.0-1.9</i>	<i>2.0 or more</i>	
Below 15 per cent	Ghana Sudan	Haiti Lesotho Nepal		<b>0.96</b>
15-34 per cent	Guatemala India Jordan	Bolivia Egypt Honduras Kenya Malaysia Nicaragua Philippines Syrian Arab Rep.	Bangladesh Morocco	<b>1.35</b>
35-49 per cent		Algeria Dominican Rep. Ecuador Indonesia Paraguay Peru South Africa Tunisia	Iran	<b>1.41</b>
50-64 per cent	Colombia Panama	Mexico Turkey Viet Nam		<b>1.24</b>
65 per cent plus	Costa Rica	Brazil		<b>0.95</b>
<b>Overall Mean</b>				<b>1.27</b>

The means show no trend, and combining categories does not change the lack of pattern.

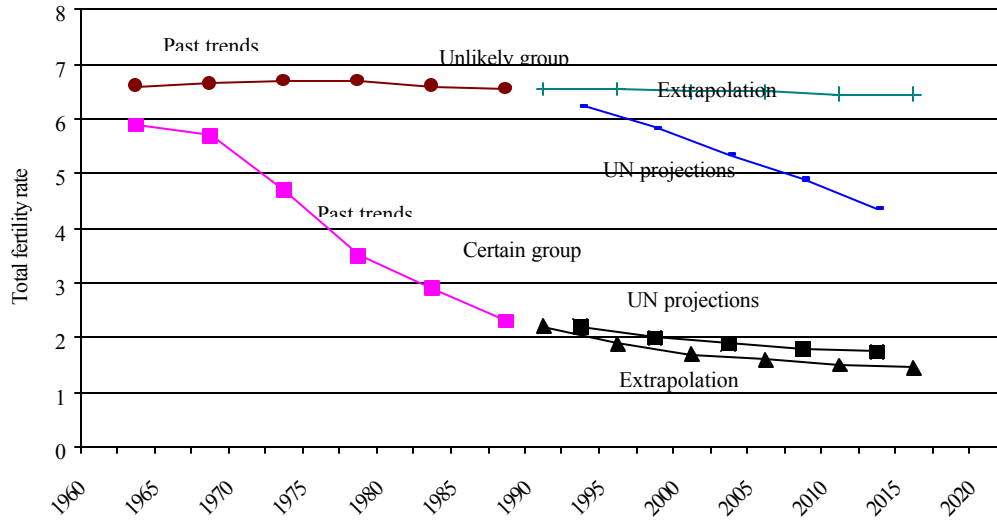
*Source:* United Nations (2000) p. 26, Table 5.

TABLE 6. DISTRIBUTION OF COUNTRIES BY PACE OF INCREASE IN TOTAL EFFORT SCORE, BY STARTING LEVEL

1982 score	Annual percentage-point increase in total effort scores, 1982-1999			Mean
	<1.0	1.0-1.9	2.0 or more	
Below 15 per cent		Myanmar Sudan	Bolivia Iran Lesotho Paraguay Syria	<b>2.62</b>
15-34 per cent	Costa Rica Guatemala Venezuela	Honduras Jordan Lebanon Turkey	Algeria Ghana Kenya Peru	<b>1.43</b>
35-49 per cent	Brazil Ecuador Haiti	Chile Egypt Morocco Nepal		<b>1.01</b>
50-64 per cent	Dominican Rep El Salvador Jamaica Panama Philippines Tunisia	Bangladesh Malaysia Vietnam		<b>0.36</b>
65 per cent plus	Colombia India Indonesia Mexico			<b>0.12</b>
<b>Overall Mean</b>				<b>1.18</b>

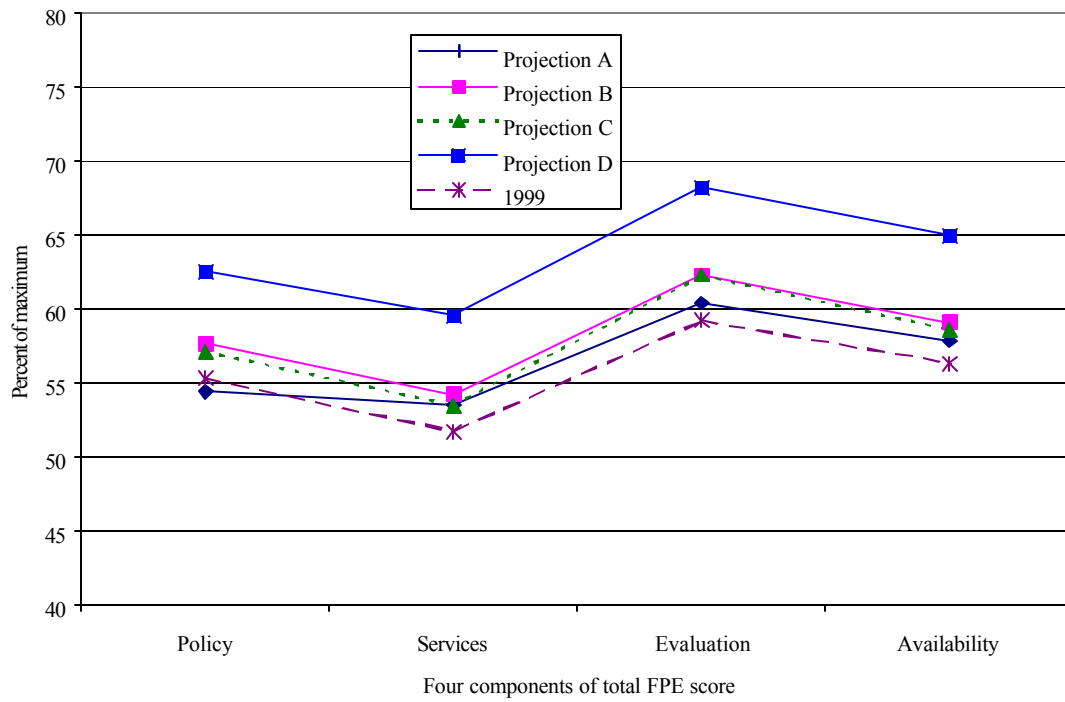
Source: Program effort files.

**Figure I. Projected average total fertility rates for 19 developing countries, unlikely and certain prospect groups, according to extrapolation of past trends and United Nations projections**

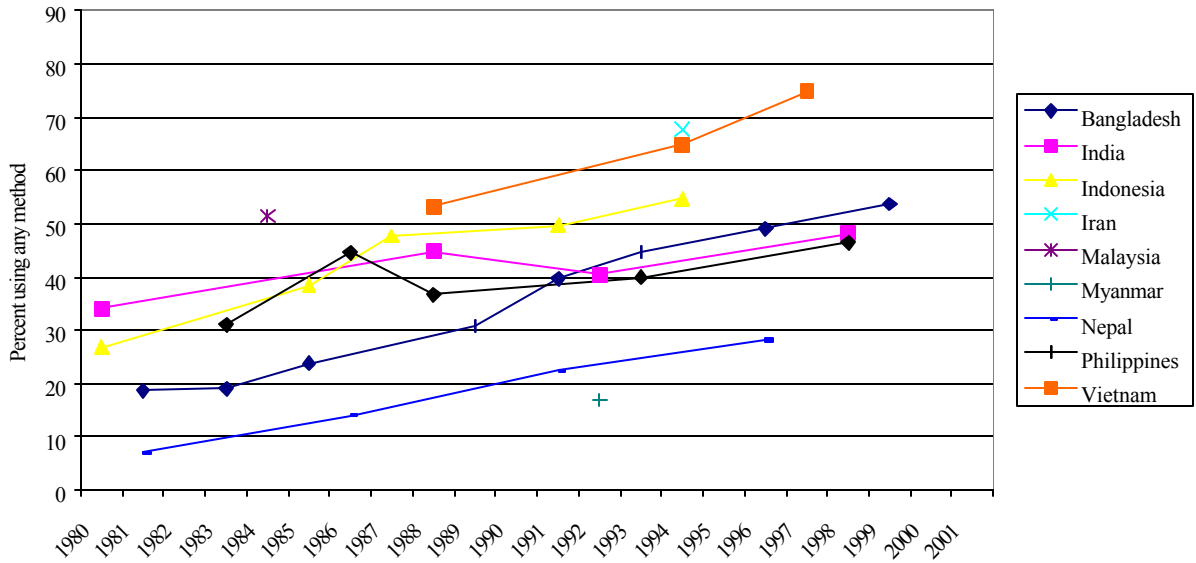


Source: Mauldin and Ross, 1994, p. 91.

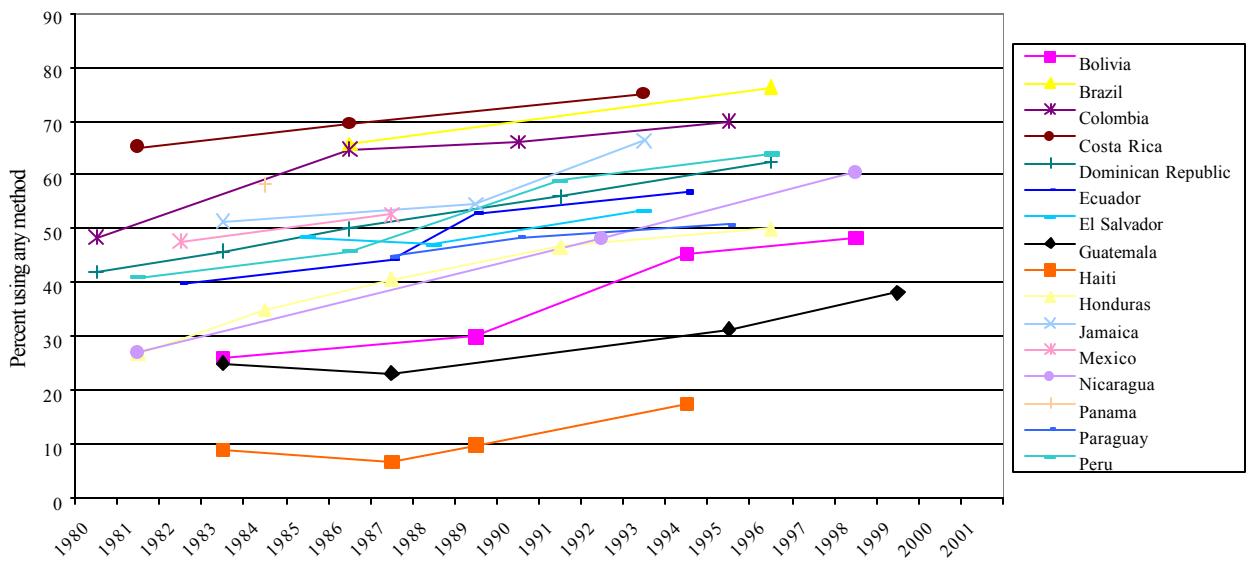
Figure II. Four projections of component scores to 2004, compared to 1999



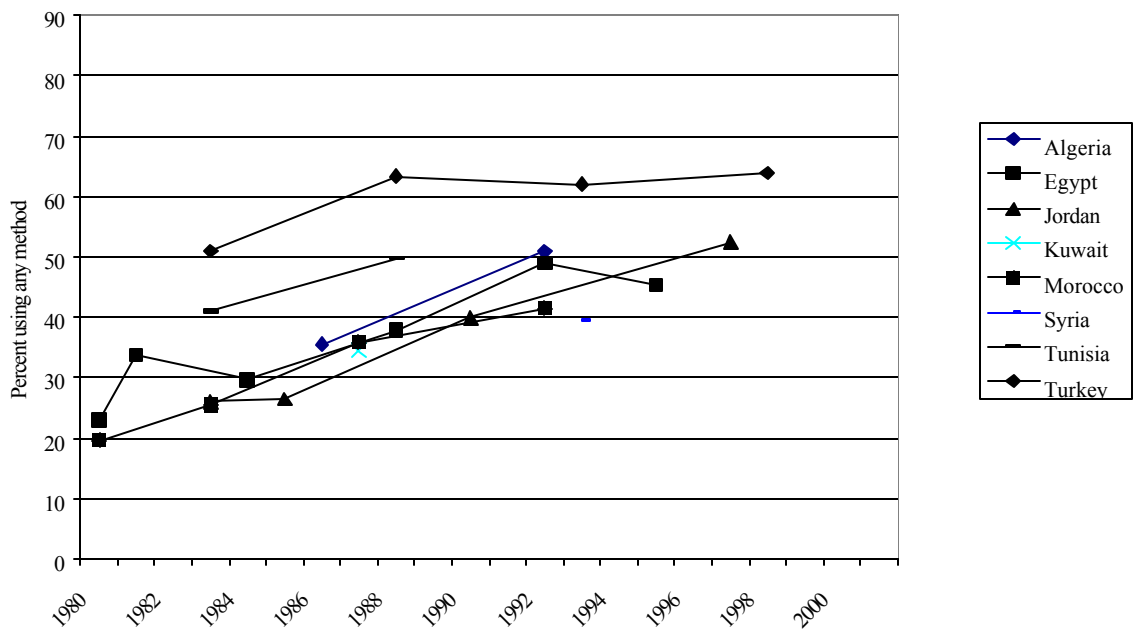
**Figure III a. Contraceptive prevalence for countries in Asia region, 1980-2001**



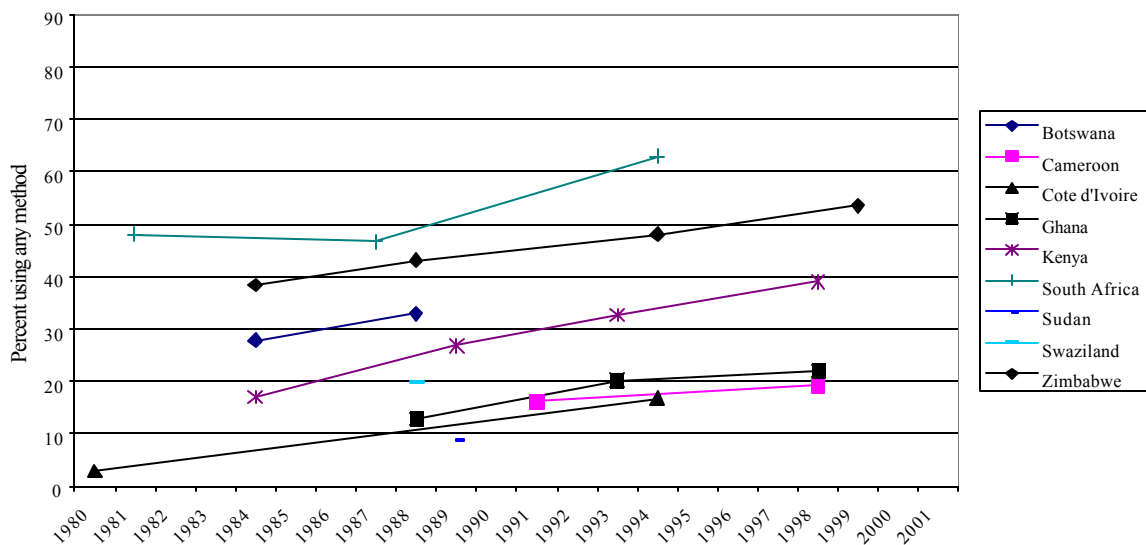
**Figure III b. Contraceptive prevalence for countries in Latin America region, 1980-2001**



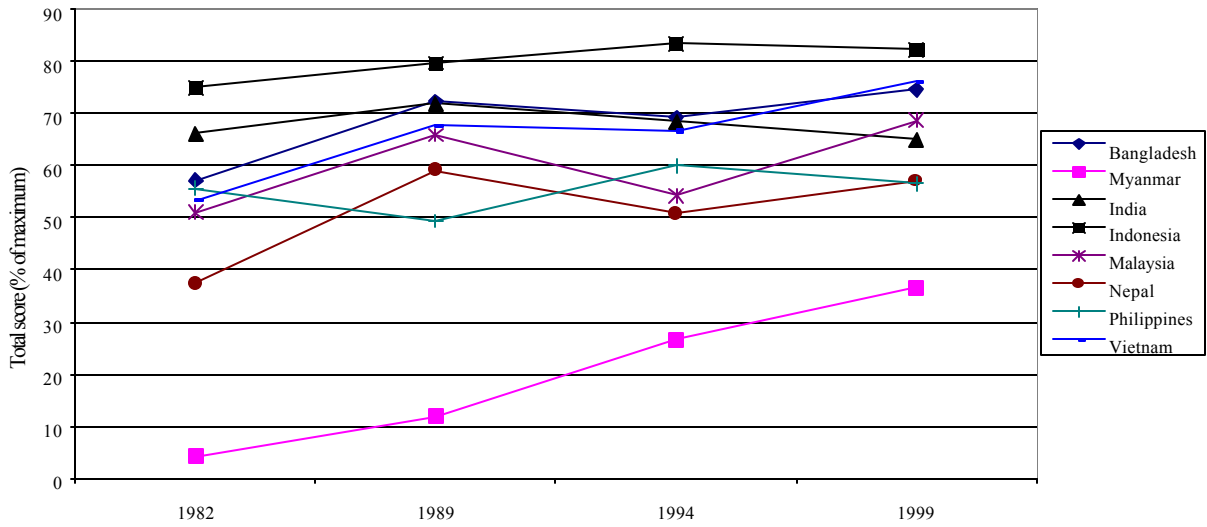
**Figure III c. Contraceptive prevalence for countries in Middle East/North Africa region, 1980-2001**



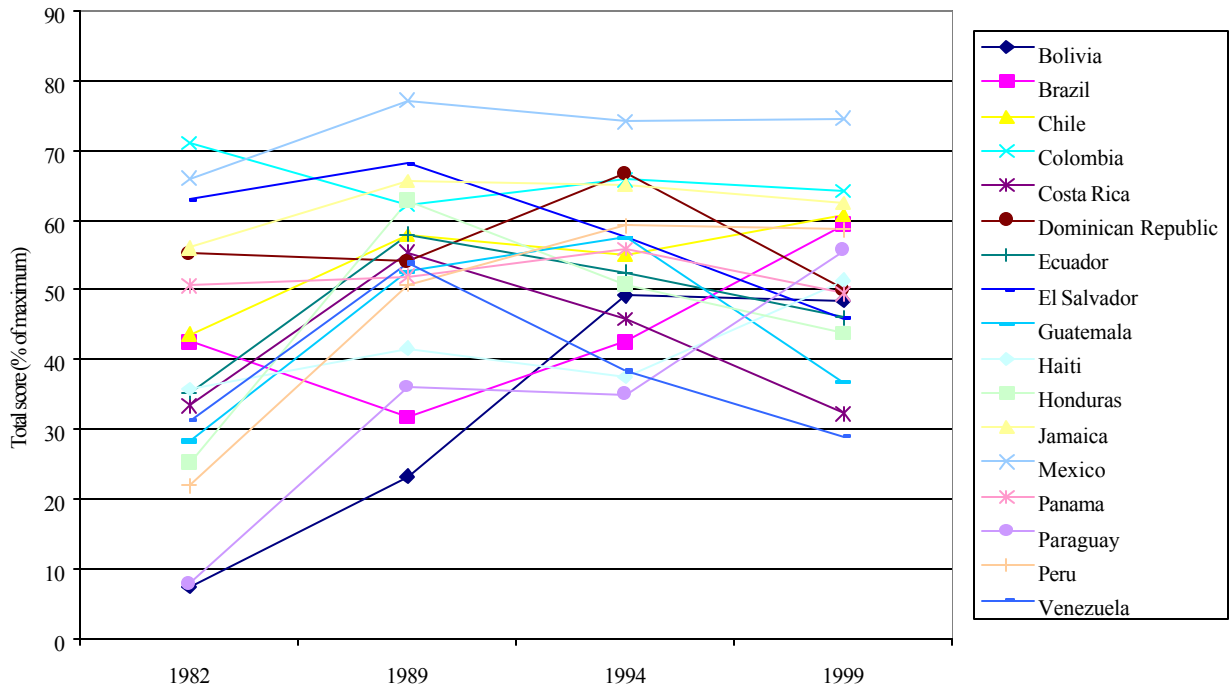
**Figure III d. Contraceptive prevalence for countries in sub-Saharan Africa region, 1980-2001**



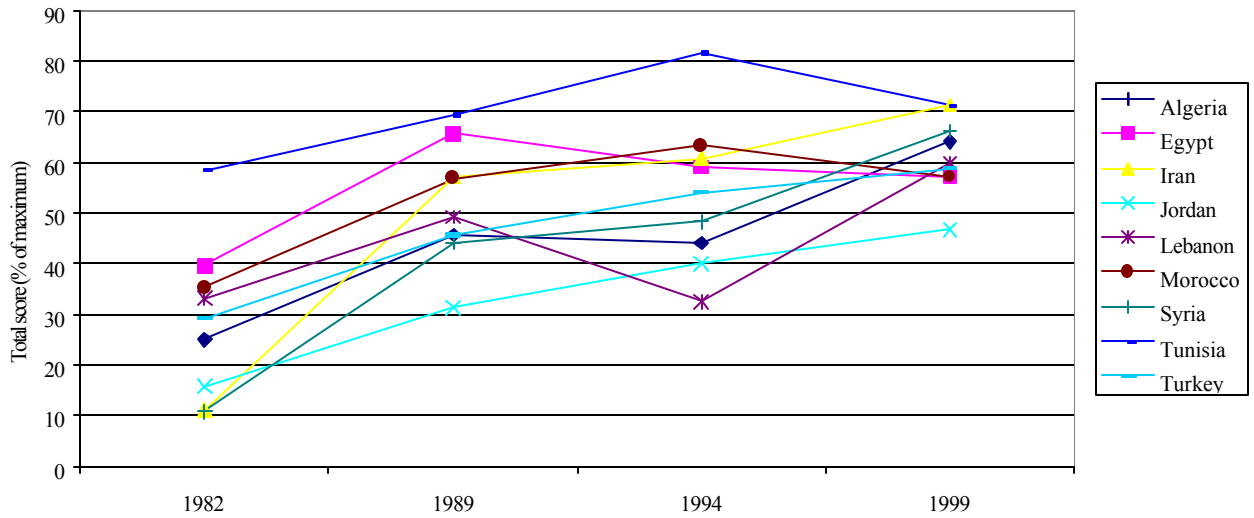
**Figure IV a. Total program effort score for countries in Asia region, 1982-1999**



**Figure IV b. Total program effort score for countries in Latin America region, 1982-1999**



**Figure IV c. Total program effort score for countries in Middle East/North Africa region, 1982-1999**



**Figure IV d. Total program effort for countries in sub-Saharan Africa region, 1982-1999**

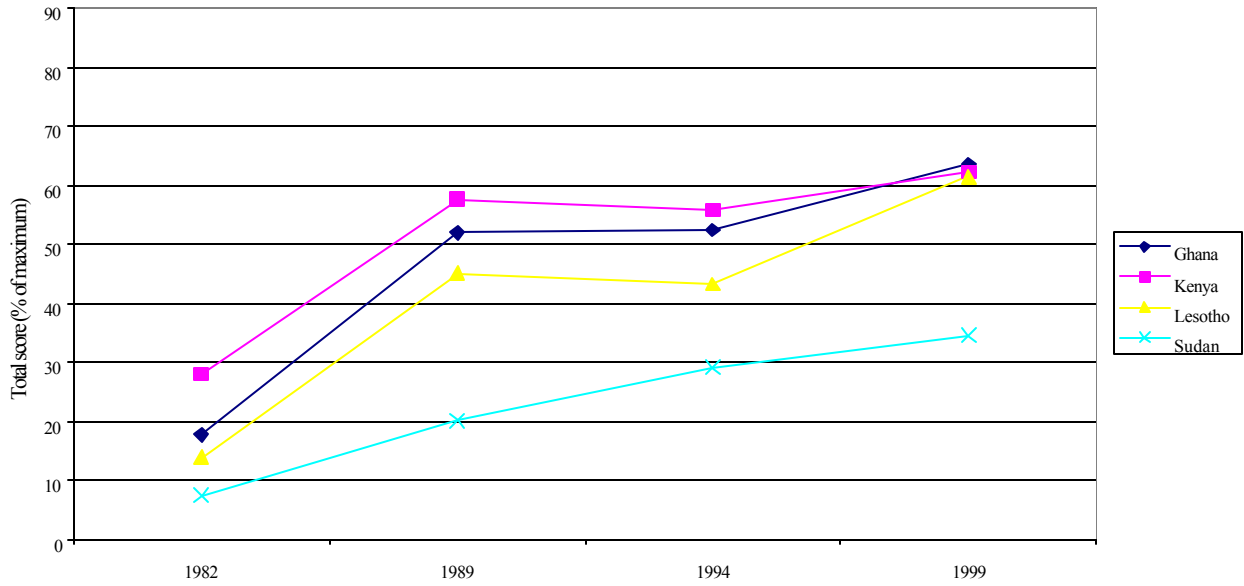




Figure V. Increases in effort over time by 1972 effort cohorts

