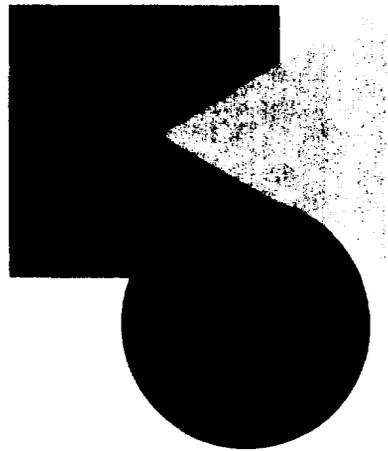


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The Determinants of Reproductive Change in Bangladesh

Success in a Challenging Environment



JOHN CLELAND

JAMES F. PHILLIPS

SAJEDA AMIN

G. M. KAMAL

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WORLD BANK

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SECTORAL STUDIES



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Preface

Demographic trends have taken many surprising forms over the last 30 years, but none have aroused such surprise, even incredulity, as recent events in Bangladesh. Although this country remains one of the poorest and least developed of all nations, there is mounting evidence of a steep decline in fertility.

Fertility transition in such settings as China, Indonesia, and south India has already demonstrated that high material living standards are not a necessary precondition for a fall in birth rates. Yet in these cases alternative explanations were readily available: high levels of adult literacy in south India, for instance, and the prior creation of powerful nonfamilial welfare institutions in China. Bangladesh, in contrast, appears to possess no features that are conducive to fertility decline, except for a strong, persistent government commitment to reducing population growth.

The aims of this volume are threefold. First, we need to document with maximum precision the timing, magnitude, and nature of fertility change. This task is taken up in chapter 2. Having established the demographic facts, the second aim is to assess alternative explanations. Of necessity, the explanatory net has to be widely cast because there are so many possible influences on human reproduction; nor do we wish to shackle ourselves to any specific theoretical position. In chapter 3 we review social and economic changes and their possible links to reduced demand or need for children. In chapter 4 the focus shifts to consideration of the role of the family planning program in reducing fertility. These strands of evidence are brought together in chapter 5, and conclusions are presented. The third aim is to spell out the implications of our analysis for future population policy and programs. This discussion also appears in chapter 5.

Our conclusions are controversial and far-reaching in their implications for theories of demographic transition. We do not expect universal agreement with them, but we very much hope that they will stimulate further thought and research.

One of the authors, G. M. Kamal, died suddenly on December 23, 1993, of a heart attack, just as this volume was about to go to press. His death represents a deep loss not only to his family and many friends but also to the field of health and family planning research in Bangladesh, in which he played such a prominent and successful role. This volume is dedicated to the memory of a fine man and a greatly valued colleague.

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Introduction

Much has been written about how fertility falls in the course of economic development; relatively little is known about how fertility can fall in its absence. As a setting where demographic transition has begun despite social, economic, and institutional circumstances that are unfavorable to reproductive change, Bangladesh represents an apparent anomaly. Bangladesh is alone among the world's 20 poorest countries as a site where fertility decline has begun. A series of carefully conducted national probability surveys portrays a marked increase in contraceptive prevalence, from 3 to 40 percent in the post-independence era. By the late 1980s, fertility had declined from 7 births per woman to about 5. By the early 1990s the fertility rate was well below 5 births. This change is surprising in light of arguments that have been marshalled to explain why fertility decline is unlikely to occur in Bangladesh. Of the more persuasive interpretations of the demographic implications of social and economic circumstances in Bangladesh, none anticipated the trend that has emerged. Premised on the view that childbearing represents a rational response of couples to prevailing economic and social circumstances, and guided by the observation that Bangladeshi society remains predominantly conservative, traditional, and agrarian, few observers anticipated the fertility decline that has been observed in recent years.

Success in the population sector in Bangladesh is a matter of considerable international significance. Commentaries on the economic, social, and demographic problems of the world's least developed countries often focus on the Bangladesh case; debate centers on the question of whether any population program can succeed in settings where mortality is high and economic conditions are severely constrained. In terms of size alone, Bangladesh merits particular attention. Its population size ranks eighth globally and first among the 20 poorest developing countries. As in many such countries, the rate of growth, at 2.5 percent per year, is accompanied by considerable momentum owing to the young age structure. But the potential for detrimental consequences of this growth is cause for particular concern. Even under the assumption of continued rapid fertility decline, the Bangladesh population will not stabilize in the next century until it has reached a total of about 268 million (*World Development Report 1993*).

It is difficult to construct a scenario of economic development or population redistribution that can sustain the population growth that is anticipated. Because land area comprises only 144,000 square kilometers, population density, at 735 per square kilometer, is already the highest in the world. Bangladesh is one of the most rural countries in the world, and its population is heavily dependent on agriculture. Yet, the per capita arable land is only a tenth of a hectare, implying a precarious balance between population and land and an increasingly fragile balance between settlement patterns and the environment. Even now, hamlets are increasingly located on temporary land, exposing millions of households to the vagaries of monsoon flooding that often has catastrophic effects on agriculture, health, and the economy in general.

Of the world's 20 poorest countries, Bangladesh is the largest recipient of foreign aid, the largest recipient of assistance in the population sector, and the most challenging test of what can be achieved when strong government commitment confronts complex population problems with sustained resolve. There is a need to review the recent history of reproductive change in Bangladesh, take stock of continuing difficulties and constraints on further progress, and assess the implications of success in the Bangladesh context for programs elsewhere. This report is addressed to that end.

Constraints on reproductive change

Bangladesh is an inauspicious setting in which to anticipate a decline in fertility. It is thus instructive to review some of the social and economic perspectives that made the observed trends so unexpected.

On the assumption that reproductive motives are structured by social forces, several influential analyses have identified economic and social institutions that sustain high fertility. In this view, change in societal institutions are prerequisites to demographic transition.

At the heart of such analyses are conclusions about the economic and social circumstances of Bangladesh about which there is no debate. At the time of its independence from Pakistan, Bangladesh was among the poorest of the world's developing countries, with an estimated per capita income of US\$180. Its economy was in disarray and adult literacy levels—particularly for females—were low. The 1971–72 War of Independence, and the economic malaise that followed, produced a catastrophic famine in 1974 and 1975. In the period following the famine, Bangladesh has made progress in improving educational levels and has witnessed steady economic growth. Improvements have been gradual, however, and it remains among the poorest countries of the world.

Much has been written about complex economic and social circumstances in Bangladesh that hamper development and impede the successful introduction of family planning services (for example, Demeny 1975). Although points of emphasis differ, conventional wisdom holds that high fertility is sustained by the interlocking effects of the economic and social security value of children, poor health conditions and high mortality risks, and low levels of maternal educational attainment.

Conventional wisdom also holds that little of consequence can be achieved in the population sector in Bangladesh, in part because the climate of demand for children is inconsistent with the notion that widespread fertility regulation is feasible, and in part because organizing effective social and health services at the periphery is a formidable undertaking (Koenig and Simmons 1992).

Women especially bear the consequences of adversity. In analyses of the consequences of poverty and traditionalism, particular attention has been accorded to the relationship between patriarchy and women's status and security. Inheritance, marriage, and descent in Bangladesh are patriarchal, with large spousal age differences and major disparities between the educational attainment of men and women. These elements of male dominance act to sustain high fertility. With women barred from most forms of paid employment outside the home, the opportunity costs of raising children are reduced. Parents have a preference for sons over daughters, which in conditions of uncertainty about child survival is conducive to high fertility.

In a series of fruitful and influential articles, Cain has argued that a woman's life in Bangladesh is marked by a succession of dependencies on men: father, husband, and son (Cain, Khanam, and Nahar 1979; Cain 1981, 1986a). Large spousal age differences and high adult mortality increase the likelihood of early and prolonged widowhood. Divorce may represent an additional hazard. A woman without a husband, unable to seek employment with no independent asset base, needs the support and protection of sons. Thus women may have a particularly strong vested interest in moderate to high fertility.

A closely related set of arguments has linked the risk environment in Bangladesh to fertility (Cain 1981, 1983). Environmental hazards are compounded by a degree of lawlessness that permits extortion of land and other assets from the weak by the powerful. Institutional supports at times of crisis are largely absent and, according to some commentators, lateral kinship bonds are not strong. Thus when senility, illness, or environmental disaster strikes, the only dependable form of assistance is provided by the vertical lineage, and in particular by mature sons. To minimize the effects of total catastrophe, therefore, the bearing of children is imperative. In Cain's view (though modified in his later writing), a household strategy for risk aversion is best served, not by a moderate number of children, but by a maximization of fertility to allow for the death of some children and for others who may default on their obligations.

The labor utility of children constitutes a third and familiar rationale for high fertility in countries such as Bangladesh. Time-use studies indicate that children aged between five and fifteen years work for about half the number of hours as an adult of the same sex (Caldwell and others 1984; Cain 1977; Cain and Mozumder 1980). As expected, children who attend school perform fewer hours of work than those who do not attend school, but the difference is modest and it appears that schooling does not preclude appreciable work inputs by pupils. One striking feature of the study by Caldwell and others (1984) is the relationship between the household resource base and work inputs by adults and children. In the rural sector, household members with access to land worked longer hours than those who were marginal

farmers or landless. In the urban sector, the greatest work input was recorded by those with family businesses.

The interpretation of these and other results is that rural households with land require large families because of the highly developed segregation of work by sex and age. Fertility reduction will only occur as a response to the breakdown of filial duty toward parents, associated with greater emotional and residential nucleation of families. For the rural landless, and to a lesser extent the urban poor, Caldwell and others (1984) conclude that high fertility brings less gain and, by implication, fertility should decline if barriers of conservatism can be overcome.

A further explanation for high fertility in Bangladesh concerns pervasive constraints on improvements on health and well-being. Mortality declined gradually during the first half of the century and rapidly in the 1950s and 1960s. The War of Independence and famine produced catastrophically high mortality in 1971–72 and 1974–75 (Curlin, Chen, and Hussain 1976). Public health services were paralyzed by organizational problems in the immediate post-independence period, delaying the introduction of child survival programs in the 1970s and disrupting health services in general (National Research Council 1981). By the late 1970s, however, economic conditions began to improve, the political climate stabilized, and mortality declines that had been interrupted since the late 1960s resumed. Mortality remains high, nonetheless. Infant mortality ranged between 130 and 160 deaths per 1,000 live births in the 1950s and 1960s and remained above 120 in the 1980s. In the 1960s, roughly one quarter of all children died by age 5 versus one-fifth by the 1980s (National Research Council 1981). Modest changes of the magnitude observed are unlikely to have altered parental perceptions of child survival or to have induced recent changes in reproductive behavior.¹ Life expectancy remains low in Bangladesh—54 and 49 years among males and females, respectively.

That female life expectancy is lower than male life expectancy is due to several factors, but recent analyses highlight the disadvantageous position of women and girls in the allocation of familial resources. For reasons that are not well understood, infectious disease morbidity is generally higher among women than men. Moreover, maternal mortality is about 20 times the rates reported from developed countries, further contributing to elevated risks. Most importantly, female child mortality rates are substantially higher than corresponding rates for males, a discrepancy that is apparently related to traditional male gender preferences and the selective neglect of girls in the allocation of familial resources (D'Souza and Chen 1980). As a consequence, female life expectancy in Bangladesh is the lowest of any country in Asia.

Analysts have marshalled these and other arguments to suggest that the constraints on reproductive change in Bangladesh are so systemic and interlocking that Bangladesh is an inauspicious setting for effective family planning programs.²

Constraints on organizing effective programs

Ever since independence, and even before, in the Pakistan era, the predominant thrust of population policy in Bangladesh has been the provision of clinical family

planning services augmented with village outreach and mass communication activities. Operational deficiencies, noted in numerous reports and appraisals, derive from political turmoil, bureaucratic traditions of government, and administrative weaknesses of the program as it is managed in the field (Duza and others 1989). Although the population program in Bangladesh has engendered strong political support, the independence struggle and turbulence in the decade that followed weakened capacities to extend a program to the periphery. Weak capacities to translate strong high-level commitment into local political support for development activities is a problem that has affected all sectors, including population activities.

Constrained implementing capacities are further impaired by bureaucratic traditions. Sectoral ministries lack mechanisms for interagency coordination, thereby hampering multisectoral programs or initiatives involving joint public and private sector action.

Bureaucratic constraints have been compounded by successive dysfunctional structural and administrative changes that were instituted without adequate attention to their strategic and operational implications. Integration of health and family planning functions was ordered, for example, without a corresponding integration of the health and family planning wings of the health ministry (Choudhuri and Akhter 1990).

The implementation of the program is further weakened by operational deficiencies in its basic strategic plan and management system. Problems are associated with the subsystems of management information, supervision, training, personnel management, and the like. Performance targets are not rational. Rewards for achievement are lacking; sanctions for poor performance are rarely imposed.

The capacity of the public sector to develop and sustain service programs may have deteriorated in recent decades. Resource constraints have led to a decline in the value of real wages in the civil service, eroding the integrity of authority in the bureaucracy. Institutions that must hire, train, and supervise a workforce face a difficult climate for motivating workers to perform and disciplining workers who do not (Koenig and Simmons 1992).

Organization of the volume

With the legacy of problems that have beset the Bangladesh population program, commentary in recent years has reiterated the theme of failure, and unproductive debate has ensued over its causes. Some have argued that failure relates to demand-side constraints, others that supply-side weakness explains failure, but analysts from all perspectives discerned little in the Bangladesh story that can be characterized as success. This tendency for analysts to cite a litany of problems and deficiencies can now be confronted with the reality that contraceptive use is increasing, and that the program can no longer be dismissed as an operational failure (Robinson 1985).

This volume reviews the recent demographic history of Bangladesh with the aim of clarifying the extent of changes in reproductive behavior and determinants of these changes over the post-independence era. Alternative explanations of observed trends are reviewed with the aim of understanding the implications of

success in the Bangladesh context for policy deliberations elsewhere. In the past, uncritical analyses of survey data have obscured rather than clarified fertility levels in Bangladesh. Chapter 2 therefore begins with a focus on the quality of survey data and the implications of data limitations for the possible range of recent fertility levels and trends. Particular attention is directed to data from the 1989 Bangladesh Fertility Survey to determine whether observed trends are an artifact of data anomalies or a genuine indication of reproductive change with interpretable causes. The observed decline is then decomposed into direct determinants to identify proximate factors that explain fertility decline.

Evidence marshalled in chapter 2 establishes fertility decline as a fact and the rise in contraceptive use as the predominant direct determinant of this trend. Chapters 3 and 4 clarify the role of exogenous determining factors. Chapter 3 examines evidence that social and economic changes can explain the onset of fertility decline in reference to structural perspectives on the determinants of reproductive change. Attention is directed to assessing evidence for economic and social trends to determine if dramatic structural change in Bangladesh society and economy could account for the rapid demographic change that has emerged in the post-independence era.

Chapter 4 reexamines exogenous determinants of fertility trends in reference to the possible role of population programs and policies. A framework for interpreting the possible role of family planning programs is proposed that accommodates mechanisms for the emerging demand for contraception to remain latent in the absence of active family planning effort. A framework proposed by Easterlin is employed to show how cultural norms and economic circumstances can constrain fertility regulation even if the climate of demand for children and demand for contraception are favorable to contraceptive use. By mitigating these constraints on contraceptive use, the family planning program can catalyze reproductive change. The framework is reviewed by examining the history of the Bangladesh population program, findings from pilot projects, and observed national program trends for evidence of the role of the program in mitigating constraints on contraceptive use.

Chapter 5 synthesizes demand-side and supply-side perspectives on fertility decline in Bangladesh and posits implications of the recent demographic history of Bangladesh for population policy in that country and constrained settings elsewhere. The common history, religious heritage, and region of Pakistan and Bangladesh are utilized as a resource for clarifying the determinants of the contrasting demographic circumstances of these two large South Asian countries.

Notes

1. At least one study has shown that parents perceive survival prospects of children as improving, but this finding may relate more to special health services available in the area studied than to the national situation (Nag and Duza 1988a and 1988b). Perceptions of mortality and their influence on reproductive aspirations merit further research in Bangladesh.

2. See, for example, recent analyses of fertility decline that stress the improbable context for demographic transition in Bangladesh (Khuda 1991; Larson and Mitra 1992; Cleland and Streatfield 1992).

Fertility Change and Its Direct Determinants

Recent analyses of demographic trends in Bangladesh have concluded that a dramatic fertility decline has occurred in the post-independence era. This conclusion has emerged despite considerable controversy. Skepticism derives, in part, from the rapid pace of the decline that is suggested by recent surveys—from about 7 births per woman in 1970 to well below 5 births by 1990—and in part by the tendency of unwary analysts in the past to report such evidence uncritically, only to see their interpretations contradicted by later inquiries. This chapter aims to unmask genuine trends from the camouflage of data defects. Its aim is also to reach the firmest possible conclusions about the timing, magnitude, and nature of fertility decline in Bangladesh.

A review of data on fertility decline in Bangladesh is much needed. Fertility decline in this setting, if genuine, has considerable policy significance. If a demographic transition has begun, reproductive change is occurring despite social, economic, and institutional circumstances that are conventionally viewed as unfavorable to such trends. Fertility decline will signal a need to reappraise conventional theory in light of the apparent anomaly that Bangladesh represents. If the posited trend is genuine, Bangladesh is alone among the world's 20 poorest countries as a site where fertility decline has begun.

Although the focus of this chapter is on fertility trends in post-independence Bangladesh, we begin by reviewing data sources and estimates from the Pakistan era in order to set the background of fertility trends and levels in the pre-independence era. Next, we review lifetime fertility as reported in national surveys in the post-independence era, with the aim of examining the consistency of retrospective recall data with earlier estimates. We examine, in turn, evidence of data defects and conclusions that can be reached about recent trends and levels. Finally, we seek to ascertain the relative effect of underlying proximate causes of the decline and the differential impact of the decline in population subgroups.

Data sources

Although there is an abundance of information from surveys and censuses, the estimation of fertility levels and trends in Bangladesh is not straightforward. Most national data sets are seriously flawed. Moreover, the dominant type of error has a particularly pernicious character. Recent births are usually underreported, giving a spurious impression of fertility decline. This is shown in table 2.1 by the pronounced gap between unadjusted and adjusted fertility rates for some of the studies involving retrospective recall. In light of the anomalies illustrated by the table, we examine data from a variety of sources and draw upon evidence accumulated before and after independence from Pakistan.

Bangladesh has been the site of regular censuses (though regrettably the results of the most recent total enumeration in 1991 were not available at the time of this analysis). Census data for 1951, 1961, 1974, and 1981 are supplemented by a number of more specialized demographic inquiries. The most notable of these are the Population Growth Experiment (PGE) of 1964–65, the National Impact Survey (NIS) of 1968, and two Bangladesh Fertility Surveys (BFS), the first conducted in 1975 and the second in 1989. An annual series of vital rates is available since 1980 from the sample registration system of the Bangladesh Bureau of Statistics (BBS). The data available from this series provide consistent evidence of high fertility before 1980. Most studies suggest that the total fertility rate was about 7 for the three decades prior to 1980. Famine reduced natural fertility in 1973 and 1974, but no trend is evident for the entire period. Our focus, therefore, is on evidence of fertility change after 1980.

The progress of the family planning program has been monitored by a number of nationally representative contraceptive prevalence surveys (CPS) conducted in 1979, 1981, 1985–86, 1989, and 1991. The fertility information gathered in these surveys, though restricted in scope, is an important contribution to the evidence on demographic change.

Apart from these national data sources, a myriad of localized demographic studies vary greatly in quality. The most important is the Demographic Surveillance System (DSS) run by the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). For the last 20 years, the ICDDR,B has collected data on fertility, mortality, marriage, and migration in Matlab thana, which now contains a population of about 140,000. Additional populations have been under surveillance for the last ten years.

Fertility

Lifetime fertility

A convenient starting point for the discussion of fertility is a cohort analysis of cumulative numbers of children ever born. Table 2.2 displays the relevant information from all major sources over the last 30 years. At first glance there appears to be no obvious pattern to the results. Mean numbers of children

Table 2.1 Adjusted and unadjusted annual total fertility rates, 1953–81

<i>Year</i>	<i>Study</i>	<i>Total fertility rate</i>		<i>Reference</i>
		<i>Unadjusted</i>	<i>Adjusted</i>	
1953	DSEP	7.4	—	Schultz and DaVanzo 1970
1957	DSEP	6.2	—	Schultz and DaVanzo 1970
1960–62	NIS	7.6	—	Sirageldin, Norris, and Ahmad 1975
1961	DSEP	6.6	—	Obaidullah 1966
1962	NIS	7.6	—	Sirageldin, Norris, and Ahmad 1975
1962–65	PGE	—	6.3–7.4	Farooqui and Farooq 1971
1963	PGE	—	7.8	US Bureau of the Census 1979
1963–65	NIS	7.0	—	Sirageldin, Norris, and Ahmad 1975
1964	PGE	—	7.1	US Bureau of the Census 1979
1965	PGE	—	7.0	US Bureau of the Census 1979
1966–68	NIS 1968	6.0	—	Sirageldin, Norris, and Ahmad 1975
1974	BRSFM	4.8	7.1	Bangladesh Bureau of Statistics 1977, UN 1983 (Brass)
1975	BFS 1975	5.4	6.3	National Research Council 1981, Brass and Rashad 1981
1979	CPS 1983	—	7.0	Kantner and Frankenberg 1988, Brass and Rashad 1981
1980	BLDS	5.0	6.6	Kantner and Frankenberg 1988, UN 1983 (Brass)
1981	CPS 1985	—	6.5	Kantner and Frankenberg 1988, UN 1983 (Brass)
1988	BFS 1989	4.6	4.8	Huq and Cleland 1990

— Not available.

Note: DSEP, Demographic Survey in East Pakistan; NIS, National Impact Survey; PGE, Population Growth Experiment; BFS, Bangladesh Fertility Survey; BRSFM, Bangladesh Retrospective Survey of Fertility and Mortality; CPS, Contraceptive Prevalence Survey; BLDS, Baseline Demographic Survey.

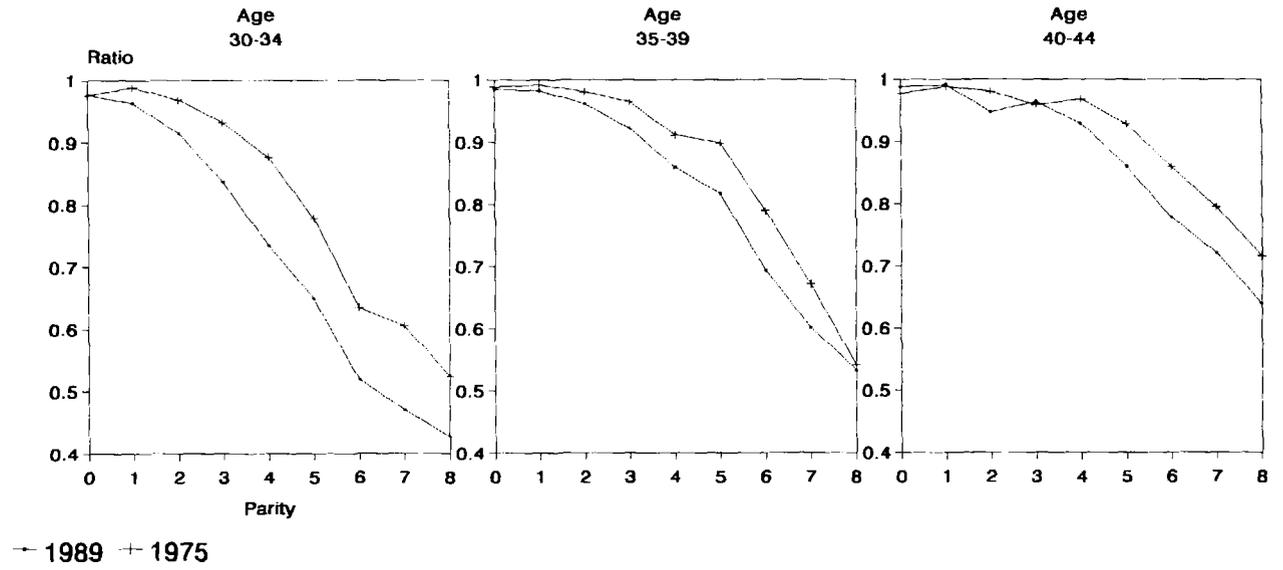
Table 2.2 Cumulated numbers of children ever born to all women, by age group, various sources

<i>Source</i>	<i>Age</i>							<i>Standard mean^a</i>
	<i>15-19</i>	<i>20-24</i>	<i>25-29</i>	<i>30-34</i>	<i>35-39</i>	<i>40-44</i>	<i>45-49</i>	
Census 1961	0.7	2.2	3.3	4.6	5.2	5.5	5.7	3.15
BRSFM 1974	0.4	1.8	3.5	4.9	5.9	6.2	6.1	3.22
BFS 1975	0.6	2.3	4.2	5.7	6.7	7.1	6.7	3.79
CPS 1979	0.4	2.1	3.6	5.0	6.0	6.5	6.6	3.38
BLDS 1980	0.4	1.7	3.3	4.8	5.8	6.4	6.5	3.19
CSE 1981	0.5	1.9	3.5	5.0	6.1	6.7	6.8	3.39
CPS 1981	0.5	2.0	3.7	5.4	6.4	7.3	7.6	3.63
CPS 1983	0.6	2.2	3.8	5.5	6.5	7.4	7.5	3.74
CPS 1985-86	0.4	2.0	3.6	5.1	6.5	7.4	7.2	3.54
BFS 1989	0.4	1.7	3.1	4.7	5.9	6.6	7.3	3.14
CPS 1989	0.4	1.8	3.3	4.7	5.9	7.0	7.5	3.32

a. Standardized on the age distribution of the BFS 1989.

Note: BRSFM, Bangladesh Retrospective Survey of Fertility and Mortality; BFS, Bangladesh Fertility Survey; CPS, Contraceptive Prevalence Survey; BLDS, Baseline Demographic Survey; CSE, Census Sample Enumeration.

Figure 2.1 Cohort parity progression ratios, 1975 and 1989



fluctuate erratically between 3.1 and 3.8 births. The oscillation reflects differential completeness of reporting between surveys as, for instance, have occurred in the surveys conducted in 1981. The problem is most clearly seen with regard to the differences between the 1974 BRSFM and the BFS a year later. A detailed evaluation of the 1974 survey suggests strongly that appreciable omission of children occurred among older age groups (Blacker 1977). The adjusted means are close to those reported in the 1975 BFS.

When attention is confined to the more reliable sources, a pattern emerges. Starting in 1983, the CPS has been conducted by Mitra and Associates under contract to USAID, employing high standards of fieldwork supervision. A comparison of the three most recent Contraceptive Prevalence Surveys reveals a decline in fertility among all age groups except the oldest. Similarly, comparison of the two Bangladesh Fertility Surveys, both of which laid particular stress on accuracy of measurement, shows an appreciable decline. The overall standardized mean changes from 3.79 births in 1975 to 3.14 in 1989, a fall of 17 percent. While a deterioration in completeness of birth reporting or discrepancies in sample design could account for both the CPS and BFS comparisons, a genuine decline in fertility is a more likely explanation.

Fertility change between 1975 and 1989 can be further explored by means of cohort parity progression ratios. This ratio is defined for parity i as the proportion of women who proceed to the next birth, $i + 1$, among those who have had an i th birth. Figure 2.1 and table 2.3 show progression ratios for age groups 30 to 34, 35 to 39, and 40 to 44. (The oldest group is omitted because of evidence of omission of births in 1975.) For women in their early forties, the results diverge only for parity five and higher. In other words, the probabilities of progressing sequentially up to the fifth birth are similar in 1975 and 1989. Thereafter, the data suggest greater control of fertility among women interviewed in 1989. Note that the possible impact of changes in widowhood has been controlled by basing the estimates on currently married women only. For the two younger age groups the divergence comes earlier: at parity four for the 35-to-39-year-olds and at parity three (or even two to a lesser extent) among the 30 to 34 cohort. This pattern is consistent with a recent fertility decline that has affected women at an earlier stage of childbearing than was previously the case.

The analysis of lifetime fertility contains a further important message. All recent surveys have shown that the level of completed fertility, namely the total number of births recorded by women aged 45 to 49, lies in the range of 7.2 to 7.6. With few exceptions, the mean number of children born to women aged 40 to 44 is also above 7 births. As these women experienced their peak childbearing years in the 1960s and early 1970s, we may infer that the historical level of total fertility in Bangladesh exceeded 7.0 and perhaps was as high as 7.5. This verdict accords with the conclusion of the extensive analysis undertaken by the U.S. National Academy of Sciences in the late 1970s that "total fertility has probably averaged somewhere in the range of 6.8 to 7.3 over the fifteen years or so prior to 1975" (National Research Council 1981, p. 52).

Table 2.3 Parity progression ratios for currently married women, BFS 1975 and 1989

Parity	Age group					
	30-34		35-39		40-44	
	1975	1989	1975	1989	1975	1989
0	0.975	0.976	0.988	0.985	0.977	0.988
1	0.988	0.963	0.992	0.980	0.988	0.991
2	0.968	0.915	0.980	0.961	0.980	0.947
3	0.932	0.837	0.965	0.922	0.959	0.964
4	0.876	0.734	0.911	0.859	0.968	0.929
5	0.778	0.649	0.898	0.817	0.928	0.860
6	0.634	0.518	0.789	0.693	0.859	0.778
7	0.605	0.470	0.671	0.601	0.794	0.720
8	0.524	0.427	0.541	0.532	0.716	0.640

Fertility levels and trends

Lifetime or cumulative fertility is relatively insensitive to recent trends in fertility. Ideally, a series of reliable annual age-specific fertility rates would be available for the elucidation of trends. Though the country does not possess a usable system of vital registration, the BBS has operated a registration system since 1980 in sample areas. Vital events are recorded both by resident investigators and by independent quarterly surveys; events are matched, and corrected annual rates are produced after adjustment for missed events.

The BBS estimates of total fertility are shown in the left-hand column of table 2.4. From a total fertility rate of 5.0 births, a slight rise to 5.2 is recorded, followed by a modest decline beginning in 1984. The starting level of fertility, however, is implausibly low. A decline from about 7.0 births in the early 1970s to 5.0 births in the early 1980s is not consistent with any evidence on the direct determinants of fertility. In the early 1980s, female age at marriage and the level of contraceptive practice were still low. Almost certainly, the BBS sample registration system suffered—in the early years at least—from severe undercounting of births, despite its painstaking methodology.

Even if the level of fertility recorded by the BBS system is too low, the trend might be correct provided that the degree of undercounting has remained constant. Conversely, any improvement in the system would partially mask a steeper downward trend. There is also a third possibility: a deterioration of the system may have created the appearance of a spurious decline. Scrutiny of the detailed BBS results, such as the level of matching between the two data collection modes, early death rates, and sex ratios, does not reveal any radical changes in quality. But interpretation is difficult because the sample frame was expanded greatly in 1983, with consequences that are difficult to assess.

Table 2.4 Annual total fertility rates from the BBS Sample Registration System, 1989 BFS, 1989 and 1991 CPS

<i>Year</i>	<i>BBS</i>	<i>BFS 1989</i>	<i>CPS 1989</i>	<i>CPS 1991</i>
1979	—	6.8	—	—
1980	5.0	6.8	—	—
1981	5.0	6.7	—	—
1982	5.2	6.4	—	—
1983	5.1	6.1	—	—
1984	4.8	5.9	5.6	—
1985	4.7	5.5	5.5	5.6
1986	4.7	5.1	5.0	5.0
1987	4.4	4.8	4.6	4.9
1988	4.4	—	4.9	4.6
1989	4.3	—	—	4.1
1990	4.3	—	—	4.2

— Not available.

The other main source of data on recent fertility trends is the 1989 BFS. In this survey, a complete historical record was taken of all births to ever-married women aged less than 50 years. To record birth dates of children, a calendar grid was devised that allowed interviewers to use Bengali or Western dating systems and to convert ages of children into a corresponding year of birth (see Annex A of Huq and Cleland 1990). Month of birth was recorded for all but 2 percent of children. The 1989 BFS thus avoided the need for computerized imputation of birth dates, which proved so contentious in the analysis of the 1975 BFS (Chidambaram and Pullum 1981). These birth histories permit a reconstruction of fertility trends that is fairly complete for the recent past but is progressively truncated for more distant periods.

The full data array is shown in table 2.5. The impression is one of very slight declines prior to the mid-1970s; these gather pace in the late 1970s and there is a steep fall in the 1980s. Between the period 1969–73 and 1984–88, fertility, cumulated to age 35, appears to have fallen by 25 percent. These declines affect all age groups but are more pronounced at older ages.

Annual total fertility rates for the period 1979 to 1987 are shown in table 2.4, alongside corresponding estimates from the BBS registration system and the 1989 and 1991 CPS, which collected detailed fertility data for the 5-year period preceding the survey. After smoothing annual fluctuations by taking 3-year averages, the BFS indicates a sharp decline of 2 births between 1979 and 1987. The unsmoothed rate for the 12-month period preceding the survey (1988) is 4.6 births. The contrast between the BBS and BFS series is intriguing. The BFS figures for the start of the decade are much higher (and more plausible), but they decline more steeply than the BBS series. Over the decade, the two sets of estimates converge (see figure 2.2).

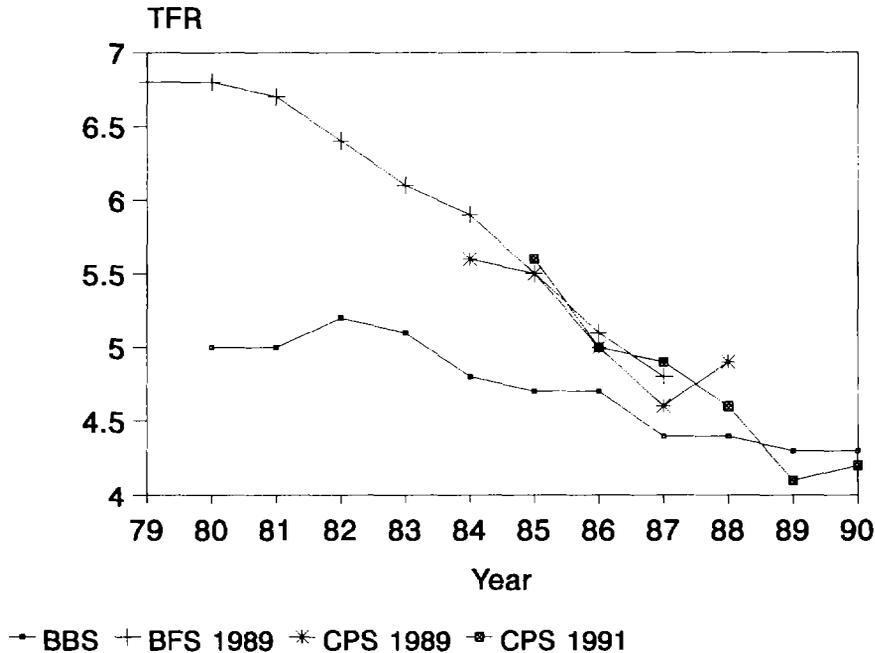
Table 2.5 Summary of fertility trends over the past 30 years: age-specific fertility rates for 5-year periods, 1989 BFS

<i>Age</i>	<i>Periods</i>							<i>Percentage decline</i>
	<i>1954-58</i>	<i>1959-63</i>	<i>1964-68</i>	<i>1969-73</i>	<i>1974-78</i>	<i>1979-83</i>	<i>1984-88</i>	<i>1974-78 to 1984-88</i>
10-14	0.0276	0.0191	0.0218	0.0199	0.0152	0.0150	0.0126	17
15-19	0.2518	0.2576	0.2435	0.2497	0.2323	0.2084	0.1822	22
20-24	—	0.3479	0.3439	0.3386	0.3272	0.3078	0.2599	21
25-29	—	—	0.3310	0.3116	0.3033	0.2969	0.2254	26
30-34	—	—	—	0.2728	0.2605	0.2324	0.1692	35
35-39	—	—	—	—	0.1810	0.1557	0.1141	37
40-44	—	—	—	—	—	0.0763	0.0555	—
45-49	—	—	—	—	—	—	0.0176	—
Σ10-35	—	—	—	5.96	5.96	5.30	4.25	25
Σ10-50 ^a	—	—	—	7.34	7.07	6.56	5.18	27

— Not available.

a. The values of truncated cells are imputed using fertility rates of adjacent periods.

Figure 2.2 Total fertility rates: BBS Sample Registration System, 1989 BFS, 1989 and 1991 CPS



Though the BFS and CPS results show a remarkable consistency, they should be regarded with great suspicion. Taken at face value, they show a very steep decline between 1980 and 1987 of 2 births, or 30 percent, in the total fertility rate. The preliminary results of the 1991 survey indicate a continuation of the sharp decline. This would be one of the steepest declines ever recorded in Asia, matched perhaps only by that in China in the 1970s. Moreover, evidence discussed later concerning the direct determinants is not consistent with such an abrupt decline. Contraceptive practice and age at marriage have both been rising steadily but neither of these two major forces of potential decline show any sudden change in the early 1980s. At this juncture, it is appropriate to recall that all past surveys in Bangladesh employing retrospective birth histories have shown sharp but totally misleading declines in fertility. The record is summarized in table 2.6. With the wisdom of hindsight, we now know that fertility, far from declining in the 1950s, 1960s, and early 1970s as suggested by these surveys, almost certainly remained constant. It is entirely possible that much of the decline recorded by the 1989 and 1991 surveys is also spurious.

The reason for the poor record of surveys in providing reliable estimates of fertility levels and trends in Bangladesh remains obscure. Omission of recent births does not appear to be the main problem. The hallmarks of omission (high sex

Table 2.6 Summary of results from retrospective birth history surveys in Bangladesh

<i>Date of fieldwork</i>	<i>Coverage</i>	<i>Fertility change</i>	<i>Source</i>
1961-62	Faridpur, Dhaka, Comilla, and Mymensingh districts	20% decline in marital fertility during 1950s	Schultz 1972
1968	Comilla district	27% decline in total fertility 1958-59 to 1966-67	Stoeckel and Choudhury 1969
1969	National	20% decline in marital fertility 1960-62 to 1966-68	Sirageldin, Norris, and Ahmad 1975
1975	National	23% decline in total fertility 1966-70 to 1971-75	Brass 1978

ratio of births, or clear understatement of infant deaths) are typically absent. More probably, backward displacement of birth dates (or ages) of children mimics fertility decline in the decade prior to the survey. Detailed comparison of reported ages of children with accurate birth registration information supports the view that overstatement of age is a major form of error (Bairagi, Edmonston, and Hye 1991).

Whatever the reasons for these data defects, the BFS evidence of fertility decline in the 1980s should be evaluated as rigorously as possible. One powerful check on data quality is the classic P/F ratio that relates lifetime fertility (P) to cumulated period fertility rates (F) for a year, or a short period, preceding the survey. Under conditions of constant fertility and no error, P/F ratios will be close to unity. Deviations from unity may provide insights into the nature of data errors and into genuine changes in fertility.

P/F ratios for a number of recent surveys are shown in figure 2.3 and table 2.7. For the 1974, 1975, and 1983 surveys, the pattern of ratios by age provides no evidence of fertility decline (though the ratios indicate severe deficits of recent births). The ratios are rather constant, except in the earlier two surveys where they fall for the oldest age groups—a sign of omission of children ever born by older women. The pattern changes for the three more recent surveys. The ratios increase with age, and this tendency is more marked in 1989 than in 1985-86. These results constitute very strong evidence of a genuine decline in fertility. The main alternative explanation is that older women underreport recent births more severely than younger women. But the fact that this trait is not apparent in the earlier surveys implies that it is not a likely explanation for recent survey results.

Figure 2.3 P/F ratios, BFS and CPS

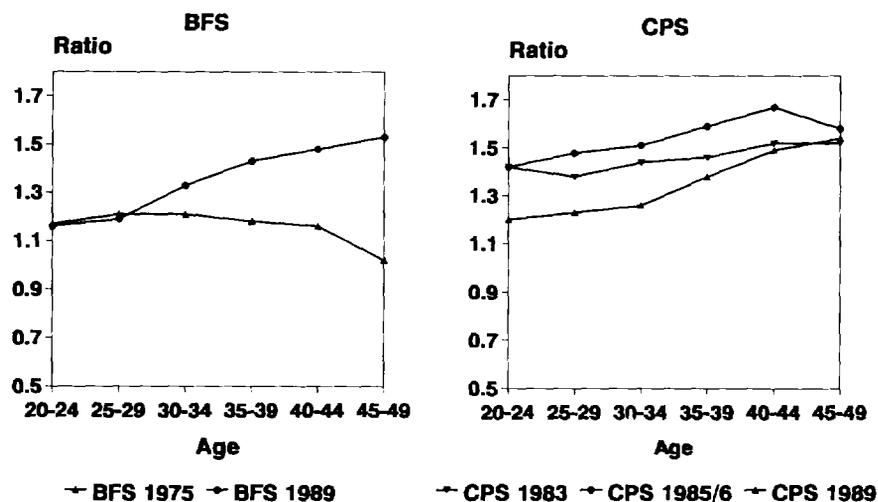


Table 2.7 P/F ratios, various surveys

Age	BRSFM 1974	BFS 1975	CPS 1983	CPS 1985-86	BFS 1989	CPS 1989
15-19	1.39	1.06	1.62	1.32	1.09	1.22
20-24	1.50	1.17	1.42	1.42	1.16	1.20
25-29	1.49	1.21	1.38	1.48	1.19	1.23
30-34	1.48	1.21	1.44	1.51	1.33	1.26
35-39	1.43	1.18	1.46	1.59	1.43	1.38
40-44	1.36	1.16	1.52	1.67	1.48	1.49
45-49	1.27	1.02	1.52	1.58	1.53	1.54
Unadjusted TFR	4.84	6.34	4.94	4.61	4.64	4.88
Adjusted TFR	7.26	7.42	6.96	6.53	5.38	5.86

On the assumption that fertility at younger ages has not changed, P/F ratios can be used to give TFRs that are adjusted for reference period error (that is, misreporting of recent births). Table 2.7 shows rates after adjustment by the P/F ratio for women aged 20 to 24. The adjusted series clearly makes much more sense than the unadjusted measures of total fertility. A substantial reduction from over 7.0 births in the mid-1970s to about 5.5 births in 1989 is apparent. However, the assumption on which this adjustment procedure is based is not valid, particularly for the more recent surveys. Age at marriage has been rising in Bangladesh, and

there has been a corresponding, though smaller, increase in age at attaining motherhood. The relevant evidence from the 1989 BFS is shown below in terms of median age at first birth:

Age at first birth	<i>Current age</i>					
	20-24	25-29	30-34	35-39	40-44	45-49
	18.0	17.6	17.3	17.2	17.0	16.9

This tendency toward a later start to childbearing, together with evidence (discussed later) of contraceptive use early in marriage, clearly implies at least a modest reduction in fertility at young ages, which will exert an upward influence on P/F ratios. The adjusted estimates of total fertility, shown in table 2.7, are almost certainly too high, particularly for the 1989 surveys, and serve mainly to establish an upper bound to the range of possible values for the recent level of fertility in Bangladesh.

As a further check on the quality of the 1989 BFS birth histories, the P/F ratio method can be applied to compare lifetime, or cohort, fertility and period fertility for different points in the past (Hobcraft, Goldman, and Chidambaram 1982). The results are shown in table 2.8. For the periods 1964-68 to 1974-78, all ratios are close to unity, which implies constant fertility and no appreciable distortions in the data. In the period 1979-83, the ratios start to rise, indicating the onset of fertility decline. The results for the most recent period show a very large drop in fertility. The overall pattern in table 2.8 considerably enhances confidence in the 1989 survey. Any major tendency by respondents to displace backward in time the dates of recent births should have inflated fertility rates for the late 1970s and early 1980s, resulting in low P/F ratios. There is no evidence that this has occurred. A bold conclusion is that the picture of fertility change provided by the 1989 BFS is basically correct. A cautious conclusion, colored by the experience of past surveys in Bangladesh, is that distortions in the data are so subtle and so intertwined with genuine changes that they evade the blunt detective methods of demographers.

At this point, it is useful to introduce a different type of evidence to buttress the emerging conclusion that Bangladesh indeed has experienced a recent, large

Table 2.8 P/F ratios calculated from the 1989 BFS birth histories

<i>Cohort</i>	1964-68	1969-73	1974-78	1979-83	1984-88
15-19	0.99	1.02	1.00	1.00	1.01
20-24	1.01	0.99	1.03	1.04	1.05
25-29	1.02	0.99	1.02	1.08	1.11
30-34	—	1.02	1.03	1.07	1.22
35-39	—	—	1.04	1.08	1.28
40-44	—	—	—	1.09	1.33
45-49	—	—	—	—	1.37

— Not available.

fertility decline. In successive surveys, currently married women have been asked whether or not they are pregnant. As an indicator of fertility, current pregnancy data have one great virtue compared to birth data: they do not suffer from misdating problems. However, it is well known that understatement occurs, partly out of shyness but mainly because women are often uncertain about their status in the first trimester of pregnancy (Goldman and Westoff 1980). Nevertheless, it is likely that the degree of understatement is constant over time and, to the extent that this proposition is valid, trends in the proportions pregnant can be interpreted in a straightforward manner. These proportions are as follows:

<i>Survey</i>	<i>Percent pregnant</i>
BFS 1975	12.5
CPS 1979	13.2
CPS 1981	14.1
CPS 1983	13.2
CPS 1985-86	10.5
BFS 1989	9.3

The prevalence of reported pregnancy is slightly lower in 1975 than in the subsequent three surveys, probably because of an effect on fertility of the severe 1974 famine. (The Matlab data series shows a marked fertility response to the famine.) But the most notable feature is the sharp fall since 1983. A more detailed comparison of the 1975 and 1989 survey results (table 2.9) is revealing. At younger ages, the fall in proportions pregnant is modest, but the difference widens among older women. Comparison of the total pregnancy rates (analogous to the total fertility rate) reveals an overall fall of 25 percent. The conclusion is irresistible that a large decline in marital fertility has occurred, in response to increased birth control in the later stages of marriage. The magnitude of the decline in reported pregnancies is similar to that estimated from birth histories (see table 2.5).

Further insights into the nature and magnitude of fertility change can be gained by examining birth-order-specific fertility rates (table 2.10). The latter are

Table 2.9 Percentages of currently married women who reported that they were pregnant, 1975 and 1989 BFS

<i>Age</i>	<i>1975</i>	<i>1989</i>	<i>Ratio 1989/1975</i>
< 20	15.2	14.7	0.97
20-24	15.5	13.3	0.86
25-29	14.9	10.4	0.70
30-34	11.2	8.3	0.74
35-39	10.7	4.8	0.45
40+	2.7	1.2	0.45
Total pregnancy rate	3.6	2.7	0.75

Table 2.10 Birth-order-specific fertility rates, cumulated to age 40, and percentage changes, 1974-83 to 1984-88, 1989 BFS

<i>Birth order</i>	<i>1974-78</i>	<i>1979-83</i>	<i>1984-88</i>	<i>Percentage decline, 1974-83 to 1984-88</i>
1	0.96	0.89	0.83	14
2	0.90	0.88	0.81	10
3	0.87	0.84	0.70	20
4	0.86	0.80	0.59	31
5	0.81	0.72	0.50	38
6	0.64	0.64	0.43	33

similar to conventional age-specific and total rates, but the numerator is restricted to births of specific orders. When rates are summed across ages for births of order i in a particular period, the total represents the projected proportion of women who will bear i or more births at the rates prevailing in that period. Thus the figure of 0.43 for birth order 6 for the period 1984-88 implies that, at the fertility rates prevailing in this period, 43 percent of women will experience six or more live births.

Between the periods 1974-78 and 1984-88, large falls in higher-order birth rates can be observed, whereas falls for lower orders are more modest. The bulk of this decline has occurred in the most recent 5-year period.

At first sight the cumulated rates for birth orders 1 and 3 are suspiciously low for the most recent period. In a society such as Bangladesh where nearly all women marry and become mothers, a cumulated first birth rate of about 0.95 is to be expected, implying that 95 percent of women will bear at least one child. Is then the observed rate of 0.83 for first births in 1984-88 evidence of a backward displacement of first births, carrying with it the probability that higher-order births are similarly displaced and that recent fertility is underestimated? Conversely, are the low first birth rates primarily the result of rising age at marriage that has resulted in a temporary deficit of first births?

To answer these questions, we turn to the vital registration data collected in Matlab thana, which are thought to be of very high quality. (Order- and age-specific rates for the period 1978 to 1985 were kindly made available by the staff of the DSS of the ICDDR,B.) During this period, Matlab was experiencing rises in female marriage ages similar to those elsewhere in the country, but fertility itself was not changing radically (Shaikh 1984). Table 2.11 compares cumulated rates between the Matlab treatment and comparison areas and the 1984-88 BFS data. It is immediately apparent that the survey data are consistent with the registration figures, implying that rising age at marriage is primarily responsible for the unexpectedly low first birth rates. For birth orders 1 and 2, the BFS results are closely similar to those from high fertility areas of Matlab. Thereafter a wide divergence emerges, reflecting greater control of fertility in the country as a whole for the period 1984-88 than was the case in the Matlab comparison area for the period 1978-85.

Table 2.11 Cumulated age-order-specific fertility rates: Matlab data compared to national data

	Total fertility rate	Birth order					
		1	2	3	4	5	6
Matlab treatment area: 1978-85	4.6	0.77	0.75	0.70	0.66	0.58	0.44
BFS 1984-88	5.2	0.83	0.81	0.70	0.59	0.50	0.43
Matlab comparison area: 1978-85	6.1	0.84	0.83	0.84	0.84	0.80	0.66

The data for the Matlab treatment area suggest a stronger effect of delayed marriage and perhaps postponement of second births than in the national data. At higher birth orders, however, national fertility is somewhat lower.

Thus far, we have established that much of the apparent fertility decline in Bangladesh must be genuine and not an artifact of poor data; that the decline has been more pronounced at older ages and higher birth orders; and that the onset of reproduction has been delayed slightly in response to rising age at marriage for women. To explore further the nature of change, birth spacing patterns are examined in table 2.12 by means of life-table procedures. Three sets of results are given: the median length of specified intervals (in months), that is, the duration by which 50 percent of women have progressed from event i to event $i+1$; the proportion who experience event $i+1$ within 60 months of event i ; and finally, among those who do experience the next event within 60 months, the mean length of the interval. The conditional mean is a more refined measure of the speed of reproduction than the median because the latter is influenced not only by speed but also by the proportion who never proceed to the next event.

Two important findings are apparent from table 2.12. First, there has been an appreciable shortening of the interval between marriage and first birth. The proportion of brides who have their first child within five years has risen, and among those who do, the mean length of the gap has shrunk from about 26 months in the mid-1970s to 22 months in the late 1980s. This is a common finding in Asia (Rindfuss and Morgan 1983). It reflects greater fecundity of brides because of the decline in early adolescent marriages and possibly a greater sexual intimacy between husband and wife in the early months of cohabitation than was previously the case. The demographic consequence, of course, is dilution of the fertility-reducing effect of later marriage. Thus the median age at first birth has risen less than the median age at marriage.

The second finding of importance is that interbirth durations have remained fairly constant. Among women having another birth within five years, the mean

Table 2.12 Changes in birth spacing patterns, BFS 1989

<i>Interval</i>	<i>Period at start of interval</i>		
	<i>1973-77</i>	<i>1978-82</i>	<i>1983-88</i>
Marriage to birth 1:			
Median	28.0	25.8	22.7
60 month progression ratio	0.84	0.85	0.88
Conditional mean	25.6	23.9	21.8
Birth 1 to 2:			
Median	33.7	33.9	34.7
60 month progression ratio	0.87	0.86	0.78
Conditional mean	31.5	31.1	31.1
Birth 2 to 3:			
Median	33.4	33.1	37.0
60 month progression ratio	0.89	0.85	0.76
Conditional mean	31.5	30.6	32.8
Birth 3 to 4:			
Median	34.1	33.9	36.2
60 month progression ratio	0.89	0.83	0.71
Conditional mean	32.0	30.9	30.8
Birth 4 to 5:			
Median	32.9	34.7	36.3
60 month progression ratio	0.85	0.78	0.75
Conditional mean	30.7	30.1	31.3
Birth 5 to 6:			
Median	33.7	34.4	38.3
60 month progression ratio	0.88	0.76	0.70
Conditional mean	31.3	29.9	31.7

length of the intervals is about the same in the period 1983-88 as in earlier periods. Birth intervals in Bangladesh have always been long, mainly because of universal and prolonged breastfeeding. It appears that the advent of contraception has had little effect on this pattern. Indeed it is possible that contraception is used as a substitute for breastfeeding. This important topic will be discussed later. What is clear, however, is that the main mechanism of fertility decline has been limitation rather than postponement of births.

We attempt now to gather the strands of evidence and reach a conclusion about the level of fertility in the late 1980s. Despite the robustness of the BFS evidence, it is likely that the recorded decline in fertility since the early 1980s has been exaggerated by data errors. A slight backward displacement of recent births into the period 1979-83 may have inflated fertility in this period but depressed it in the period 1984-88. The main reason for this judgment is the discordance between the steady but undramatic rise in age at female marriage and in contraceptive use

and the apparent abrupt and steep fertility decline in the recent past. More will be said about these and other direct determinants of fertility in the next section. At the same time, we have been unable to detect serious flaws in the 1989 BFS data. It may be that the distorting effects of backward displacement have been hidden by a genuine fertility decline in the late 1970s and early 1980s. It is also likely that the contribution of error to the magnitude of the decline is small. It will be recalled from table 2.4 that the unadjusted total fertility rate for 1988 was 4.6. When adjusted by the P/F ratio method, the rate rose to 5.5 births. We can assert with confidence that the true rate for 1988 lies between these two extremes, but further precision would be difficult to attain. The safest conclusion—and the one least likely to mislead—is that fertility in Bangladesh in the late 1980s was about 5 births per woman. On the basis of the preliminary results of the 1991 CPS, the fertility level in 1990 was even lower, probably about 4.5 births per woman.

This degree of uncertainty is demographically and politically unsatisfactory. From other perspectives, however, it is unimportant. What is undeniable is that a radical transformation of reproductive behavior is in progress. The sociological significance of this process, and its implication for the medium- to long-term future of the country, transcend quibbles about whether the total fertility rate in 1990 was 4.3 or 4.7 births.

Direct determinants of fertility

In the previous section, fertility trends and patterns were reviewed. In this section, attention turns to the direct or physiological determinants of fertility. We need to answer two questions. What are the main physiological factors behind the decline in fertility, and is the evidence concerning these factors consistent with the conclusions made earlier of a large decline in fertility from over 7 to about 5 births per woman?

One of the major demographic advances of the last 15 years has been the development of a crude but simple method to express the fertility-reducing impact of the major direct determinants of fertility (see, for example, Bongaarts 1982). These are: exposure to sexual intercourse, or its surrogate, marriage; postpartum infecundity, or its surrogate, breastfeeding; contraception; and induced abortion. To be sure, there are many other physiological determinants, but they are thought to be relatively invariant over space and time. To a great extent therefore, differences in the fertility of large populations and changes over time can be explained by reference to the four main determinants listed above. Each of them will now be considered.

Marriage

East Bengal has a long tradition of very early and universal marriage for females, together with a large age difference between husband and wife. The precocity of marriage has been a subject of concern for successive governments, which have legislated against young marriages with little success. For instance, the Child

Marriage Act of 1929 banned unions below age 14. Thirty years later, the mean age of marriage was still below this legal minimum. As we shall see, changing ideas and economic forces have largely succeeded where legislation failed.

The main source of information on age at marriage is censuses. Census data on marital status by age group can be converted into indicators of mean marriage age using the method proposed by Hajnal (1953). The results, given in table 2.13, reveal a longstanding upward drift in age at marriage for both men and women, with a slight attenuation of the large age difference between bride and groom. The mean age at marriage for women has increased from about 14 years in the 1950s and 1960s to about 18 years in 1989.

The upward trend shown by these repeated cross-sections is confirmed by the retrospective marriage histories collected in the 1989 BFS. This survey attempted to distinguish between betrothal and consummation of marriage. While the former has great social significance, the latter carries demographic weight, and the results in table 2.14 refer to consummation. This table shows a very large decrease in the proportions reporting consummation of first marriage before the age of 15: from 68 percent among women age 45 to 49 in 1989 to 37 percent among those age 20 to 24. There is a parallel decrease in the proportion of marriages that start before menarche, a particularly welcome change.

Rising age at marriage has been an almost universal feature of demographic change in Asia over the last 20 years, and Bangladesh is clearly no exception. Increased female education and employment opportunities, together with changing

Table 2.13 Singulate mean age at marriage, census and survey data

	<i>Males</i>	<i>Females</i>	<i>Age difference</i>
1951 census	22.4	14.4	8.0
1961 census	22.9	13.9	9.0
1974 census	23.9	15.9	8.0
1981 census	23.9	16.6	7.3
1989 BFS	25.5	18.0	7.5
Change 1951-89	+3.1	+3.6	-0.5

Table 2.14 Indicators of timing at first marriage by cohort, 1989 BFS

<i>Cohort</i>	<i>Percentage marrying before age 15</i>	<i>Percentage marrying before menarche</i>
20-24	37	11
25-29	46	16
30-34	50	18
35-39	57	24
40-44	64	29
45-49	68	28

ideas about choice of a spouse, are usually proposed as the underlying causes. In Bangladesh, such socioeconomic influences may be less important than inherently demographic forces. As a reflection of rapid population growth, younger cohorts are considerably larger than older cohorts. Because of the tradition in Bangladesh that women marry men much older than themselves, there is a numerical shortage of eligible bridegrooms. For instance, 4 million females age 15 to 19 were enumerated in the 1981 census compared to only 3.24 million men age 20 to 24—a ratio of 123 females to 100 males. This imbalance represents an unfavorable marriage market for women. Parents face problems in finding suitable husbands for their daughters. Marriages are thus delayed. Another consequence is a shift in marriage transactions whereby the bridegroom's family demands a large dowry. Both anecdotal and empirical evidence indicates that this is happening (Lindenbaum 1981).

There are several possible solutions to the impasse posed by the age structure of the population. One solution, polygyny, is uncommon in Bangladesh. Permanent celibacy for some women is another, but this possibility is culturally repugnant. A narrowing of the age gap between spouses is the most plausible and satisfactory solution, and there are signs that this is underway. A further convergence is to be expected, and it may make an important contribution to the power and status of women vis-à-vis their husbands.

Other possible consequences of the favorable marriage market for men are high rates of divorce, separation, and desertion. Although it is commonly believed that marital dissolution is increasing, affirming such a trend with statistical evidence is difficult. In censuses and surveys, very few women describe themselves as divorced or separated, but underreporting is likely. Deserted women may prefer to represent themselves as widowed or as still married. Any increase in voluntary marital dissolution may thus be masked by a genuine decline in widowhood because of higher life expectancies. Indeed trends in the proportions of women reported as currently married (table 2.15) show marked increases at older ages. A

Table 2.15 Percentages of women reported as currently married, censuses and surveys

Age	1961 census	1974 census	1975 BFS	1981 census	1989 BFS
10-14	32	9	8	7	4
15-19	89	72	65	65	48
20-24	96	93	90	91	83
25-29	95	95	92	94	91
30-34	91	93	91	93	93
35-39	85	90	84	90	90
40-44	72	81	79	82	84
45-49	61	75	71	75	80
50-54	45	60	63	62	65
55-59	38	53	48	54	54
60+	17	27	25	33	31

comparison of the 1975 and 1989 BFS surveys, which probably yielded better data than the censuses, indicates increased proportions married from age 30 onward, no doubt a reflection of declining widowhood. This trend will offset the fertility-reducing effect of nonmarriage at younger ages. The divergence in the marital situation of men and women at older ages is astonishingly large. The proportions reported as widowed in the 1989 BFS are as follows:

<i>Age</i>	<i>Men</i>	<i>Women</i>
40-44	0	13
45-49	1	18
50-54	1	33
55-59	3	45
60+	8	68

The age difference between husband and wife partially accounts for the much higher probability of widowhood for women than men. But brighter prospects of remarriage for men must also be part of the explanation. Although the marital status of women aged 50 or older has no direct bearing on fertility, its indirect consequences may be far reaching. The prospect of widowhood for a woman may result in an imperative to bear sons who will support her after the death of her husband.

Lactational protection

Although scientists have been aware for some time that breastfeeding acts as a major restraint on fertility in many societies, remarkably little information has been collected in Bangladesh. The only nationally representative data on this subject come from the 1975 and 1989 BFS. This source of information can be supplemented by data collected in Matlab thana.

Retrospectively reported durations of breastfeeding suffer from a severe heaping of responses. Many mothers give imprecise answers rounded to years or half-years (for example, 12, 18, 24 months). Because of this problem, a number of alternative methods of estimation have been devised and applied successfully. One such method is based on the epidemiological principle that the duration of a disease episode can be estimated by dividing its point prevalence by its incidence. When applied to breastfeeding, prevalence is the number of children still being fed at the breast at the time of the survey, and incidence is the average number of babies born per month. Another convenient method—called the current-status technique—is derived from life table principles. The proportions of children still breastfeeding are tabulated by age of child in months. The sum of these proportions provides an estimate of the mean duration of breastfeeding. The analyst has the option of including or excluding dead children. For the analysis of fertility impact, it is more appropriate to include dead children (who are classified as weaned) and this procedure is followed here.

When applied to the 1989 BFS data, the prevalence and current-status methods give almost identical estimates of the mean duration of breastfeeding: 28.6 and 28.7

months. The current-status estimate from the 1975 BFS is 28.9 months. These mean durations are exceptionally long, perhaps equalled only by rural China. It is also remarkable that the custom of prolonged breastfeeding appears to have remained unchanged over the past 15 years. Equally surprising is the finding reported by Huq and Cleland (1990) that urban, educated mothers breastfeed for as long as rural, uneducated mothers.

The stability of breastfeeding durations does not necessarily imply that its fertility-reducing impact is also constant. We know that frequency, duration, and diurnal pattern of suckling are all important factors in the inhibition of ovulation. Thus declines in the intensity of breastfeeding may occur, representing a relaxation of the natural birth spacing mechanism, even though age at final weaning may go unchanged. In surveys, the return of ovulation cannot be measured directly, but the timing of the return of menses can be elicited. Menses is not an entirely satisfactory surrogate for ovulation because ovulation precedes menses in the monthly cycle. More importantly, the return of menses does not necessarily signal the return of reproductive capacity. Particularly when breastfeeding continues, initial cycles may be anovulatory.

The mean duration of postpartum amenorrhea was estimated from the 1989 BFS to be 11.9 months by the prevalence method and 12.4 by the current-status method. Unlike breastfeeding, marked differentials were found. By education, the range was from 13.7 months for uneducated mothers to 8.9 months for those with secondary schooling. In urban areas, it was 11.2 months compared to 12.7 months in rural areas. These results demonstrate that the intensity of breastfeeding, though not its overall duration, differs by socioeconomic status. It appears probable that urban, educated mothers supplement breastmilk earlier and in larger quantities.

The existence of socioeconomic differentials in a behavior is often a sign of incipient or past change. In this instance, there is some confirmation that the length of lactational protection is decreasing. The mean duration of postpartum amenorrhea estimated by the current-status method from the 1975 BFS was 14.6 months, compared to 12.4 in 1989, a difference of 15 percent.

Unpublished data kindly made available by the Maternal-Child Health and Family Planning Project (MCH-FP) of the ICDDR,B also show a downward trend in duration of amenorrhea among mothers in Matlab. Indeed the decline, from a median of 14.3 months in 1978 to 9.6 months in 1989, is much steeper than that observed in the national surveys (Salway, Roy, and Koenig 1991). To the extent that Matlab thana, with its high level of contraceptive use and greater exposure to modern medicine and presumably modern ideas, provides an indication of future trends elsewhere, these figures give cause for concern from a fertility-control viewpoint.

Contraception

There are two main sources of information concerning contraceptive practice in Bangladesh. The first is the management information system of the family planning program. Data on the import and wholesale distribution of contraceptives are

available, but the more routinely used program data are monthly reports from local areas (thanas) on numbers of contraceptive procedures performed and volume of contraceptives supplied at clinics or by fieldworkers. These reports are compiled and published by a central unit in Dhaka.

The other major source of information comes from national surveys of ever-married women of reproductive age, and, less frequently, of their husbands. The first such survey was conducted in 1969, prior to independence. Since 1975 there has been a regular series of surveys, mostly conducted to a high professional standard.

Serious inconsistencies exist between these various sources of data. For instance, the number of condoms imported far exceeds the number distributed at the thana level or reported by survey respondents. This discrepancy has come to be known as the condom gap, and researchers have shown considerable ingenuity in trying to resolve it, not least by raising the assumed frequency of intercourse by survey respondents who report use of this method (Olson and Evison 1989). In the case of the IUD, the opposite problem arises. More insertions are reported by thanas than the number of devices imported. This discrepancy led to the commissioning of several IUD follow-up surveys. The main conclusion was that about 40 percent of reported insertions were fictitious, motivated by the desire to meet targets or to gain the small fee payable to staff and referrer for each IUD acceptor (Kamal, Ahmed, and Rahman 1990). Similar doubts exist about the veracity of program data on the number of vasectomies performed. This number has always exceeded the proportion of couples reporting vasectomy in surveys. Shyness and embarrassment, of course, may lead to underreporting in surveys, but the results of a 1987 study indicate that overreporting by program staff is also a contributing factor (Kamal, Ahmed, and Khan 1988). This study involved unannounced visits to a representative sample of hospitals, health centers, and clinics where sterilizations are performed. Over a two-day period, all men and women undergoing contraceptive sterilization were interviewed. The response was extremely high and the ratio of vasectomies to tubectomies was found to be 0.94. In comparison, a ratio of 1.04 for fiscal year 1987-88 was reported in the management information system.

The net result of these differences is that program-generated data give a more positive picture of contraceptive use than surveys. For instance, routine program statistics showed a prevalence of 30 percent for modern methods in 1989, compared to 23 and 24 percent from the two surveys. There is nothing unusual here. The same type of discrepancy is evident elsewhere in Asia (Cleland 1990). However, it is clearly more prudent to rely on survey evidence than on program data to chart the rise in contraceptive use in Bangladesh. This is not to suggest that survey data have no defects. It is possible that respondents make false claims that they are using contraception in order to please interviewers, whom they may mistake for family planning officials. But underreporting is equally likely and was documented in the 1960s (Green 1969; Stoeckel and Choudhury 1969). Although most survey estimates are based on the testimony of women alone, recent Contraceptive Prevalence Surveys have also interviewed a subsample of husbands. Comparison of men's

responses in the 1983 and 1985–86 surveys with those of their wives suggests that women do understate use of male methods (Ahmed, Schellstede, and Williamson 1987). Intriguingly, women whose husbands were interviewed independently also report slightly higher current use than women whose husbands were not interviewed. In the 1989 CPS, however, these subtle differences in reporting had largely disappeared. Another event occurred in 1989 that served to enhance the credibility of surveys. Two totally independent national inquiries, the CPS and the BFS, gave almost identical estimates of the prevalence of use. In conclusion, it appears most unlikely that we will be misled by accepting the results of successive surveys as valid indicators of trends and levels of contraceptive practice.

Substantive results are shown in table 2.16 and figure 2.4. The period 1969 to 1975 saw the War of Independence in 1971 and the major famine of 1974. It is perhaps not surprising, therefore, that contraceptive use remained at very low levels during these six years. It was estimated to be 3 percent in 1969 and 8 percent in 1975. The steady increase since 1975, however, compares favorably with trends in a number of other Asian countries (figure 2.5). By 1989, nearly one-third of all currently married women below age 50 reported current use. The preliminary results of the 1991 CPS show a further sharp increase to 40 percent.

The method mix in 1989 is depicted in figure 2.6. Nearly half (44 percent) of current users rely on modern reversible methods, the dominant method in this category being the pill. Indeed, increased use of this method largely accounts for the overall rise in prevalence between 1985–86 and 1989 (and between 1989 and 1991). No other modern reversible method claims the allegiance of more than 6 percent of users. About one-third (31 percent) of users are sterilized; a large majority of them report tubectomy rather than vasectomy, possibly reflecting underreporting of vasectomies in surveys of female respondents. The importance of surgical contraception declined relative to other methods in the mid to late 1980s, allaying the concerns of some that the family planning program relied excessively on irreversible methods. The remainder of users—about 25 percent—report traditional methods, of which periodic abstinence is the most prominent.

Analysis of the probable effect of contraceptive use on fertility in Bangladesh must address two issues. The first relates to the fecundity of users. To the extent that users are subfecund or infecund, for instance because of their age or protection by lactational amenorrhea, the effect of contraception on fertility will be diluted. The second issue relates to the effectiveness with which methods are used. Clearly, ineffective use, resulting in a high risk of accidental pregnancy, will also erode the fertility-inhibiting impact of contraception.

Concern about age-related fecundity problems of users is rebutted by the evidence of figure 2.7. The age pattern of use exhibits a familiar inverse U shape, with highest levels of modern use recorded at intermediate ages. The important point is that relatively high use is apparent among women aged 20 to 29, who are at optimal fecundity. The analysis by family size confirms the impression of contraceptive adoption early in the family-building process. For instance, 24 percent of women with one child and 36 percent with two children reported current use.

Table 2.16 Percentages of currently married women using specified methods of contraception, BFS and CPS

	<i>BFS</i> 1975	<i>CPS</i>					<i>BFS</i> 1989	<i>CPS</i> 1991
		1979	1981	1983	1985-86	1989		
Sterilization	0.8	3.3	4.8	7.4	9.4	10.4	9.7	10.3
Tubectomy	0.3	2.4	4.0	6.2	7.9	9.0	8.5	9.1
Vasectomy	0.5	0.9	0.8	1.2	1.5	1.4	1.2	1.2
Modern reversible	3.9	5.6	6.2	6.4	9.0	14.0	13.5	20.8
Pills	2.7	3.6	3.5	3.3	5.1	9.1	9.6	13.9
Injections	—	0.2	0.4	0.2	0.5	1.1	0.6	2.6
IUDs	0.5	0.2	0.4	1.0	1.4	1.7	1.4	1.8
Condoms	0.7	1.5	1.6	1.5	1.8	1.9	1.8	2.5
Vaginal	—	0.1	0.3	0.3	0.2	0.2	0.1	0.0
Traditional	3.0	3.8	7.6	5.4	6.9	7.1	7.6	8.7
All methods	7.7	12.7	18.6	19.1	25.3	31.4	30.8	39.9

— Not available.

Figure 2.4 Trends in prevalence of contraceptive use among currently married women in Bangladesh, 1968-91

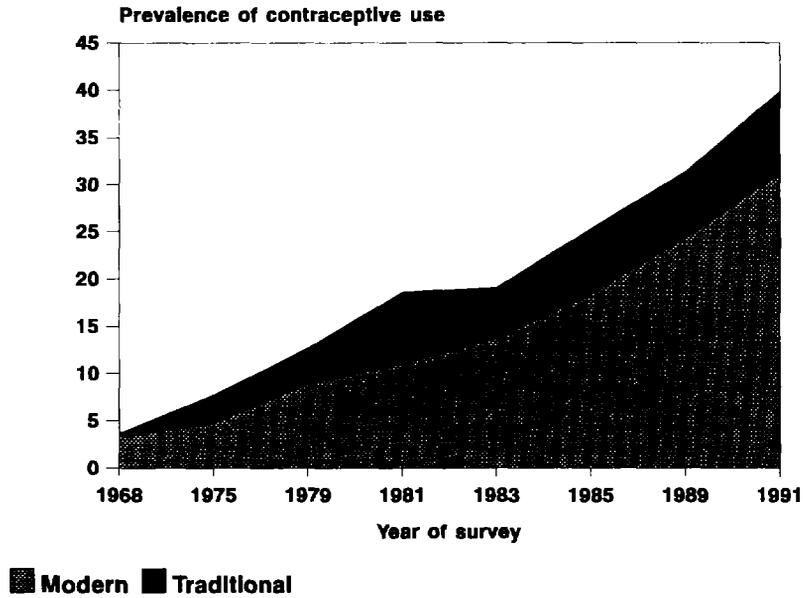


Figure 2.5 Trends in current use of contraception, selected Asian countries

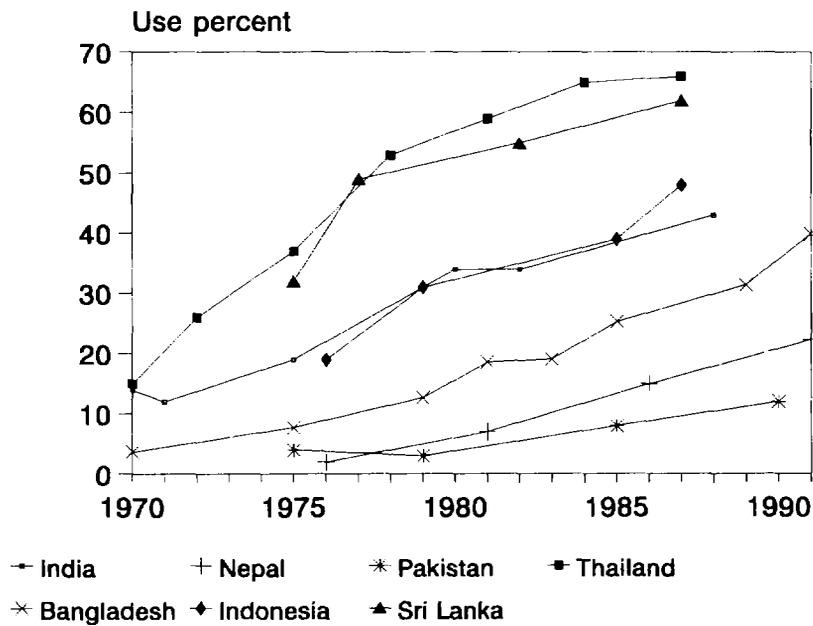
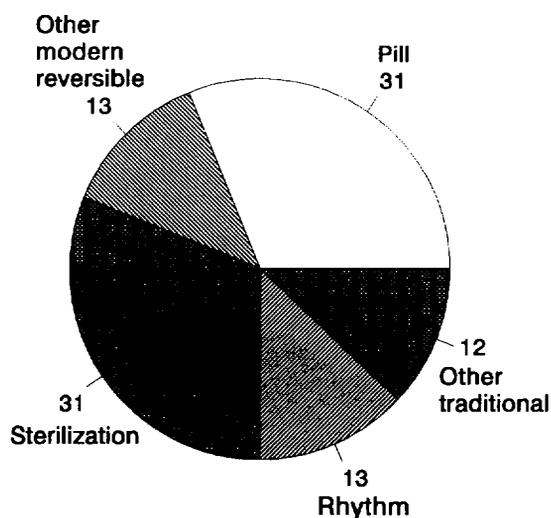


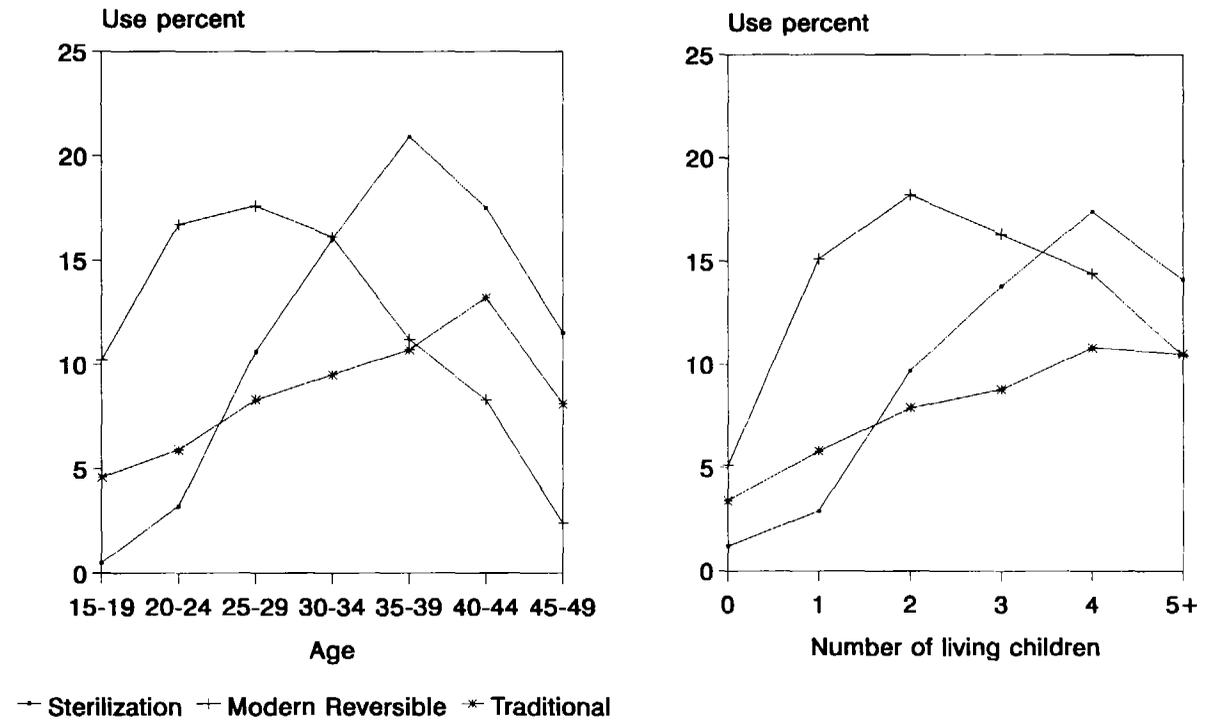
Figure 2.6 Methods employed by current users, 1989 BFS (percent)

The fecundity of couples seeking sterilization is of particular concern in countries where financial compensation is offered to clients. The sum payable to Bangladeshi couples does appear to act as an inducement, but only among couples who are convinced of a need to limit family size (Cleland and Mauldin 1991). But does it also attract couples who are *not* at risk of conceiving? Sterilization of demographically ineligible couples was a common occurrence in India in the late 1960s and during the emergency period (Srinivasan and Kachivavan 1968). Does the existence of financial compensation in Bangladesh have the same pernicious effect?

The ages and family sizes of sterilization clients are reported routinely through the management information system. The mean ages of tubectomy acceptors and of the wives of vasectomy acceptors are about 28 years, with only a tiny proportion aged over 40 years. The mean family size is about four children. Several independent surveys have confirmed the validity of this information (Mitra, Karim, and Khuda 1986; Kamal, Ahmed, and Khan 1988). Another practical measure of fecundity is the occurrence of a recent birth. The 1986 and 1988 surveys just cited found that well over 90 percent of sterilization clients had a child under the age of five. We may conclude that the number of sterilizations performed on people who do not need birth control is very small.

Another way in which the fertility-inhibiting effect of contraception may be reduced is through lactational amenorrhea. There are two possible scenarios. First, the advent of modern contraception may displace traditional forms of lactational protection; women may be encouraged to wean earlier because they no longer need the protection against conception offered by breastfeeding. The net result may be that the fertility-depressing impact of contraception is entirely offset by the

Figure 2.7 Current use of contraception, 1989 BFS



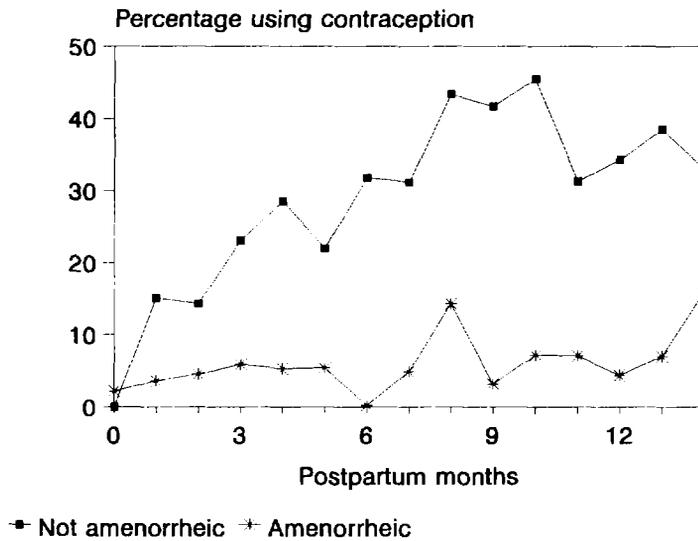
fertility-enhancing impact of shorter feeding. Indeed, it has been demonstrated in Bangladesh that adoption of high- or regular-dose oral pills early in the postpartum period may be counterproductive (Bhatia, Becker, and Kim 1987). Such a contraceptive regime suppresses lactation and promotes early return of ovulation. If use-effectiveness or continuation of oral contraception is low, the net effect will be to increase the risks of conception. The second scenario involves overlap between lactational and contraceptive protection. To the extent that contraception is initiated shortly after childbirth, when most mothers are at very low risk of becoming pregnant again, much use will be simply redundant, with no possible effect on fertility.

For a full elucidation of the relationship between modern and traditional forms of birth spacing, a prospective study is ideally required. Such an investigation would inquire not only into the timing of contraceptive use in relation to the resumption of ovulation but also into motivational and cognitive aspects. In the absence of any such study, the issues can be explored by using data from the 1989 BFS. It is already clear from earlier discussion that overall durations of breast-feeding in Bangladesh have remained remarkably stable. While there is some evidence that lactational amenorrhea has declined in length, it is unlikely that contraceptive use is responsible for any shift in suckling patterns. Nevertheless, a decline in lactational protection may be the key to reconciling two inconsistent strands in the evidence concerning reproductive change. Our conclusion from the analysis of fertility was that intervals between births have not increased, despite considerable use of contraception by young women with small families, many of whom undoubtedly want more children. The BFS data allow us to be more specific about the use of contraception for spacing. Among women who say that they want another child, the level of current use is 17 percent, compared to 44 percent among women who say that they want no further children. The former group of "spacers" comprises 25 percent of all current users. One possible reason why this appreciable use of contraception for spacing purposes has not translated into longer birth intervals is a decline in lactational protection. Other reasons may include short durations of use and high failure rates among couples using contraception to space births.

On the issue of double protection, the BFS results are more clear-cut. An analysis by Weis (1993) shows that contraceptive use among amenorrheic women is very low, not only in the early postpartum months but also entering the second year following childbirth (figure 2.8). The obvious interpretation of this pattern is that Bangladeshi mothers are aware of the link between amenorrhea and the probability of conception, and many consciously delay adoption of contraception until the return of menses. This finding is of great practical importance for the delivery of family planning services in Bangladesh. It is also of great demographic importance, because it implies that very little contraceptive use (approximately 7 percent) is redundant.

We turn now to the topic of contraceptive continuation and use-effectiveness. Table 2.17 summarizes the results of major studies of the dynamics of use, in terms of the percentage of adopters who are still using a method after 12 months, without interruption or with only short breaks. A variety of study methods have

Figure 2.8 Percentage of women using contraception according to amenorrheal status (current-status analysis)



been used: follow-up visits to a sample of acceptors drawn from clinic or other records; retrospective questioning of representative samples of the reproductively active population; and prospective studies involving repeat visits. It is therefore perhaps not surprising that results vary widely. The general impression is that about half of couples who start a method terminate use in the first year. The probability of stopping tends to be higher for the pill than the IUD. The dominant stated reasons are side effects and fears about health, and a large proportion of those who stop use do not switch to another method and thus become exposed to the risk of an unwelcome pregnancy.

Although these results are somewhat disconcerting, high rates of discontinuation are common in most settings worldwide. The indisputable fact is that many women are unprepared to tolerate the discomfort, inconvenience, and side effects of particular modern methods, and many need to try several of them before finding one that is acceptable.

Closely related to the topic of discontinuation is the question of use-effectiveness. Some methods—surgical sterilization, injectables, and the IUD for instance—require little behavioral input from the user and thus offer a very high level of protection until they are stopped. Other methods, however—such as the pill, condom, withdrawal, and periodic abstinence—demand understanding, memory, persistence, and some skill from users. For these methods, a wide gulf may exist between optimal, theoretical effectiveness—that is, the low risk of failure under conditions of perfect compliance—and actual use-effectiveness under real-life standards of use. At least one detailed study of pill use in Bangladesh provides

Table 2.17 Estimates of percentages still using specified methods after 12 months

<i>Source and type of study</i>	<i>Method</i>				
	<i>Pill</i>	<i>IUD</i>	<i>Condom</i>	<i>Injectable</i>	<i>Rhythm</i>
A. Y. Chowdhury and others (1986) Follow-up study of 1983–84 acceptors from 4 large NGOs	Rural 62 Urban 65	— —	57 69	— —	— —
Islam, Frankenberg, and Islam (1988) Retrospective national study of use in 1983–85	63	79	55	—	79
Kamal, Ahmed, and Rahman (1990) National follow-up study of acceptors in 1988	—	63	—	—	—
Akhter and Ahmed (1991) Quasi-national retrospective study of use in 1985–88	80	77	61	—	82
Akbar, Phillips, and Koenig (1991) Prospective study in Matlab, 1985–87	49	77	—	69	—
Hossain, Haaga, and Phillips (1994) Prospective study in 2 rural areas, 1983–89	47	74	27	54	—
Larson and Mitra (1991) Retrospective national study of use in 1990	Rural 51 Urban 50	— —	— —	— —	— —

— Not available.

grounds for concern that this method may be ineffectively used by many women (Seaton 1985). This possibility is of great practical importance because of the large rise in the popularity of oral contraception since the mid-1980s.

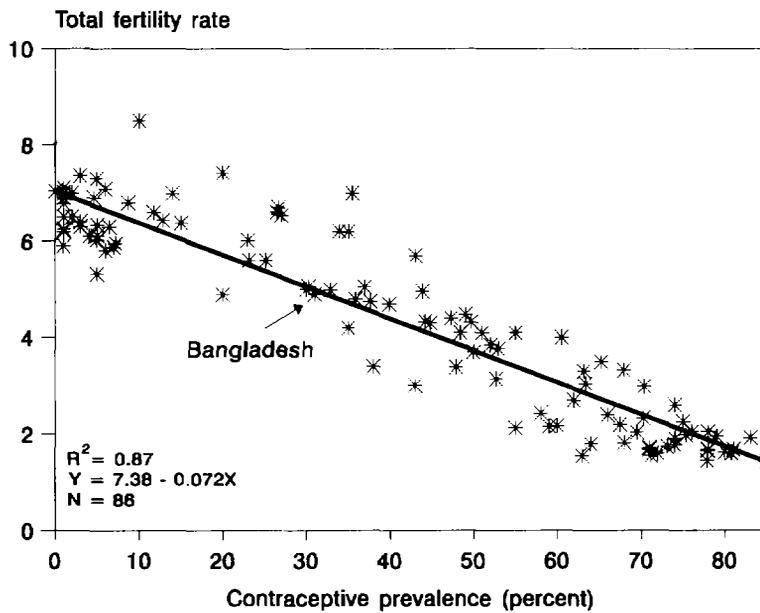
The measurement of use-effectiveness is extremely difficult because one has to establish whether conception occurred while the couple was still attempting to use the method or after the method had been stopped. As contraceptive use may be intermittent, this distinction is difficult to enforce, and the problem is exacerbated by faulty recall and possible misrepresentation by respondents. Most of the studies

depicted in table 2.17 also attempted to measure use-effectiveness, and most yield estimates that are suspiciously low: cumulative 12-month failure rates for the pill of 0.5 to 2.5 percent. This range contrasts with a median failure rate of about 8 percent from an analysis of 16 developing countries (Moreno and Goldman 1991). One major exception to the general finding of low failure rates in Bangladesh, the prospective study of Akbar, Phillips, and Koenig (1991) in Matlab thana, gives a pill failure rate of 18.5 percent. However, this study used a liberal definition of failure that included all conceptions occurring in the month of most recent pill use.¹

The most recent national investigation of pill continuation and effectiveness employed a variety of definitions (Larson and Mitra 1991). The first definition followed the conventional procedure of including only pregnancies that occurred while the pill was still in use. The cumulative 12-month gross failure rates corresponding to this definition were estimated at 0.9 and 2.9 percent for rural and urban respondents, respectively. When unwanted pregnancies that occurred within four months of reported time of stopping the pill were added, failure rates rose to 5 and 9 percent, respectively.

In conclusion, the evidence concerning the fecundity of contraceptive users in Bangladesh and their propensity for prolonged and effective use provides no grounds for believing that the expected fertility impact is weaker or more diluted than in other countries. We may add that the level of contraceptive practice is entirely consistent with a total fertility rate of about 5 births per woman. Figure 2.9

Figure 2.9 Total fertility rates and contraceptive prevalence, selected countries (latest available data)



Source: Mauldin and Segal 1986

summarizes the relationship between contraceptive use and the total fertility rate for 86 countries. The 1989 contraceptive prevalence estimate of 31 percent and a rate of 5 births places Bangladesh close to the regression line.

Induced abortion

Although induced abortion is illegal in Bangladesh, menstrual regulation (MR) has been a part of the family planning program since the mid-1970s. MR, which refers to vacuum aspiration of the uterus, is permitted only within the first ten weeks following the last menstrual period. Its legality rests on the delicate assumption that many women are unsure of their status in these early weeks. Doctors and paramedics have been trained in MR techniques, and much of this work has been orchestrated by the Bangladesh Association for Prevention of Septic Abortion, founded in 1982.

The number of procedures performed is reported by the management information system. This series indicates a rapid growth from 10,000 in 1979–80 to a peak of 80,000 in 1986–87. In recent years, the number has fluctuated between 75,000 and 80,000. These figures suffer from gross underreporting. Begum, Kamal, and Kamal (1987), on the basis of a detailed field study of official abortion providers, estimate that only 29 percent of MR procedures enter official compilations. This implies that the recent annual number of MRs performed is about 260,000. The uncertainty about the scale of pregnancy termination is further increased by the undoubted existence of unauthorized and illegal procedures. The first detailed nationwide study on this topic was conducted in 1978 (Measham and others 1981). Information on abortion complications and fatalities, and maternal deaths in the preceding 12 months was collected by visits to nearly 800 health centers and hospitals. In all, 1,590 instances of abortion complications were detected, of which 31 percent were fatal. Over half (60 percent) had been performed by *dais*, or traditional practitioners, and the typical method involved the insertion of a foreign body into the uterus.

These results were extrapolated to the total population, assuming that the ratio of abortion deaths to other maternal deaths found in the study (1:3) was correct and representative of the whole country. The annual number of maternal deaths in the country was calculated from Matlab data, showing a maternal death ratio of six per 1,000 births. A total of 7,800 abortion-related deaths in 1978 was estimated. On the further assumption of a 1 percent risk of death from abortion, the authors concluded that 780,000 abortions were performed annually. If each abortion averts 0.65 births, then the demographic impact of induced abortion was to reduce the crude birth rate by 11 percent.

In the light of subsequent research, this estimate of the number of traditional, or illegal abortions performed annually in Bangladesh seems too high. While the maternal mortality ratio of about six per 1,000 has been confirmed, the proportion of all maternal deaths attributable to induced abortion found in other studies is about 20 percent (Khan and others 1986; Fauveau and Blanchet 1989). Moreover, the prospective study by Khan and others (1986) gave a 2.4 percent risk of death from

traditional abortion, rather than the 1 percent risk assumed in the earlier study. If the Measham and others estimate of total abortions is recalculated using this more recent evidence, the result is about 216,000 abortions in 1978. This revised estimate is consistent with the corresponding 1983 total of 204,000 abortions, based on an observed ratio of 44.2 induced abortions per 1,000 live births (Khan and others 1986).

Since 1983, the number of illegal abortions may have risen substantially, in response to a growing need to control family size. However, it is equally plausible that the increased access to MR services has reduced the number. The uncertainty remains unresolved, but it seems improbable that MR or other, illicit, forms of pregnancy termination act as a major restraint on fertility. The shreds of evidence available to us imply a reduction in fertility by this method of about 5 percent.

The fertility-reducing impact of the direct determinants

Having reviewed evidence concerning each of the four direct determinants of fertility, we now estimate their fertility-reducing impact, using the Bongaarts model:

$$\text{Total fertility rate} = 15.3 C_m C_i C_c C_a$$

where 15.3 is a constant and represents the hypothetical level of fertility in the absence of any restraints, and C_m , C_i , C_c , and C_a are the proportional reductions due to nonmarriage, lactational amenorrhea, contraception, and abortion, respectively. Our computational procedures follow those used by Huq and Cleland (1990). More refined methods of calculation are available, but experience has shown that they make little difference to the main results (Casterline and others 1984).

Table 2.18 shows the results for the 1975 and 1989 BFS in terms of the percentage reduction attributable to the four factors. In most applications of the Bongaarts model, the term C_i is calculated on the basis of the breastfeeding duration, which is converted to an implied duration of postpartum amenorrhea using an empirically derived conversion factor. The results of this approach are shown as definition A. For both fertility surveys, however, we have directly measured durations of amenorrhea. The values of C_i based on these observations are shown as definition B. It is immediately clear from table 2.18 that the choice of method of calculation makes a substantial difference to the estimated fertility-reducing impact. This is so because the directly measured length of amenorrhea is much shorter than that derived indirectly from the breastfeeding duration. Nevertheless, the impact of lactational protection is very large under either method of calculation. Even in 1989, it is a more important restraint on fertility than contraception.

The other surprising feature of table 2.18 is that the estimated impact of nonmarriage appears to be greater in 1975 than in 1989. This result should not be interpreted literally because it is likely that idiosyncracies in the 1975 data have

Table 2.18 Percentage reduction in fertility attributable to the direct determinants, 1975 and 1989 BFS

	1975	1989
Marriage	19	14
Lactational infecundity		
definition A	51	51
definition B	40	35
Contraception	7	29
Abortion	2	5
Implied total fertility rate		
definition A	5.5	4.3
definition B	6.8	5.8

inflated the impact. But it does reinforce the point made earlier that the fertility-inhibiting effect of rising female marriage ages has been offset by declines in widowhood. It is safe to conclude that nuptiality has played a very small part in the fertility decline of Bangladesh. The same is true for lactation. Thus the engine of fertility change is powered almost exclusively by contraceptive practice, whose effect has increased from a 7 to a 29 percent impact. Induced abortion may have contributed slightly, but the decline attributable to this factor is probably small and largely a matter of reasoned guesswork.

At the foot of table 2.18 are the implied total fertility rates. Once again, the decision on how to represent the impact of lactation is critical, and the range between high and low estimates is broad. The data on the determinants are consistent with the earlier conclusion of a substantial fertility decline, but they do not assist in narrowing the range of plausible estimates for the fertility level in the late 1980s.

Self-declared demand for children

Conceptualization and measurement of desire or demand for children is one of the most controversial aspects of fertility analysis. There are many, particularly economists, who equate actual fertility with demand for children. The demographic literature abounds with explanations of fertility levels and differentials which assume that childbearing behavior must be an expression of conscious desire or need (see, for example, Lee and Bulatao 1983). An equally large body of opinion and research accepts that reproductive wishes or needs may diverge from reproductive performance because of perceived lack of choice or a host of other barriers that prevent the translation of attitudes into behavior. From this perspective

has arisen a huge literature on unmet need for family planning that has been influential in persuading governments and donors to support contraceptive services as the centerpiece of population control policies. This division in opinion extends to the type of evidence that is regarded as admissible. For the former school of thought, the testimony of individuals is of little consequence. Many attempts have been made to explain fertility in Bangladesh without any reference to the views of the actors themselves; motivations are inferred solely from behavior. For the latter school of thought, reproductive desires, whether elicited in surveys or by less structured inquiries, have a considerable interpretive value and must form an important part of attempts to understand reproductive change. We align ourselves with the view that individual testimonies on matters of family size are of value, even though they may not be amenable to straightforward interpretation. Their salience relative to other, perhaps more pressing goals of families is unknown, and the intensity with which they are held is difficult to assess. Particularly in societies where conscious fertility regulation is rare, stated fertility preferences may be heavily influenced by rationalization. Considerations of mortality and sex composition further complicate the picture. When a woman in Bangladesh reports that she wants four children, what allowance for mortality does she make and what balance of sons and daughters is she assuming? Finally, uncertainty exists about the locus of reproductive decisionmaking. Most evidence is elicited from women, but husbands or other kin may well have a more decisive influence on matters of family size. Such misdirection of inquiries might severely reduce the relevance of the data.

With these caveats in mind, we turn to the data themselves. The most commonly used question for measuring reproductive desires is also the simplest: "Would you like to have another child or would you prefer no more?" Shown below are the percentages of currently married women in various national surveys who responded that they want no more children:

<i>Survey</i>	<i>Percent</i>
NIS 1969	44
CPS 1983	48
CPS 1985-86	52
CPS 1989	56
BFS 1989	55

The most significant feature is the high proportion of women in 1969 stating a desire to cease childbearing. It will be recalled that contraceptive practice was negligible at that time. The NIS result is not a maverick. A large survey conducted in Comilla in 1968 shows an almost identical proportion (42 percent) wanting no more children (Stoeckel and Choudhury 1973). In the latter survey, the mean desired family size was 4.0 children, a little below the number of surviving children (4.6) that the average woman could then expect by age 50. Averages, however, do

not provide an entirely appropriate basis for comparison. One characteristic of natural fertility populations with high mortality is the great variance in numbers of surviving children. According to the 1969 NIS, 22 percent of women age 40 or over had 2 or fewer surviving children; at the other extreme, 33 percent had 6 or more children. In the Comilla survey, the proportion giving a desired size that was equal to or less than their actual size was 45 percent. The corresponding figure from the NIS was 31 percent. Fertility aspirations in the late 1960s, it appears, were rather modest, though no doubt influenced to some extent by rationalization. However, the contrast between the abysmal failure of the 1965–69 family planning program and this survey evidence of a widespread desire for smaller families led to an implicit discrediting of the latter finding. Thus Sirageldin, Hossain, and Cain (1975) concluded: "It is evident that the real bottleneck is the generation of demand. Serious efforts that go beyond family planning and that exercise more critically the cultural and environmental factors that determine family size and fertility behavior are clearly needed in Bangladesh" (p. 24).

Survey evidence on fertility preferences between 1969 and 1983 is scanty. The 1979 and 1981 CPS omitted the relevant questions, while the 1975 BFS asked women whether they wanted another child *soon*, thus introducing a fatal lack of comparability. But the 1975 survey did include a question on total desired family size. The mean desired size was 4.1 children, almost identical with the 1968 Comilla result, and the percentage stating a desired family size that was equal to or less than actual size was almost identical with the 1969 NIS result (29 versus 31 percent). There is no support here for the view that the major disruptions of the War of Independence and the 1974 famine transformed people's views about family size, setting the stage for the decline of fertility in the late 1970s and throughout the 1980s.

More recently, on the other hand, there has been a decline in stated preferences for additional children. This is evidenced by the series of national surveys (table 2.19) and by a series in Matlab (table 2.20). Further confirmation of a decline in preferences is provided by a comparison of the 1975 and 1989 BFS, which employed an identical question on total size. The mean of 4.1 children in 1975 fell to 2.9 in 1989. Perhaps even more revealing is the drop in the proportion of women who gave a nonnumerical response, falling from 29 to 8 percent. This type of reply usually implies fatalism (for example, it is up to God). We should recall that one of the three preconditions for fertility decline identified by Ansley Coale is that fertility should be within the "calculus of conscious choice" (Coale 1973). The large rise in the proportion able and willing to talk about fertility aspirations in numerical terms perhaps indicates that reproduction indeed increasingly fell within this calculus between 1975 and 1989: a shift from family formation by fate to formation by design. By 1989, family size aspirations, as revealed in large standardized surveys, were surprisingly modest. Among women with two children, nearly half claimed to want no more; among those with three, the proportion wanting to stop is nearly three-quarters. In terms of total desired size, a huge majority (81 percent) gave answers of two, three, or four children. There are signs of rationalization in terms of total desired size, which rises from about 2.5 children among women

Table 2.19 National trends in percentages of currently married women who say that they want no more children (or have been sterilized)

<i>Number of living children</i>	<i>CPS</i>			<i>BFS 1989</i>
	<i>1983</i>	<i>1985-86</i>	<i>1989</i>	
0	2	2	2	3
1	12	13	8	7
2	40	43	50	46
3	57	64	71	72
4	74	76	83	84
5+	87	87	93	92
All	48	52	56	55

Source: Primarily, special tabulation from CPS.

Table 2.20 Trends in percentages of currently married women who say that they want no more children, Matlab thana

<i>Number of living children</i>	<i>Treatment area</i>			<i>Comparison area</i>	
	<i>1977</i>	<i>1984</i>	<i>1990</i>	<i>1984</i>	<i>1990</i>
0	2	9	1	4	1
1	4	11	7	8	10
2	14	25	31	28	34
3	33	53	66	60	66
4	58	77	85	81	86
5+	70	88	91	89	93
All	43	55	53	60	58

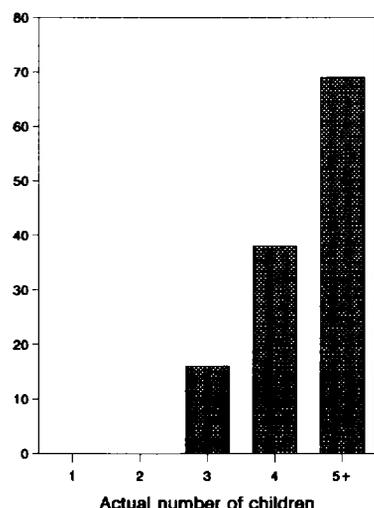
Source: Koenig and others 1987 and unpublished data for 1990.

with two or fewer to 3.6 among 5-child families. But the striking feature is the large number of women prepared to state a desired size that was lower than their existing number of children (figure 2.10). An identical impression of surplus or unwanted childbearing is revealed by answers to a question on the status of the last birth. A total of 25 percent claimed to have wanted no more children at the time they became pregnant with the last child, and the proportion rises consistently with family size (figure 2.10). Clearly, the question has been understood by most women in the survey.

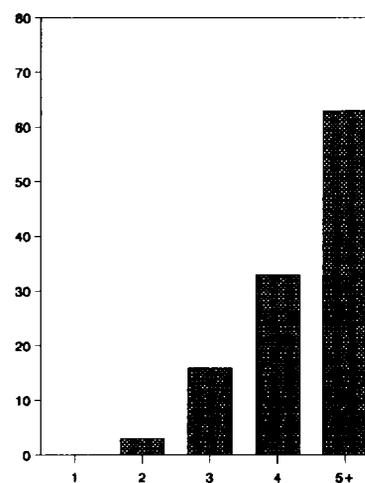
One potential problem, noted earlier, with fertility preference data is that the usual source of information—married women—may not be the main source of reproductive decisions. In the 1989 BFS, women were also asked whether they

Figure 2.10 Desired family size

Percentage of women stating a desired family size less than actual size



Percentage of women who did not want last pregnancy



thought their husbands wanted more children. Husbands' and wives' answers show a high degree of concordance, which may merely reflect the unwillingness of Bangladeshi wives to express open disagreement with their husbands. The 1989 CPS data are much more convincing. In this survey, matched subsamples of husbands and wives were interviewed independently. Table 2.21 compares the answers. There is no mistaking the concordance here. Only among couples with two or three children do male and female preferences diverge, but it is the men who express greater contentment with a 2-child family than women.

A further complexity of these data that can be addressed empirically is the existence of a preference for sons over daughters. This factor has often been proposed as one of many reasons for high fertility in Bangladesh. The topic is

Table 2.21 Percentage wanting no more children, 1989 CPS, couple sample

<i>Number of living children</i>	<i>Husbands</i>	<i>Wives</i>
0	6	1
1	22	20
2	61	49
3	76	65
4	84	85
5+	92	92
All	63	59

Figure 2.11 Percentage of couples who want no more children

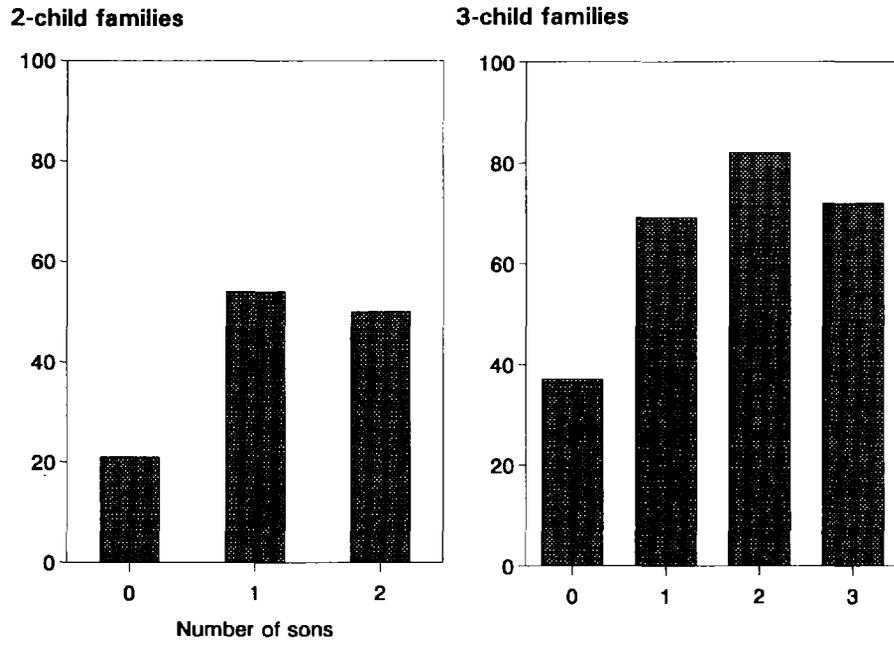
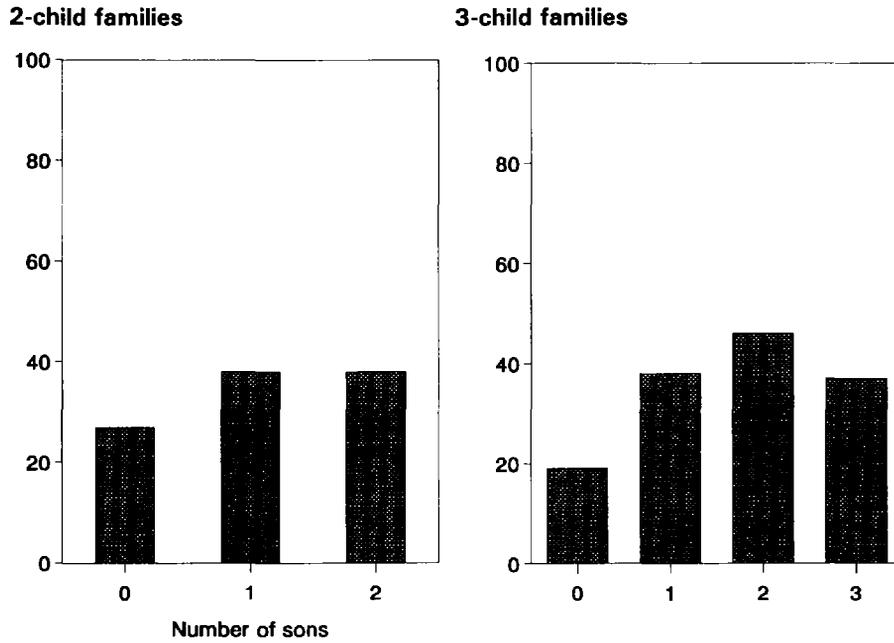


Figure 2.12 Percentage of couples using any contraceptive method



explored in figures 2.11 and 2.12 on the basis of the 1989 BFS data. An effect of sex composition on self-declared propensity to cease childbearing is evident. Among 2- and 3-child families, the presence of both a son and a daughter is preferred to a composition of all boys or all girls. No great bias in favor of sons is apparent, but such a bias is seen in terms of willingness to use contraception. Couples with no son are much less likely than other families to report that they want no more children or to report current use. But it is important to note that contraceptive use does not continue to rise regularly as the number of sons increases. Thus, women with three sons and no daughters are no more likely to be users than women with one son and two daughters. Most Bangladeshis want one son but do not appear to have a strong desire, or need, for more than one.

This interpretation of the evidence is of great demographic significance. A prevalent desire for at least two sons implies that the total fertility rate will remain above four children. In contrast, satisfaction with one son is consistent with a fertility rate a little above two births per woman.

The link between family composition and contraceptive use suggests that a parallel link with fertility should exist. An analysis of the 1975 BFS showed no significant association between composition and subsequent fertility (Cleland, Verral, and Vaessen 1983). This is not surprising in view of the low level of contraceptive practice at that time. Conscious regulation of fertility is a precondition for the imprint of a preference for sons to be imposed on fertility itself. A more recent study in Matlab finds a modest effect (Chowdhury and Bairagi 1991). It is estimated that the presence of sex preference raises fertility by 8 percent in the high-use treatment area and by 4 percent in the comparison area. In conclusion, it is difficult to maintain in the face of this evidence that a greater desire for sons than daughters is an important force that might sustain high fertility. It seems equally unlikely, though impossible to assess empirically, that an unbounded need for sons was responsible for the high fertility of the past.

Conclusions based exclusively on answers given in large surveys are never fully convincing. In Bangladesh, more intensive, less structured modes of inquiry lead to essentially the same impression of modest fertility desires, thus greatly enhancing the credibility of survey data.

An anthropological-cum-survey approach conducted in the late 1970s underlines the element of religious predestination or fatalism in fertility attitudes. More individuals thought that family size was dependent on God than on their own choice, though 40 percent endorsed both perspectives (Maloney, Aziz, and Sarkar 1981). This study found no positive support for large families. Nearly a decade later, an extensive investigation based on focus group discussions detected little fatalism (Nag and Duza 1988a and 1988b). A preference for small families was dominant, with two sons and one daughter as the ideal. The most commonly voiced reason for this size of family was the cost of food, clothes, and education.

The striking feature of the data on fertility preferences in Bangladesh is their similarity to corresponding data collected in other Asian countries. Desired family sizes were typically about four children at the onset of their fertility transitions. Mauldin (1965) cites mean desired family sizes reported in surveys of the early

1960s. For Sri Lanka, Taiwan (China), Thailand, Pakistan, Indonesia, and the Republic of Korea, mean values fell within the range of 3.2 to 4.3; the only outliers were Japan (2.8) and the Philippines (5.0). Moreover, data for both Taiwan and Korea showed a very strong preference for sons. In these Asian countries, desired fertility has fallen in parallel with family size, just as it has done in Bangladesh (see, for example, Freedman, Coombs, and Chang 1972). Despite the son preference, fertility in Korea and Taiwan has fallen to replacement level. We suspect that, in Bangladesh also, a family's desire for a son will not present a serious barrier to future declines.

Differentials in reproductive behavior

Analysis of socioeconomic and geographic differences in fertility and related behaviors is motivated by several interests. Differentials have a purely descriptive value; much of demographic analysis consists of precise numerical descriptions of population attributes. Differentials may also be of practical importance for policies and programs. Health and family planning resources may be directed toward areas or sectors where the demonstrated need is greatest. Lastly, the analysis of differentials may provide clues concerning the underlying causal mechanisms of change.

Most early studies of differential fertility in East Bengal found few pronounced variations (see, for example, Duza 1967). For instance, rural-urban and regional differences were modest, and the relationship with female education was curvilinear; the highest fertility was recorded among women with intermediate levels of schooling. In conditions of natural fertility, it is not at all surprising that differentials should be modest. Conversely, the advent of widespread birth control may have caused appreciable variations in the level of childbearing, as some sectors adopted new behaviors in advance of others.

Our analysis of differential fertility is based on three measures: the total fertility rate averaged for the period 1984 to 1988; the total marital fertility rate, omitting the rate for women under age 20 because of considerable variations between strata in the proportions marrying below this age; and the mean number of children born to ever-married women aged 25 to 44, standardized by age. It may appear pedantic to offer three perspectives on the same phenomenon, but the inclusion of a measure of lifetime fertility in addition to recent period fertility acts as a safeguard against the possibility of errors in the period data that may lead to false inferences. The choice of the age range 25 to 44 is based on the consideration that women at these ages have experienced the greatest declines.

Geographic differentials

It is clear that Bangladesh now exhibits an appreciable rural-urban disparity in fertility, a reflection of greater use of contraception in urban areas. Fertility preferences, however, do not differ much. Surprisingly, inhabitants of the large cities (Dhaka, Chittagong, Rajshahi, and Khulna) differ little in their behavior and preferences from those living in smaller urban localities (table 2.22).

Table 2.22 Summary of geographic differentials

	<i>Place of residence</i>			<i>Division of residence</i>			
	<i>Rural</i>	<i>Small urban</i>	<i>Large urban</i>	<i>Chittagong</i>	<i>Dhaka</i>	<i>Khulna</i>	<i>Rajshahi</i>
Total fertility rate 1984–88	4.4	3.3	3.4	5.2	4.4	3.8	3.7
Total marital fertility rate 1984–88 ^a	5.3	3.8	3.8	6.0	5.2	4.8	4.7
Mean children ever born ^b	5.1	4.5	4.5	5.4	5.1	5.0	5.0
Percentage using contraception	30	47	49	21	32	35	38
Percentage wanting no more children ^c	54	61	57	43	56	59	61

a. Calculated as the sum of age-specific rates from age 20 to 50. b. Age-standardized mean for ever-married women age 25–44. c. Standardized by number of living children.

Even more marked than the rural-urban divide is the regional disparity, with Chittagong division in the east as the clear outlier. Fertility is much higher here than elsewhere, and contraceptive use is lower, as is the proportion wanting to stop childbearing. Perhaps the reason for this regional differentiation has important lessons for understanding the causes of fertility change. This possibility is discussed in the final chapter.

Economic differentials

The measurement of the economic status of households is both complex and controversial. The BFS used two simplified surrogates to classify respondents according to income and resources. The first indicator is based on a score of household possessions: chair, bed, wardrobe, working radio, boat or bullock cart, bicycle, pitcher, and plate. The mean score (the average number of possessions owned out of a maximum of eight) was 3.2.

The second indicator is based on husband's occupation. Occupational classifications are often unsatisfactory because broad categories may subsume a

great diversity of incomes and lifestyles. The BFS is not immune to this problem. For instance, the large "sales and service" group is no doubt heterogeneous. But considerable care was taken in the agricultural sector to capture key differences in wealth and income. Cultivators working their own or rented land were subdivided according to land size, and sharecroppers were placed in a separate category. These groups are certainly more prosperous on average than the rural landless. Nutrition surveys reveal a link between size of landholding and nutritional status. Table 2.23, which shows the proportion of each of the occupational categories and their assets in terms of the household possessions score, confirms that access to land in the agricultural sector is a key determinant of economic welfare.

Differentials in reproductive behavior by these two economic indicators are shown in tables 2.24 and 2.25. Women with husbands in white-collar occupations, or those who live in relatively affluent households, report more contraceptive use and lower fertility. In other respects, however, fertility behavior is remarkably uniform across economic strata, with few deviations of more than 10 percent. In particular, fertility does not appear to be related to landholding status. Wives of landless laborers may have slightly smaller families than the landed or sharecroppers, but the difference is modest.

While overall contraceptive practice and fertility are not strongly tied to economic status, there are very great variations in method choice. There is a strong link between poverty and sterilization. As household economic status increases, the percentage sterilized among all current users decreases (figure 2.13).

The dominant, though probably not the only, reason for the higher recourse to sterilization among the poor is the disproportionate attraction for them of the cash compensation given to sterilization clients, which is equivalent to about one week's wage for an agricultural laborer (Cleland and Mauldin 1991). There is no evidence, however, that the cash acts as an incentive unless there is already a firm desire to stop childbearing; thus no "reproductive sacrifice" is involved. Because sterilization is a highly effective method, slightly lower fertility is to be expected among the very poor than among other strata, who tend to use less effective methods. There

Table 2.23 Occupational composition of the BFS sample

<i>Category</i>	<i>Percentage of BFS sample</i>	<i>Mean household possessions score</i>
White-collar	10	4.8
Sales and service	22	3.9
Production workers	5	3.4
Nonagricultural laborers	12	1.9
Cultivators with 1+ acres	22	3.8
Cultivators with less than 1 acre	9	2.6
Sharecroppers	5	2.4
Agricultural laborers	14	1.6
Other and unclassifiable	3	4.1

Table 2.24 Variation in fertility and contraceptive practice by economic status, as measured by household possessions

	<i>Household possessions score</i>			
	<i>0</i>	<i>1-2</i>	<i>3-4</i>	<i>5-8</i>
Total marital fertility rate 1984-88 ^a	4.0	4.7	4.4	3.7
Mean children ever born ^b	5.2	5.2	5.3	4.8
Percentage using contraception	28	27	29	40
Percentage wanting no more children ^c	55	53	54	56

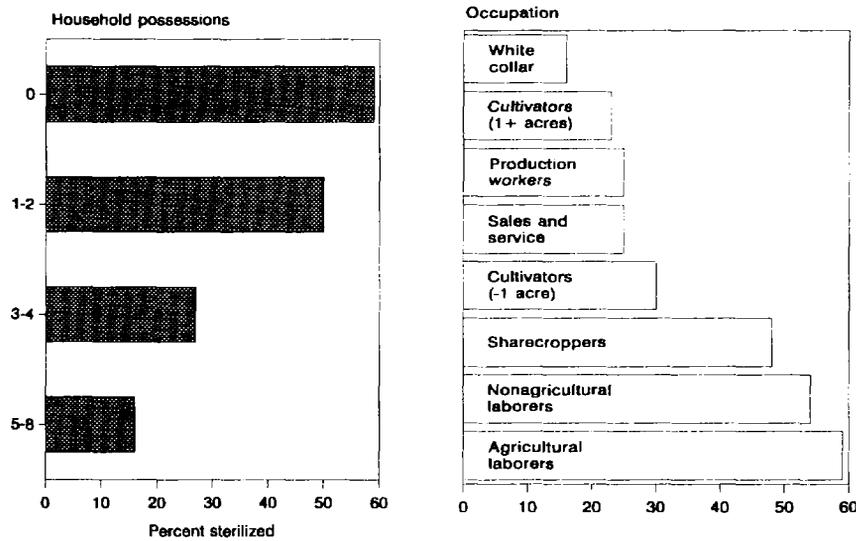
a. Calculated as the sum of age-specific rates from age 20 to 50. b. Age-standardized mean for ever-married women age 25-44.
c. Standardized by number of living children.

Table 2.25 Variation in fertility and contraceptive practice, by husband's occupation

	<i>White-collar</i>	<i>Sales and service</i>	<i>Production workers</i>	<i>Non agricultural laborers</i>	<i>Cultivators (1+ acres)</i>	<i>Cultivators (-1 acre)</i>	<i>Sharecroppers</i>	<i>Agricultural laborers</i>
Total marital fertility rate (1984-88) ^a	4.3	4.8	5.0	5.0	5.0	5.1	4.8	4.7
Mean children ever born ^b	4.8	5.1	5.1	5.2	5.1	5.3	5.4	5.0
Percentage using contraception	44	34	30	27	30	28	24	30
Percentage wanting no more children ^c	57	53	53	54	57	52	53	55

a. Calculated as the sum of age-specific rates from age 20 to 50. b. Age-standardized mean for ever-married women age 25-44.
c. Standardized by number of living children.

Figure 2.13 Percentage of current contraceptive users who are sterilized by indicators of household economic status and occupation



is a hint of this in table 2.25: sharecroppers and agricultural laborers are somewhat poorer than landed cultivators and have slightly lower marital fertility rates, but equivalent contraceptive prevalence rates. In our view, low fertility among the very poor has no profound significance, in part because observed differentials are not great, but mainly because corresponding differentials for reproductive preferences do not emerge. The observed differential is thus a by-product of the nature of family planning services in Bangladesh.

Sociocultural differentials

The association between two sociocultural factors—wife’s education and religion—and reproductive behavior is examined in table 2.26. A few years of primary schooling does not make a serious impact on fertility behavior, but at higher levels of education fertility declines sharply. These educational differentials do not extend to fertility preferences, which are fairly constant across all four categories. It thus appears that the major influence of women’s education is not to reduce demand for children but to erode the barriers to contraception. The important implication is that investment in schooling for girls would have, in the long term, a profound impact on fertility behavior.²

The Muslim-Hindu difference accords with previous evidence on this topic. Hindus record slightly lower fertility and higher contraceptive use than Muslims. Earlier analyses have failed to account for this differential in terms of a divergence between the two groups in their socioeconomic composition (Stoeckel and

Table 2.26 Variation in fertility, contraceptive practice, and reproductive preferences by wife's education and religion

	<i>Wife's education</i>				<i>Religion</i>	
	<i>No schooling</i>	<i>Lower primary</i>	<i>Upper primary</i>	<i>Higher</i>	<i>Muslim</i>	<i>Hindu</i>
Total marital fertility rate 1984-88 ^a	4.4	4.4	3.8	3.3	4.5	4.3
Mean children ever born ^b	5.2	5.4	4.8	4.2	5.2	4.4
Percentage using contraception	28	33	39	49	30	36
Percentage wanting no more children ^c	54	54	55	57	54	59

a. Calculated as the sum of age-specific rates from age 20 to 50. b. Age-standardized mean for ever-married women age 25-44. c. Standardized by number of living children.

Choudhury 1973). The cause of this difference is thus likely to be cultural in origin, and perhaps related to the greater seclusion of Muslim than of Hindu women.

Mobility and autonomy

Few large-scale surveys attempt to measure dimensions of women's status, beyond the rather bland customary information on education, employment, age at marriage, and spousal age difference. However, the 1989 BFS was an exception. In this inquiry, information was gathered on two key aspects of the status of women: their freedom of movement and their participation in domestic decisionmaking. Freedom of movement outside the homestead is of special interest in many Muslim societies where strong traditions of *pardah* may act to seclude women within their homes. Travel away from home, whether to visit friends or take a sick child to a health center, may be considered shameful, unless the woman is accompanied by an adult family member. This relative seclusion of Muslim women has direct and obvious consequences in terms of access to static services. It may also have a more profound influence on mentality and outlook by circumscribing interactions with the outside world and exposure to new ideas and models of behavior.

It is possible that the seclusion of women may be less stringently practiced nowadays than was the case in the period prior to independence. At the same time,

it would be misleading to claim that the position of women in Bangladesh has been transformed. Their lives are still restricted, spent largely within their dwelling and immediate vicinity. An illustration of the current situation is given by answers to questions in the 1989 BFS on whether or not the respondent could do specified activities alone (that is, unaccompanied). The results are shown below:

<i>Activity</i>	<i>Percentage affirmative responses</i>
Walk inside locality	80
Talk to unknown man	75
Go to film show	9
Walk outside locality	32
Visit health center	39
Visit club	13
Go shopping	11
Go to political meeting	6

As the figures above indicate, Bangladeshi women reported restrictions on their freedom of movement. While a large majority felt able to walk unaccompanied around their own village, or urban neighborhood, and to talk to a male stranger, travel outside the immediate locality was much more circumscribed. Only about one-third of all women felt able to go outside their village or neighborhood by themselves, and much smaller minorities felt able to visit shops, clubs, health centers, or attend political meetings.

This information is self-reported and of unknown validity. It is possible that respondents provided normative responses and may have projected to interviewers an image of Islamic respectability that was not a true reflection of actual behavior. Direct observations of behavior would have been preferable but, of course, totally impractical in the context of a large survey.

The second dimension of the status of women measured in the 1989 fertility survey is very different in nature, because it concerns the autonomy of women within the sphere of domestic decisions. A set of questions was included with the aim of assessing the extent to which women participate in decisions regarding such matters as household purchases and the schooling of children. The power of decisionmaking has always been regarded as a key component of women's status, and, once again, its possible consequences for reproductive decision are rather obvious. It is often claimed that men are less concerned about the spacing and limitation of births, perhaps because they do not experience the burden of pregnancy and child care. Moreover, contraception may be regarded as a woman's subject and therefore embarrassing or inappropriate for men to discuss and decide upon. The majority of contraceptive methods are designed for use by women, and in many countries, this gender bias is reinforced by family planning services that are focused almost exclusively on women. It follows, therefore, that women who are not prepared, or not allowed, to participate in domestic decisions may be at a severe disadvantage in terms of reproductive decisions.

Table 2.27 Women's participation in domestic decisionmaking

<i>Type of decision</i>	<i>Husband</i>	<i>Respondent</i>	<i>Joint</i>	<i>Total</i>
Children's education	30	6	64	100
Visits to friends and relatives	46	10	45	100
Household purchases	44	14	42	100
Health	47	11	43	100

Source: 1989 BFS

To measure this dimension, women were asked whether they alone, their husband alone, or both jointly made decisions about the schooling of children, visits to friends and relatives, household purchases, and health care. Answers are shown in table 2.27.

A recent analysis (Cleland, Kamal, and Sloggett 1994) used a simple scoring system to summarize answers and showed that both these dimensions of the status of women have a powerful effect on contraceptive use, net of controls for education, urban-rural residence, region of residence, husband's occupation, and age. The most mobile group of women (accounting for nearly one-third of the sample) is about twice as likely to be using modern reversible contraception or to be sterilized as the medium- or low-mobility groups. The link between domestic decisionmaking autonomy and use of modern reversible contraception is almost as strong but is less pronounced for sterilization. Parallel differences in marital fertility were also found.

These results provide a strong indication of conventional wisdom on the topic of women's status and fertility. Moreover, length of formal schooling emerged in the analysis as a powerful predictor of mobility and decisionmaking autonomy.

Conclusions

Although fertility levels and trends in Bangladesh have long been the subject of discussion and debate, it can now be stated with confidence that fertility decline has begun. The decline is substantial and has been confined to the two decades since independence. Evidence presented here indicates that this trend, recorded in successive national surveys, is not an artifact of poor data. Between 1975 and 1990, the level of fertility fell from about 7.0 births to about 4.5 births per woman. The decline probably started in the late 1970s and accelerated in the mid-1980s. The main mechanism of change was increased contraceptive use; rises in age at marriage played little part.

The onset of fertility decline has resulted in the emergence of fertility differentials. Couples living in cities and towns have lower fertility and higher contraceptive use than those in rural areas. The decline has been slower in Chittagong division than elsewhere, with the result that fertility in the east of the country is now much higher. Women with four or more years of schooling,

married to men with white-collar occupations and from relatively affluent households, have lower fertility than the less privileged mass of the population. Apart from the distinctive behavior of this small elite, however, differences in economic status have not conditioned reproductive change in Bangladesh. The apparent absence of a link at the household level between access to land, or poverty, and fertility is of major theoretical importance. The emergence of a strong regional differential is also intriguing and may provide insights into the underlying causes of change. In other respects, however, differentials will not illuminate the determinants of fertility decline. Urban-rural and educational differentials are consistent with almost any theory of demographic transition.

Evidence suggests that all major socioeconomic strata have modified their reproductive behavior. The poor, the landless, and the illiterate have reduced their fertility at the same time and to the same extent as the better-off, the landed, and the literate. The decline has also affected all age groups, except perhaps the very youngest and oldest childbearing cohorts. All regions of the country have experienced a decline, though the eastern part lags behind. Attitudes toward family size showed a parallel decline, and thus the unmet need for contraception remains high. Nonetheless, the decline that has been observed represents a steep fall by world standards and is surprising in view of the modest economic and social improvements that have occurred in Bangladesh since independence in 1971.

Notes

1. Matlab pill failure rates are further elevated by the tendency of village workers to dispense pills to women who are unwilling to use any other method and are presumably reluctant to use contraception at all. The tendency for nonusers to accept pills as a courtesy to village workers may explain the high failure rates and poor compliance that have been reported for pill users in Matlab (Seaton 1985). Failure rates estimated for other methods used in Matlab are similar to rates reported in national studies (Akbar and others 1991).

2. As contraceptive prevalence has increased, the importance of this differential has diminished. Although contraceptive use has increased among all educational strata, changes among the educated have been less than among the least educated. For example, prevalence among women with no formal schooling rose from 6.2 percent in 1975 (MOHPC 1978) to 37.0 percent by 1991 (Mitra and Associates 1991), a fivefold increase. The corresponding increase among women with 10 or more years of schooling was significant but less dramatic—prevalence doubled from 23.5 percent in 1975 to 51.7 percent in 1991.

Socioeconomic Change and the Demand for Children

In chapter 2, we described what has to be explained. The total fertility rate fell from about 7 births per woman in 1975 to about 5 births by the late 1980s. The decline started in the late 1970s and accelerated in the mid-1980s. The major mechanism of change was increased contraceptive use within marriage, resulting in steep falls in fertility at older ages and at higher birth orders.

This chapter is devoted to a search for economic and social changes that may have decreased the desire or demand for children. Survey evidence on self-declared family size preferences suggests that such a decrease has occurred, though it appears to parallel the fertility decline rather than precede it. Many scholars assume that any change of fertility must stem from shifts in social or economic structure that impinge upon the economics of childbearing; but such a perspective often does insufficient justice to changing ideas about, or access to, the means of fertility control. This issue is addressed in chapter 4. Here we are concerned exclusively with factors that may have affected the demand for children.

The review concentrates on the period prior to the fertility decline: economic changes relevant to changing fertility patterns ought to have taken place during the decade of the 1970s or earlier. Economic and social trends during the 1980s are also relevant because of the acceleration of decline during that decade.

We begin with a discussion of existing macro and micro evidence specifically related to "demand" theories of fertility that are relevant to the Bangladeshi context. These issues in order of presentation are: mortality decline in Bangladesh; poverty and landlessness; children's schooling and labor force participation; risk, insurance, and fertility behavior; and women's economic activities and opportunities. Finally, we present evidence on nonspecific cultural, social, and economic changes over the past two decades that may have set the stage for a new fertility regime.

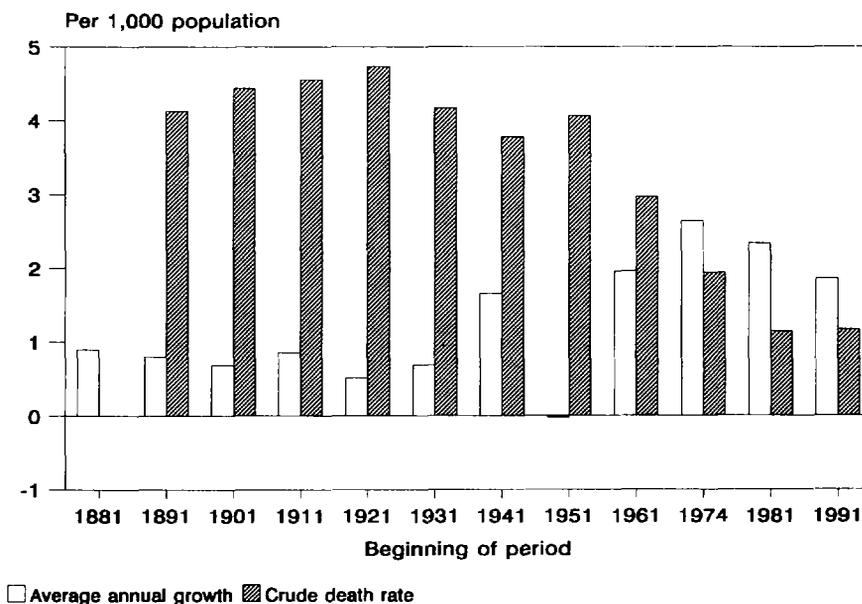
Mortality decline in Bangladesh

The area that is now Bangladesh has been characterized by an unprecedented population growth led by mortality decline in the last 40 to 50 years. Writing in the early 1980s, Miranda comments:

The sort of "explosive" population growth rates which have become so characteristic of the Bangladesh demographic profile are in fact a fairly recent feature which has characterized the period of only a single generation. Although [the] population has more than doubled during the last thirty years, most people currently in the reproductive ages were born in a totally different demographic environment. This encourages one to think that current growth rates are basically a transitional phenomenon, an imbalance occurring in the process of adjustment of fertility to new conditions of lower mortality. (Miranda 1982)

Figure 3.1 depicts crude death rates and population growth rates based on successive censuses over the last 100 years. In common with most developing countries, there is evidence of a longstanding decline in mortality throughout the early part of the twentieth century, followed by dramatic improvements following

Figure 3.1 Crude death and growth rates, 1881–1991 (intercensal rates)

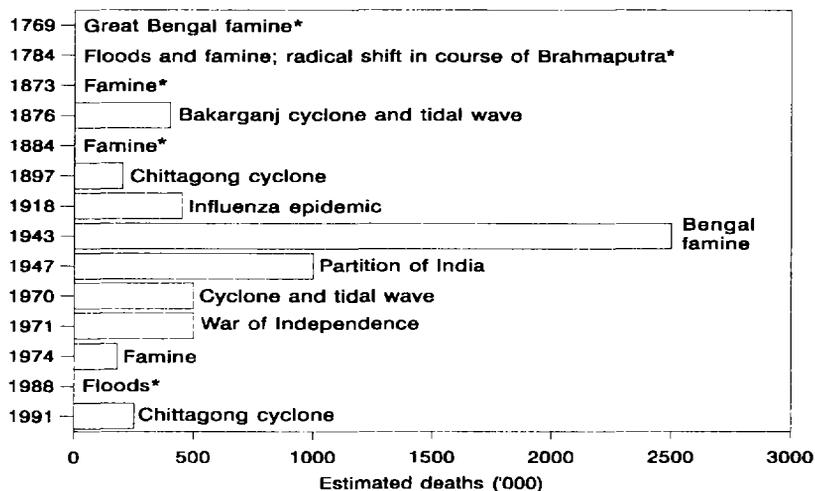


the Second World War. The picture for Bangladesh is complicated by the probability that the 1941 census overenumerated the population of present-day Bangladesh and thus distorted the growth rate estimates for preceding and subsequent decades. Nevertheless, it is clear that life expectancy improved from about 32 years in 1941 to almost 50 years in the early 1960s. Between 1960 and 1975, further slight improvements were recorded (National Research Council 1981). Since 1975, there is little reliable evidence but it is likely that life expectancy is now about 55 years.

One feature that sets Bangladesh apart from most other countries is its vulnerability to famine and natural disasters (see figure 3.2). Though nothing in recent history has equalled the excess mortality of the famine in the early 1940s, floods and cyclones continue to add an element of severe risk and uncertainty.

Mortality decline may affect fertility in three main ways. First, by giving rise to rapid population growth, it is indirectly responsible for the formulation of population control policies and vigorous promotion of family planning. The role of government action in the fertility decline will be discussed in the next chapter. The second possible link between mortality decline and fertility is also indirect and also involves population growth as the intervening factor. Rapid growth may put pressure on fixed resources of land and heighten competition for scarce resources. The advantage of high fertility may be eroded and couples forced to modify their reproductive behavior. This thesis of a fertility decline in response to increased landlessness, fragmentation of farm holdings, and deepening poverty will be taken up later in this chapter. The third way in which mortality may impinge upon fertility is more direct. It is plausible that parents not only replace children who

Figure 3.2 Major disasters in Bangladesh, 1769–1991



Note: *Mortality impact unknown.

Sources: Arthur and McNicoll 1978; *Bangladesh Observer* May 1991

have died but may also insure against future losses by bearing many children. Is it possible that the fertility decline of the last 10 years is simply an adjustment to improved survival prospects for children?

Clearly, trends in infant and child mortality are more relevant than trends in the crude death rate or in overall life expectancy. The extensive review by the National Research Council (1981) concluded that infant mortality was between 130 and 160 deaths per 1,000 live births between the mid-1950s and the mid-1970s, with no sign of improvement. Child mortality was also high and basically stable, resulting in the death before age five of over one-quarter of all children. Thus, at the time fertility started to decline, not only was infant and child mortality exceptionally high in Bangladesh but it had remained essentially unchanged for the preceding 20 years. The notion that families were consciously responding to any recent perceived improvement in child survival prospects by reducing their fertility can be rejected emphatically. Indeed, Bangladesh provides a refutation of the commonly held view that child mortality must be low before any fall in fertility can be expected.

Between 1975 and 1985, it is probable that infant and child mortality fell gradually. But there is no evidence of dramatic improvements in child survival that might have hastened the fertility decline. Infant mortality was still over 100 per 1000 births and the risk of dying by age five was still not much below 200 per 1000 at a time when fertility was falling substantially.

In the late 1980s, it appears probable that infant and child mortality declined markedly. Evidence for this recent trend comes from the sample registration results of the BBS, from ICDDR,B surveillance data for the comparison area of Matlab, and from the 1989 BFS. This period coincides with the program of expanded immunization which almost certainly must take some of the credit for the drop in childhood deaths. It is also plausible that the involvement of family planning workers in immunization activities increased their credibility and thus may have indirectly contributed to the rapid increase in contraceptive use between 1989 and 1991. It should be stressed again, however, that fertility decline started before this recent improvement in child survival.

If a longer-term perspective is taken, the role of mortality decline in bringing about a fall in fertility is of fundamental importance. At the beginning of the century, life expectancy in East Bengal was scarcely above 20 years. At this level of mortality, only 40 percent of children could expect to reach the age of 20. Thus, with a fertility rate of 7 births per woman, the average couple would see only 2.8 children survive to maturity. It is likely that the fertility level 90 years ago was less than that recorded in the 1960s and 1970s, and the average number of children reaching maturity may have been close to two per family.

By 1940, life expectancy had risen to about 30 years. There was a further dramatic improvement in the decade or so following the Second World War, such that life expectancy in the early 1960s was estimated to be about 48 years. Out of seven births, a couple would now see 5.1 survive to age 20.

In some cultures, such an unprecedented abundance of surviving children might be regarded as a social and economic blessing. But, as was suggested in chapter 2,

there is not much evidence that Bangladeshi society was ever strongly pronatalist. The advent, by the early 1960s, of large numbers of surviving children was regarded no doubt with mixed feelings and gave rise to a latent demand for fertility regulation. Without this mortality decline, it is most improbable that the fertility decline of the late 1970s and 1980s would have occurred. Though the link is chronologically remote, it is of critical importance in explaining fertility decline.

The fact that, until the 1930s, the average family in Bangladesh had little more than two children who reached maturity leads to a further obvious but often overlooked point. As in any traditional society, the Bengali economy and culture must have been adapted to small family sizes. To argue, as so many have done, that there is some economic imperative in Bangladesh to have many surviving children (or sons) must be an historical fallacy. The large family sizes recorded between 1950 and 1980 are best viewed as a temporary aberration.

Poverty and landlessness

Most demand theories of fertility decline stress the impact of economic development on fertility. Rising living standards and aspirations, together with the increase in capital-intensive methods of production, reduce the utility of children and raise the relative cost of upbringing. However poverty may also act as a spur to family size limitation. This argument has been applied to Indonesia (Freedman, Khoo, and Supraptilah 1981) and to South India (Basu 1986). The suggestion that the fertility transition in Bangladesh may be poverty led has also been made (Freedman and Freedman 1986). In this section, the relevant evidence is reassessed.

Poverty trends in Bangladesh have been the object of controversy and disagreement. Some of the more technical issues in the debate are discussed in the Appendix, but it is essential at the outset to define poverty. The most commonly used measure of poverty, known as the headcount ratio, relates available income to the cost of a minimum diet necessary to maintain health and normal activity level (table 3.1). A normative minimum food consumption bundle that gives a per capita daily intake of 2,112 calories and 58 grams of protein is valued at retail prices to estimate the minimum expenditure on food. A poverty line is estimated by adding a normative allowance for nonfood basic needs to the minimum expenditure on food. The proportion of people below that line is then estimated from the income distribution data available from the Household Expenditure Surveys (HES) (Hossain and others 1991a).

Using this definition, a recent review of poverty trends in Bangladesh concludes that poverty levels in 1988–89 showed no signs of long-term improvement: the poverty line of 43 percent in 1988–89, although an improvement relative to the decade preceding, was at the same level of poverty as 1963–64 (Hossain and others 1991b). According to the Task Force on Poverty Alleviation formed by the government of Bangladesh, the period following the War of Independence in 1971 saw a sharp deterioration of poverty caused by massive destruction of productive capacity; large numbers of refugees fled across the border during the war and had to be resettled; the situation worsened further in 1972–74 because of severe

Table 3.1 Trends in poverty: headcount ratios for rural areas according to per household classification (percent of rural population in poverty)

<i>Year</i>	<i>Per household expenditure classification</i>	<i>Per household income classification</i>
1973-74	60.35	—
1976-77	78.91	73.12
1977-78	77.45	72.79
1978-79	65.87	60.68
1981-82	55.34	51.34
1983-84	46.29	39.85
1985-86	37.27	35.99
1988-89	43.43	39.95

— Not available.

Source: Task Force Report on Poverty Alleviation (Hossain and others 1991b).

droughts and floods and resulted in a large-scale famine in the 1974-76 period (Hossain and others 1991b).

As reflected in the commentary of the Task Force on Poverty Alleviation, the 1970s were marked by large-scale crises occurring in rapid succession: a 9-month war, an extended period of rising prices exacerbated by the international oil crisis, and a devastating crop failure and famine in 1974-76. These national crises stand out in the collective memory as a period of high instability and uncertainty, in sharp contrast to the relative stability of the previous and subsequent decades (Khan 1990).

By the time the 1983-84 HES was conducted, food prices had stabilized, measures of moderate poverty showed an improving trend, but extreme poverty increased (Osmani 1990a and 1990b). Several national surveys showed improvements in nutritional status: the proportion of children who are severely malnourished decreased from 25.8 percent in 1975-76 to 9.6 percent in 1985-86. The proportions of rural children who are mildly to severely malnourished are given in table 3.2 for three surveys conducted in 1975-76, 1981-82, and 1985-86.

Other indicators highlight the adverse economic conditions of the 1970s: per capita consumption of food fell between 1973-74 and 1976-77, then rose to 1973-74 levels in 1981-82 and 1983-84, according to HES taken in those years (table 3.3). The drop in the mid-1970s in per capita consumption of food was similar in different categories of food: grain, fish, and pulses. Wage rates fell at the beginning of the 1970s in real terms and remained low throughout the decade. Real wage rates and rice equivalent rates for the 1970s and 1980s are given for male agricultural workers in table 3.4.

General macroeconomic indicators such as overall economic growth rates indicate that after several harsh setbacks associated with the War of

**Table 3.2 Nutritional status of rural children
(percent of rural children malnourished)**

	1975-76	1981-82	1985-86
Mild malnutrition	17.7	28.8	33.1
Moderate malnutrition	53.0	46.1	52.0
Severe malnutrition	25.8	15.1	9.6

Note: Severe malnutrition is defined as less than 60 percent of reference median weight-for-age. Moderate malnutrition is at least 60 percent but less than 75 percent of reference median weight-for-age. Mild malnutrition is at least 75 percent but less than 90 percent of reference median weight-for-age.

Source: 1975-76 and 1981-82 data from Institute for Food and Nutrition Sciences Nutrition Surveys and 1985-86 data from BBS and Nutrition Status Module of the 1985-86 HES (Khan and Hossain 1989).

**Table 3.3 Average per capita consumption of selected food items in rural areas, 1973-84
(grams per person per day)**

Years	Foodgrain	Fish	Pulses	Total
1973-74	438.7	25.6	20.1	678.5
1976-77	378.1	18.7	13.1	623.6
1981-82	458.2	26.8	12.0	740.1
1983-84	490.9	29.0	26.2	831.3

Note: Adapted from Shahabuddin 1989

Source: Report of Bangladesh HES 1981-82, and HES 1983-84.

Independence, there has been a modest trend of increasing economic stability and steady growth through the late 1970s and into the 1980s (see figure 3.3). Between 1972-73 and 1986-87 the gross domestic product (GDP) grew at 4 percent per year, corresponding to a per capita growth rate of 1.64 percent; in contrast, the growth rate during the two decades prior to independence was 3.2 percent but was largely offset by a relatively high rate of population growth which yielded a per capita growth rate of only 0.66 percent. The higher rate of growth for the later period is somewhat misleading for the purposes of comparing trends because of the low base level of GDP in the immediate post-war year 1972-73. Pre-independence per capita GDP levels were attained as late as 1980-81 (Khan and Hossain 1989).

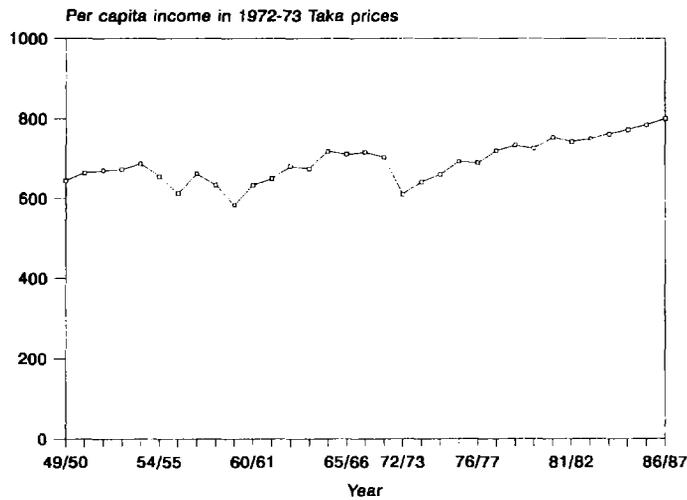
This growth is attributed to technological innovation in the agricultural sector, which has led to increased use of irrigation and expansion of transport and trade. But growth rates of 3 to 4 percent are modest by any standards and particularly so at low levels of development. Levels of living for the vast majority can at best be described as having stagnated in the last thirty years.

Table 3.4 Trend in the daily wages of male agricultural laborers (real daily wage rate)

Years	Money wages (taka/day) ^a	Cost of living index	Rice equivalent
1970-71	3.13	110	126
1973-74	6.69	100	100
1974-75	9.05	87	67
1975-76	8.82	96	111
1976-77	8.93	100	126
1977-78	9.44	91	103
1978-79	10.88	95	107
1979-80	12.46	93	92
1980-81	13.97	97	120
1981-82	15.48	89	105
1982-83	17.05	92	105
1983-84	19.58	94	109
1984-85	24.45	103	126
1985-86	29.54	120	156
1986-87	31.91	113	148

a. Indexed on 1973-74. Money wages taken from Statistical Yearbook, various years (BBS 1992). The first series of real wages was constructed by deflating the money wage series by a series of cost of living index and rice equivalence index: real wage indices for agricultural laborers is calculated by first deriving a wage index from the given money wages and deflated real wages for unskilled agricultural workers, and then deflating the wages for all agricultural labor by the derived cost of living/rice equivalent index.

Source: Osmani 1990a.

Figure 3.3 Per capita GDP in Bangladesh

Source: Khan and Hossain 1989

It has long been postulated that the pressures of population must lead to increasing landlessness, but the evidence on trends in landlessness in Bangladesh is scant. Two studies published in the late 1980s, one of which is based on land-occupancy surveys conducted in the late 1970s, provide the first empirical evidence of trends estimates (Hossain 1986; Abdullah and Murshid 1986).

As shown in table 3.5, the proportion of the rural population estimated to be absolutely landless fluctuates rather erratically, but shows no marked upward trend, contrary to expectations based on rapid population growth (Arthur and McNicoll 1978). If the definition of landlessness is expanded to those who own less than half an acre and are functionally landless, the figure rises to about 50 percent of the rural population. The figures on landlessness for 1960, 1977, and 1982 do not indicate a consistent pattern of increasing landlessness over time. A partial explanation may be the higher rates of rural out-migration by the landless.

Table 3.6 gives some descriptive statistics on trends in rural farmholdings. The percentage of rural households that are landless has grown at a rate slightly greater than the growth rate of the rural population, but the growth in the landless population remains lower than the growth rate of the total urban and rural population: between 1960 and 1982 the growth in the proportion of the rural population with no land was 2.05 percent annually; households that were functionally landless (<0.5 acres) grew at 2.19 percent annually. These rates, although higher than the growth in the rural population of 1.87, are lower than the intercensal annual growth rates of 2.48 percent between 1961–74 and 2.32 percent between 1974–81.

The average size of farms has diminished rapidly. As shown in table 3.7, farms in 1960 were divided evenly in the categories of small and medium farms, but by 1983–84 close to 70 percent of holdings were in the small farmholding category. The average farm size fell from 3.54 acres in 1960 to 2.27 acres in 1983–84.

It appears that rural households retain very small landholdings even after they cease to be economically viable as subsistence farming units. As a result, a large proportion of the rural population is functionally landless, that is, their landholding size is not large enough for viable subsistence. The rules of land transfer from one generation to the next has encouraged fragmentation of landholding—in Bangladesh, land is divided such that each son gets an equal amount and daughters inherit half as much. Khan and Hossain (1989) suggest that the level of uncertainty associated with nonfarm sources of income is high, in contrast to which land ownership is attractive for its security value. There is little evidence of consolidation of holdings into self-sufficient farming units. The urbanization statistics suggest that rural Bangladeshis are also not likely to migrate permanently to urban areas. It is probable that a substantial proportion of the landless or functionally landless families living in rural areas are supported by temporary migrant workers or by remittances from family members living in urban areas.

There are no discernible trends in rural underemployment or unemployment in official labor force statistics (Khan and Hossain 1989). Such data are notoriously difficult to gather, particularly where formal labor markets do not exist. The

Table 3.5 Proportion of landless households in rural Bangladesh

	1960	1977	1982
Percent of rural households landless	33	41	37
Percent of rural households functionally landless	42	51	47

Source: Adapted from Hossain 1986.

Table 3.6 Estimated growth of landlessness, 1960–82

	1960	1977	1982	Annual growth (percent)
Rural population (millions)	51.4	72.3	77.2	1.87
Rural households (thousands)	9,132	12,163	12,892	1.58
Farm households (thousands)	6,139	7,109	8,124	1.28
Landless households (thousands)	3,054	5,075	4,768	2.05
Functionally landless households (thousands)	3,796	6,245	6,110	2.19

Source: Compiled from Population and Agricultural Reports (Hossain 1986).

Table 3.7 Descriptive statistics of agricultural farmholdings

Farmholding	Farm size in acres	Percent in each group		
		1960	1977	1983–84
Small	0.05 to 2.49	51.6	49.7	69.9
Medium	2.5 to 7.49	44.9	40.8	24.9
Large	7.5 or greater	3.5	9.4	5.1
Average farm size in acres		3.5	3.5	2.3

Source: BBS 1989.

percent unemployed as enumerated in the 1981 census and in the 1984–85 and 1985–86 Labor Force Surveys are all less than 1 percent of the relevant work force (BBS 1989). According to unemployment estimates based on the potential labor force, the level of unemployment is greater than 50 percent, and about 33 percent if the active labor force is considered (Rahman and Islam 1988).

Table 3.8 compares the sectoral share of the incremental labor force during the two intercensal periods 1961–74 and 1974–81. The occupational structure shown in the various censuses indicates that a major change has taken place in the occupational pattern of rural households. Over the last three decades, employment

Table 3.8 Sectoral change in incremental labor force

	1961-74	1974-81
Total increase in labor force (millions)	4.58	7.57
Sectoral change (percent)		
Agriculture	56.8	-1.7
Manufacturing	4.7	22.0
Large	2.7	5.4
Small	2.0	16.6
Trade	4.8	32.5
Transport	3.2	9.9
Construction	-0.7	7.1
Other	31.1	30.2
Total	100.0	100.0

Source: Computed from BBS (1988) by Osmani 1990a.

employment in agriculture has decreased while trade, transport, and manufacturing have expanded substantially. In rural areas the shift from agriculture to nonfarm occupations appears to have occurred in the post-independence period.

In the first intercensal period, 1961 to 1974, the bulk of the increase in labor was absorbed in agriculture (56.8 percent). In the later decade the proportion in agriculture declines by 1.7 percent. It appears that surplus labor was absorbed in the trade sector, for which the comparable figures are 4.8 percent and 32.5 percent for 1961-74 and 1974-81 respectively. Osmani interprets these changes as being essentially driven by push factors; they reflect a relocation of surplus labor from farm to nonfarm occupations. Khan and Hossain (1989) also ascribe the change in the occupational structure to push factors. They present evidence that the majority of new entrants into the labor market remain in rural areas and engage in relatively low productivity activities.

Hossain and others (1991a) collected data on sources of income for rural households which indicate that a typical household may derive income from many sectors, both farm and nonfarm, depending on their resource base and the availability of work, which varies by season and region. The sectoral categorization of occupation is indicative of change over time but inadequately reflects this important aspect of the survival strategy of the rural poor in Bangladesh: to make ends meet, they have to deploy a variety of skills and demonstrate great versatility (Hossain 1987).

What is the relevance of this complex story of economic trends to fertility decline? First it is obvious that economic progress, along with rising living standards cannot, provide a plausible explanation. Living standards for the vast majority can at best be described as having stagnated for most of the past 30 years. Moreover, the period immediately before the onset of fertility decline was a particularly difficult one.

Let us then look at the reverse side of the demand theory coin. As mentioned at the start of this section, a combination of stagnant real wages, shrinking farm sizes, chronic underemployment, and deepening poverty may provide the conditions for a radical downward reassessment of desired numbers of children. However, the empirical record shows no sustained impoverishment. Real wages have both risen and fallen during the period when fertility levels registered continuous decline, and, for most of the past 20 years, food prices have shown favorable trends for the poorer segments of the population. Before independence the price of rice tended to rise faster than the general rate of inflation. Since independence, rice price increases have been at par with the general rate (Khan and Hossain 1989). The thesis of a poverty-led need for lower fertility is further undermined by the lack of evidence of an appreciable link between poverty and low fertility at the household level (see chapter 2). If the need for fertility control arose out of economic desperation, then the very poor would surely have recorded particularly low levels of childbearing.

It remains possible that the disruptions and misery of the early 1970s were crucial in destabilizing traditional fertility patterns and norms. The specter of a Malthusian deterioration certainly appears to have stiffened political resolve to address the population problem. The genesis of the current family planning program can be traced back to 1975. Whether or not a parallel change in reproductive outlook occurred among the general population is impossible to assess, but that possibility cannot be dismissed.

Children's schooling and labor force participation

In this section we consider evidence concerning the direct costs and benefits of children to their parents and other kin. The possible linkages to fertility decline are obvious. Education of children also has an obvious relevance to this economic calculus. It may increase the costs of raising children and change the stream of benefits that flow from children to parents. Schooling may compete with productive contributions from young children and is likely to delay the age at which they become self-supporting. Indeed, the advent of mass primary schooling has been proposed as a major determinant of fertility transition (Caldwell 1980), though the empirical evidence is not convincing (Tan and Haines 1984). A closely related way in which educational opportunities may influence fertility is through parental aspirations for children. A reproductive strategy based on large family sizes may be replaced by one in which more resources are invested in a smaller number of children: the familiar quantity-quality tradeoff (Becker 1981).

Trends in schooling in Bangladesh have been modestly encouraging. While literacy rates remained practically unchanged between 1974 and 1981, the preliminary 1991 census results show an improvement. Similarly, school attendance rates derived from the 1974 and 1981 censuses showed little change, but the preliminary 1991 census results show marked improvement (table 3.9). National estimates of primary school enrollment also suggest increased schooling, with as much as 76 percent enrolling in 1985-86 (Hossain and others 1991a). However, at least until recently, 48 percent of those who enroll drop out before the end of the

Table 3.9 Literacy rates and school attendance in Bangladesh

	<i>Both</i>	<i>Male</i>	<i>Female</i>
Percent literate			
1974	24.3	32.9	14.8
1981	23.8	33.0	16.0
1991	29.8	35.8	23.4
School enrollment ages 5-9 years			
1974	18.7	22.0	15.4
1981	22.5	24.7	20.2
1991	41.0	42.3	39.6
School enrollment ages 10-14 years			
1974	33.8	40.5	25.8
1981	33.3	37.9	28.1
1991	54.2	55.9	52.3

Source: BBS 1986 and preliminary results of 1991 Census.

third year and 62 percent before completing the fifth year (Lovell and Fatema 1989). The low rates of retention of students who do enroll, the trends in overall literacy rates, and the general inefficiency and ineffectiveness of the school system make it uncertain whether parental aspirations have been raised by the expanded coverage of primary schooling. Moreover, it is clear from the sequence of events that the improvement in schooling accompanied but did not precede the fertility decline.

From the micro-level work of Caldwell and others (1984) and Ahmed and Quasem (1991) it is evident that schooling reduces work inputs but does not preclude appreciable contributions by pupils in rural areas. Indeed, the government of Bangladesh is gradually moving toward a school system with flexible hours and holidays that accommodate children's participation in the labor force, particularly at harvest time. It is, however, clear that the costs of sending children to school is high, even with ostensibly free primary education. Parents of children who are in school have to adopt higher standards of feeding and clothing children, and the costs of schoolbooks can also be prohibitive (Lovell and Fatema 1989).

There is no doubt that children in Bangladesh, as perhaps in all low-income countries, contribute to household welfare from an early age. Table 3.10, taken from an early village study (Cain 1977), suggests that by ages 10 to 12 both sons and daughters are working for about 7 hours a day on average. There is a sharp specialization in duties performed by sons and daughters: the latter are much less likely to do directly productive work, which typically takes place outside the homestead.

More detailed information on child labor in Bangladesh is available from an intensive time-use study in Dhaka and a rural area (Caldwell and others 1984). Overall, the results are compatible with those of Cain: children aged between 5

Table 3.10 Average hours worked per day, by type of activity and sex, Bangladesh

Activity by sex	Age group					
	4-6	7-9	10-12	13-15	16-21	22-59
Males						
Housework	0.9	1.1	0.6	0.7	0.7	1.1
Productive work	1.2	3.5	6.6	8.8	8.8	8.0
Total	2.1	4.6	7.2	9.5	9.5	9.1
Females						
Housework	1.2	3.7	5.4	7.0	7.8	7.5
Productive work	0.7	1.4	1.3	2.0	1.6	1.8
Total	1.9	5.1	6.7	9.0	9.4	9.3

Source: Cain 1977.

and 15 years work for about half the number of hours as an adult of the same sex. The main interest of this study lies in its analysis of the relationships between childhood labor and socioeconomic status, schooling, and urban-rural setting. One striking feature is the relationship between the household resource base and work inputs by adults and children alike. In the rural study area, household members with access to land worked much longer hours than those who were marginal farmers or landless. In the urban sector, the greatest work input was recorded by those with family businesses. The link between household size and average work hours per member was also contingent upon the resource base. In the rural landowning sector, work hours declined as household size increased; this tendency was particularly pronounced for women, presumably because *purdah* limits the possibilities for households with a shortage of women to hire female labor, whereas this restriction does not apply to male work. Among the landless or near-landless, however, there was no relationship between household size and average work inputs.

Perhaps the most interesting of many rural-urban differences concerned childcare. In the rural study area, adult females spent only 2.8 hours on average per week looking after children. This is consistent with many other time-use studies, which have also shown that the time allocation of rural women for childrearing is remarkably modest and opportunity costs are correspondingly small. In Dhaka, the equivalent figure was 5.2 hours, in part a reflection of the relative freedom of urban women from the never-ending chores of an agricultural household.

Both Cain (1977) and Caldwell and others (1984) see in these decompositions of work inputs by household members a rationale for moderately high, though not maximal, fertility. The Caldwell interpretation is more specific. Rural households with land require large families because of the highly developed segregation of work by sex and age. Households of fewer than five members are structurally ill-adapted to this segregation and thus record exceptionally long hours of work. In

sector, fertility reduction will come primarily as a response to the breakdown of filial duty toward parents, associated with greater emotional and residential nucleation of families. For the rural landless, and to a lesser extent the urban poor, Caldwell and others conclude that high fertility brings fewer gains and that, by implication, fertility should decline if barriers of conservatism can be overcome.

These types of interpretation, plausible though they are, require a considerable imaginative leap from facts to conclusions. Labor contributions in childhood have to be set against costs of food and clothing, and there is general agreement among economists that offspring, even in subsistence agricultural settings, probably represent a net economic loss to the household until adolescence or early adulthood. Moreover, any advantage accruing from sons may be entirely offset by the loss from daughters, whose income-generating capabilities are limited by social restrictions and who may require a substantial dowry. To justify a moderate to large number of children on a direct cost-benefit calculation requires of parental decisionmakers not only a long time horizon but, at least in patriarchal societies, a gamble on the sex ratio of births.

Furthermore, the conclusion of Caldwell and others (1984) that high fertility is more advantageous to the landed than the landless can muster little or no empirical support in terms of fertility behavior itself or of attitudes. As shown in chapter 2, family size aspirations, level of contraceptive use, and fertility itself are almost identical for those with land and those without (see Table 2.24). While the absence of an appreciable or consistent fertility-landholding link in the past (see, for example, Latif and Chowdhury 1977) cannot be regarded as refutation of Caldwell and others's diagnosis because of the near-absence of any volitional control, the failure of a connection to emerge in the last decade, when birth control has become widespread, casts serious doubt on the proposition. It is surely at the start of transition that microeconomic forces should be most clearly visible. We may finally add that World Fertility Survey analyses of a wide range of societies have found no fertility divergence between the rural self-employed (largely farmers working their own land) and rural employees, with the single exception of Sri Lanka (Rodriguez and Cleland 1981).

There is also very little evidence on trends in labor force participation of children that encourages us to postulate it as a contributing factor in fertility decline. There are no indications that the general economic changes that have been alluded to in the previous section have led to any change in the labor value of children. A further recent study on the economic activities of children indicates that despite the general change in the occupational structure of the rural population, the participation rate of children in the labor force has remained unchanged (Ahmed and Quasem 1991). Successive labor force surveys reveal no trend in participation rates for children aged 10 to 14 years (table 3.11). While in the past children worked in the fields, now children are likely to work and assist parents in nonagricultural occupations; young boys and adolescents are seen working as assistants on buses and boats and can work long hours as vendors in the markets. As in the past, children are likely to engage in activities with very low

Table 3.11 Labor force participation rates for children age 10 to 14

	<i>Male</i>	<i>Female</i>
1974	41.9	6.3
1980	33.1	3.9
1981	36.2	3.8
1983-84	21.2	4.4
1984-85	37.8	7.7
1985-86	30.4	8.3

Source: 1974 to 1984-85, Final Report Labor Force Survey 1983-84 (BBS 1984); June 1986 and 1985-86, BBS 1992.

productivity. In poor families, children and women work, not because of their relative productivity, but because the optimal survival strategy is for all hands to pitch in.

In conclusion, we can state with some confidence that neither the opportunities for, nor the value of child labor have been transformed in Bangladesh in ways that provide a plausible stimulus for fertility reduction. However, the issue has received considerable attention following a bid by the U.S. Senate (Harkin Amendment) to curb garment import from Bangladesh because children below the legal minimum age are found to work in garment factories.

Risk, insurance, and fertility

We turn now to a different theme that has played an influential role in fertility theories: the value of children as a form of security in old age and, more generally, as mitigators of risk. Do these considerations provide a rationale for the decline of fertility in Bangladesh?

This subject has been developed and applied with particular force to Bangladesh by Mead Cain (see, for example, Cain 1978, 1983), who paints a harsh picture of life in rural Bangladesh. Uncertainty due to environmental hazards is compounded by a degree of lawlessness which permits the extortion of land from the weak by the powerful. Land, therefore, is no guarantee of security. Institutional supports in times of crisis, either at the national or local level, are largely lacking, as are lateral kinship bonds. Thus, when senility, illness, or environmental disaster strikes, the only dependable form of assistance is provided by the vertical lineage, and in particular by mature sons. To minimize the risk of total catastrophe, therefore, children are imperative. In Cain's view, a household strategy for risk aversion is best served by a fertility level that allows for mortality and for children who may default on their obligations.

The three central pivots in the risk-insurance theory are: a climate of high risk, that is, an environment where sudden disaster is common; the ability of children to serve their function of risk insurance; and the lack of alternative forms of risk

insurance to early reproduction and high fertility. Thus the search for the causes of fertility decline may be directed to evidence of reduced risk, the declining ability or willingness of children to care for parents, or the advent of alternative means of risk aversion.

In earlier discussions on poverty we concluded that economic conditions have not improved over the long run, and neither has the climate of risk. There is some indication that high-yield varieties of rice and the expansion of irrigation have reduced the probability of weather-related risks of disaster: irrigation allows for cultivation of a winter rice crop and reduces dependence on the summer crop, which is highly vulnerable to flood damage.

A second process of change may be related to alternative sources of security that have evolved to take the place of children. One such source of security is institutional support: public and community sources of support for the indigent and elderly. While community institutions hold some promise, they are just beginning to take root. Although it is yet difficult to imagine that in the minds of rural Bangladeshis such institutions have acquired the permanence and promise to be considered viable alternatives to children as sources of support, they may provide a measure of social security. The same holds true for credit institutions. The fast-growing rural credit market may well come, in time, to provide pension schemes through which people can save and ensure their welfare for the future. However, parents still depend on their children's labor in their old age. Daily subsistence in rural Bangladesh remains extremely labor intensive.

The risk/insurance motive for high fertility depends critically on strong filial bonds and social institutions that encourage sons to support their parents in their old age. In rural Bangladesh, a father usually retains ownership of land until death even when sons form separate households and function as separate economic units. Thus sons are encouraged to fulfill their filial responsibilities through their economic dependence on the father. On the other hand, the property ownership pattern does not encourage lateral bonding (between sons), because property is seldom jointly owned (or operated) by brothers unmediated by the father.

One explanation for declining fertility that has been entertained widely is that as young men embrace lifestyles of increasing mobility, the sense of filial responsibility is eroded. For parents, children are no longer the source of security they used to be. As parents watch their sons move away and become increasingly less able and willing to support them, the incentive to bear children with an eye on long-term welfare has gradually diminished.

Adnan (1988) elaborated this theme of a changing moral order regarding intergenerational obligations and the cohesiveness of the family, arguing that the pressures of poverty encourage increasing individuation within the family; family members—men, women, and children—are forced to fend for themselves rather than pool resources with family members. However, in later writing (Adnan 1990) it appears that this disintegration of the family is described as a response to acute situations of poverty and hardship, such as the famine conditions of 1974–75, rather than as a permanent change in the structure of the family. We doubt that a collapse in intergenerational obligations has taken place in Bangladesh.

It is also true that the risk-aversion thesis is built upon compelling arguments but little empirical foundation. It assumes a conscious long-term rationality in the minds of the parental generation. Children provide no safeguard against adversity or attack until they are mature. Indeed, at young ages, they probably increase vulnerability. Yet the weight of evidence suggests that the poor typically have short planning horizons; their main concern is day-to-day survival (Foster 1965). Nor does risk-avoidance loom large in discussions of family size. Immediate considerations, particularly costs of upbringing, are much more salient (Nag and Duza 1988a and 1988b). Nevertheless, the risk aversion thesis remains plausible in terms of motivation for early childbearing for women. By having children early, women can anchor themselves in their marital lineage, where their security is otherwise uninsured. A childless woman may be abandoned or divorced and has no rights to her husband's property.

Education, economic activities, and autonomy of women

In this section, we examine the thesis that changes in the status of women may have occurred and facilitated or even triggered fertility decline. We consider first education, because of its potentially powerful influence. Historical trends in the educational background of ever-married women may be summarized by comparing the educational composition of age groups. The general impression is one of very modest progress. For instance, among women age 40 to 49 who were interviewed in the 1989 CPS, 73 percent had received no schooling, 22 percent has been to primary school, and only 4 percent had received a higher level of schooling. Among 20-to-24-year-olds in the same survey, the corresponding figures are 60, 26, and 12 percent. Clearly, there has been no dramatic improvement in the education of women; even in the late 1980s, the majority of women starting their reproductive lives were totally uneducated.

In common with many, though not all Islamic societies, Bangladesh exhibits most of the features associated with a patriarchal social system. Inheritance and descent are patrilineal; marriage is patrilocal with large age differences between husband and wife. By tradition, women are discouraged or prevented from participation in public life, including most forms of paid employment (Abdullah and Zeidenstein 1982). There are large disparities in the educational attainment of men and women.

There are several ways in which male dominance may sustain high fertility. First, by barring women from most forms of paid employment outside the home, the opportunity costs of childrearing are reduced. Second, patriarchy engenders a preference for sons over daughters, which in conditions of uncertainty about child survival is conducive to at least moderate fertility levels. The third mechanism is essentially an extension of the first two pathways and concerns the implications of female dependence upon men. The relevant arguments have been developed most powerfully by Cain (see, for example, Cain, Khanam, and Nahar 1979; Cain 1986a). According to him, a woman's life in Bangladesh (and presumably to some extent in all strongly patriarchal societies) is marked by a succession of dependencies on men: father, husband, son. Large spousal age differences and high

adult mortality increase the likelihood of early and prolonged widowhood. Divorce may represent an additional hazard. A woman without a husband, unable to seek paid employment and with no independent asset base, needs the support and protection of sons. Thus women have a particularly strong vested interest in moderate to high fertility to ensure the availability of sons.

The last major pathway to lower fertility, a theme common to many discussions of female status and fertility, is rather different in its diagnosis and implications. The basic assumption is that women are potentially less pronatalist than men, not least because they bear the physical burden of pregnancy and birth; but their seclusion, low status, and lack of decisionmaking power render them unable to implement their preference (see, for example, Dyson and Moore 1983).

Can the recent decline in fertility be related to changes in the education and status of women, their labor force participation, or their role in society in general? One recent study has documented very high rates of female headship in rural households: the Agriculture Sector Review estimates 25 percent of households to be female headed either *de jure* or *de facto* as a result of temporary male out-migration (Safilios-Rothschild and Mahmood 1989). The BIDS poverty study (BIDS 1990; Rahman and Hossain 1991), on the other hand, gives estimates of female headship that are much lower but shows a higher incidence among the poor and landless households: female headship shows a clear pattern of decline with increased landholding size.

On the basis of the findings on female labor force participation similar to those reported by the Agriculture Sector Review, several authors now challenge the widely held view of low economic contribution by women in Bangladesh (Safilios-Rothschild and Mahmood 1989; Begum 1987). These recent empirical studies assert widespread female economic activity in the rural economy, and an emerging trend of breaking *purdah* by women seeking paid employment in agriculture and industry. Traditionally defined roles for women are no longer feasible for poor families who have to exploit any and every means for their survival in an increasingly harsh economic environment.

According to recent World Bank data, official labor force statistics do not capture the substantial economic contribution made by women in Bangladesh. The official labor force participation rate of women is 1 percent, whereas a recent agricultural survey (Safilios-Rothschild and Mahmood 1989) found 43 percent of women reporting agriculture as their primary occupation. The World Bank (1990) also reports that though women are culturally constrained to low productivity occupations, their wage income is often critical for the survival of poor households where male earnings are inadequate for the sustenance of the entire family. With rising rates of male migration, greater proportions of women are now taking up the responsibility of field crop production. Women have always been exclusively responsible for homestead production, which has recently been shown to be an important source of subsistence for rural households (Hossain and others 1990).

While the World Bank report (1990) makes an important point about the economic participation of women, it is not clear that the evidence regarding current high levels of female contribution in agricultural statistics constitutes proof of change. While the Agriculture Sector Review (Safilios-Rothschild and Mahmood

1989) may in fact present a realistic picture of the role of women in agriculture, its definition of work force participation and its method of enumerating female-headed households are different enough from those used in the past that, on their own, they cannot be taken as evidence of change. The BIDS poverty study finds proportions of female-headed households that are more in line with conventional wisdom: 3 to 4 percent (Hamid, personal communication). More pertinent to fertility, if women are engaged in peasant agriculture, their labor force participation is less likely to represent a high opportunity cost of childbearing. Peasant agriculture, as it is still practiced in Bangladesh, can accommodate childcare activities in a way that most forms of employment in formal sector jobs would not allow.

R. I. Rahman (1986a) examined wage employment for women in two rural thanas in 1985: Bhanga in Faridpur district and Mirzapur in Tangail. From intensive village studies in 4 villages she finds that between 8 and 20 percent of households send their women in search of wage employment. The proportion among landless households, however, is much higher: 50 to 77 percent. Village-level information from 46 villages in the same thana showed that 11–24 percent of the households send their women out for wage labor, while 59.8 to 61.9 percent of landless households had female members engaged in wage employment.

The villages covered by the Rahman study varied in terms of cropping pattern and adoption of high-yield variety seeds. Although faced with familiar problems of comparing successive cross-sectional surveys, Rahman concludes that there has been a rise in female employment since the mid-1970s. She suggests that the pressures of poverty may have been critical in sending women out in search of work, that is, poverty may have played a role in initially breaking the restrictions against wage work. Moreover, increased rice production created employment opportunities and helped to sustain a wage employment market for rural women.

The results of demographic surveys are very different. In the 1989 BFS, women were asked whether they had ever worked for payment and whether or not they were currently working. Only 14 percent reported current work, and of these, nearly half (46 percent) were working at home. Comparable data from the 1975 BFS shows that 11 percent were working for pay. This is a very small increase over a long period of time, insufficient to explain fertility change in terms of rising opportunity costs.

On the broader issue of increases in female status and autonomy, there is little hard evidence. It is likely that there has been a gradual erosion of traditional subordination and seclusion of women. The ability of the government to recruit and post thousands of female family planning workers is perhaps a sign that the climate of opinion has changed. The rise in female age at marriage also may be a reflection of change in perceived status of young women, though adverse marriage prospects may also be a factor, as discussed in chapter 2.

In conclusion, it is impossible to draw emphatic conclusions about the contribution to fertility decline of broad changes in female status and autonomy. At the level of individual women, the relationship between their status and contraceptive behavior is strong. Unfortunately, there is no evidence to indicate whether or not there has been substantial improvement in women's mobility, decisionmaking power, or other dimensions of status over the last 2 decades.

However, we note that Bangladesh remains in many fundamental ways a patriarchal society, and any improvements in the position of women have probably been slow and gradual.

Generalized social change

Thus far in this chapter, we have assessed the evidence that specific socioeconomic trends have changed the economics of childbearing. For each factor (poverty, landlessness, education, child labor, risk aversion, female autonomy), there were sound theoretical grounds for asserting a possible impact on fertility. In this section, we look briefly at other socioeconomic changes that may be relevant. Some of them are not part of any clearly articulated and cohesive theory. Yet each may have played a role in fertility decline. The factors to be considered are urbanization, the welfare work of nongovernmental organizations, shifts in rural occupations, and the penetration of rural areas by a transportation and communication infrastructure.

Urbanization

Fertility in urban areas is nearly always lower than in rural areas, and this generalization holds for Bangladesh. The gap, however, has been narrowing. According to the preliminary results of the 1991 CPS, the difference in rural-urban contraceptive use levels is only 10 percentage points (38 versus 48 percent). The pace of urbanization in Bangladesh has ranged between 7 and 11 percent in recent decades, with the highest rates of rural to urban migration recorded in the 1961–74 period (Islam 1990). The four largest cities now account for 43 percent of the total urban population, while 71 municipal towns comprise a further 25 percent. The remaining 32 percent live in thana headquarters, which were newly defined as urban localities in the 1981 census.

Despite quite rapid rates of urbanization, Bangladesh remains essentially rural, with 80 percent of its population living in this sector. It is the behavior of this majority that dictates national trends. Urbanization has little part to play in understanding fertility decline. The answer must be sought in rural conditions.

NGO activities

The 1970s saw a proliferation of nongovernmental organizations (NGOs) engaged in development activities in rural areas. Several thousand NGOs in Bangladesh are engaged in rural credit, relief, and social sector programs. Most NGOs work among special target groups, such as the rural landless and women, by organizing them into cooperative groups. The total number of men and women who are members of such groups is estimated at close to 2.5 million (Hossain and others 1991a). NGOs are primarily oriented toward providing nonfarm credit. With so many organizations focused specifically on programs to benefit the poor, NGOs have come to be regarded as one of the more promising and credible forces of social change. Three factors make NGOs powerful agents of change: their presence in remote rural areas,

their focus on the poorest segments of the population and women, and their role in providing access to credit markets.

Credit availability has increased for the rural population in the form of agricultural loans. More specifically, there has been a phenomenal increase in the amount of credit available to poor and landless families for nonfarm operations. An undeniable change has taken place in terms of women's access to credit. The Grameen Bank has over 800,000 female borrowers. While access to credit alone may not persuade women to engage in traditionally male economic activities, credit may change the status of women in other ways. As a matter of policy, most NGOs give preference to female borrowers. To exploit these opportunities, women have to negotiate with NGO and Bank workers, develop skills in financial management, and thus engage in interaction with the world outside the *bari* (a collection of families living around a common courtyard, usually related patrilineally) in a manner that would have been inconceivable 20 years ago.

Special credit programs reached about 1.5 million women in 1985–89, that is 5 percent of economically active women and 10 percent of women in families that are functionally landless. Cumulative disbursements amounted to 5.3 million taka (Tk)—about 10 percent of total loans disbursed by financial institutions in rural areas during the period 1980–89 (World Bank 1990).

In general, the availability of rural credit from institutional and noninstitutional sources has increased substantially in the late 1970s to mid 1980s (table 3.12). Agricultural credit increases began in the mid-1970s with the policy of providing private credit for irrigation: credit expansion occurred at the rate of 47 percent per annum between 1977 and 1985 (Khan and Hossain 1989).

While the presence of NGOs is widespread and their number is large, the fraction of the total population who were direct program beneficiaries was small in the mid-1970s and, therefore, unlikely by itself to explain macroeconomic or demographic trends.

Occupational change

Khan and Hossain (1989) have documented a definite shift in the rural economy from farm to nonfarm occupations. They attribute this change, signs of which have emerged since the early 1980s, to technological innovation in agriculture and consumption linkages associated with the introduction of irrigation and fertilizers.

This sectoral shift, combined with reports of declining poverty, led several observers to postulate a "progressive" transformation of the rural economy through which surplus labor in agriculture is absorbed in a thriving nonfarm economy. Osmani (1990a and 1990b) challenged such a positive interpretation of the transformation in the economic life of rural Bangladesh. He acknowledges the growth of the nonfarm population, and in particular the absorption of increases in the labor force in nonagricultural economic activities. However, in light of relatively stagnant real wages, low rates of productivity in the nonfarm sector, and low rates of permanent migration, he cautions against the optimism expressed by others. Instead, Osmani sees the transformation more as "a sign of pathology

**Table 3.12 Sources of credit in rural Bangladesh
(millions of takas)**

	<i>Institutional</i>	<i>Noninstitutional</i>
1976-77	665.6	1,256.1
1983-84	16,911.9	31,407.4

Source: BBS 1986.

than health" and concludes that the structural change is no more than a "relocation of surplus labor from the farm to the nonfarm sector."

While agreeing that this sectoral transformation between the 1960s and 1970s has not been studied adequately by sociologists, Osmani offers three alternative explanations: first, the 9-month war in 1971 disrupted peasant life, dislocated portions of the population, and may have resulted in greater mobility; second, the devastating crop failure and ensuing famine in the mid-1970s led to a disillusionment with agriculture; third, the emerging pattern of occupational change did not necessitate relocation of rural families.

Thus, the dramatic change in occupational structure during the 1970s, followed by relative economic stability in the 1980s, has led authors to very different assessments as to the nature of the change and to divergent predictions of what the future holds. While most economists argue for growth led by agricultural innovation, Osmani cautions against overly optimistic projections of a trickle-down effect from such interventions in view of existing inequalities in the social structure. Regardless of the level of optimism or pessimism with which this change in the rural economy is viewed, it is difficult to discern the implications for fertility.

Communication and transport

Rural life is far from static in other ways. Between 1976-77 and 1985-86, the number of electrified villages rose from 1,830 to 7,245, a fourfold increase, though coverage is still only about 10 percent. Similar increases in many other spheres are recorded: tubewells, motorized boats, kilometers of tarmac road, buses, and radios. Radio ownership, for instance, rose from 8 percent in 1969 (NIS) to 25 percent in 1989 (BFS). For our purposes, three definite conclusions may be drawn. First, the increase in trade and expansion of transportation and manufacturing have led to increased monetization in village life. Second, as transportation links expanded, exposure to new ideas and commodities increased, and spending patterns changed. Third, there has been an unprecedented expansion in the economic options available to the rural population.

Several rural experts believe there has been a change in the nature of tenancy contracts in rural Bangladesh that shows a progressive transformation in the rural economy: there appears to be a move toward sharecropping arrangements that are based not on traditional patron-client relations but on annual or seasonal contracts. From a traditional pattern of oral contracts, there is a move toward sharecropping based on a fixed rent. This is generally attributed to a change in agricultural

production patterns brought about by green revolution-related innovations. In general, the terms of tenancy contracts remain more stringent (harsher on tenants) in areas where irrigation levels are low, that is, where traditional cultivation methods are yet to be replaced by modern methods (Khan and Hossain 1989).

All of these changes have implications for the diffusion of new information and ideas. Reduced isolation of rural communities may lead to adoption of modern values that are more typical of urban populations. In a fundamental, but unquantifiable way, family planning may have benefitted from this emergence of social change.

Conclusions

There is substantial literature on the relationships between socioeconomic development, demand or need for children, and fertility decline. An attempt is made in table 3.13 to summarize the factors that are most commonly cited as key influences. In the case of Bangladesh we have been unable to adduce much evidence to suggest that any one of these factors has played a major role. There is little evidence to support the contention that the labor utility of children or their value as sources of family security has changed much in the last 30 years. School enrollment levels are rather static, and there have been no major changes in adult literacy. The experience of Bangladesh provides a clear-cut refutation of the view that major changes in any one of the factors listed in table 3.13, or any combination, act as essential preconditions to fertility decline.

However, we cannot rule out the possibility that demand-side factors have been important in Bangladesh's fertility transition. In terms of the particular

Table 3.13 Possible effects of economic modernization on demand for children

<i>Agent</i>	<i>Mechanism</i>
Replacement of subsistence by cash economy	Declining labor utility of children (plus increased direct costs of children)
Growth of nonfamilial security mechanisms	Declining old-age or adversity-insurance utility of children
Increasing wage employment of women	Increased opportunity costs associated with childrearing
Increased school enrollments	Increased direct costs of children Greater opportunity to invest in children (quality versus quantity)
Increased adult literacy and education	Multiple possibilities
Increased availability of consumer durables	Increase in relative cost of children
General development	Multiple possibilities

circumstances of the 1970s, a series of economic setbacks created a situation of particularly high levels of economic uncertainty and instability. The combined effect of these events may well have precipitated a welter of social change of which the changing role of women plays a constituent part. It is possible that this destabilization created a climate in which a family planning program could take root and flourish.

Similarly, we cannot dismiss the possibility that subjective factors not captured by macroeconomic trends may have reduced demand for children. Growing material aspirations may have heightened awareness of the costs of children, or parental expectations about the likely economic returns from children may have shrunk. Such shifts in values and expectations are plausible but, regrettably, they cannot be assessed empirically.

Some part of the explanation of fertility change must lie in more longstanding trends. Unprecedented population growth, led by mortality decline occurring throughout the present, set off a process of impoverishment and land scarcity and finally brought the society to a threshold at which the traditional patterns of female seclusion, family formation, and fertility are no longer sustainable. Moreover, by the early 1960s, the average couple could expect about 5 children to survive to maturity, a huge increase over historical levels. These factors of improved survival are perhaps sufficient to account for the existence of a latent need for fertility reduction, that is clearly documented in the 1960s by surveys (see chapter 2). Thus, the remote event of a changed mortality regime set the stage for fertility change.

We should also stress again that Bangladesh is not a static society. In the preceding pages, we have mentioned many of the elements of change: the shift in occupational composition; the growing links between villages and the outside world; the activities of a broad range of NGOs; the growth of a more complex and monetized rural economy. It is most unlikely that a major behavioral change, such as fertility regulation, would have occurred in the absence of these other changes.

The Bangladesh family planning program, through its information, motivation, and communication program, has carried out a vigorous campaign to promote birth control. One element of the program is to relay the message, through media campaigns, program functionaries, and other nongovernmental development workers, that smaller families increase family well-being. It is plausible that such messages, whether or not they fit with the economic reality of individual families, will have some impact on fertility behavior. The intensive nature of the program and the extent of evident financial support provided to family planning can be seen as responses to an element of "Malthusian pressure" that was brought to bear on the population. It is increasingly evident that rapid population growth and the identification of population as the country's "number one problem" compel people at all economic levels to consider the negative externalities of their reproductive behavior.

The Role of Family Planning Programs in Bangladesh

Chapter 3 reviewed social and economic change in the post-independence era with the aim of identifying demand-side determinants of the fertility trends analyzed in chapter 2. Although Bangladesh society has witnessed considerable change in the past two decades, it remains fundamentally traditional and impoverished. Continuing high mortality, seasonal adversity, and poverty constrain rather than facilitate demographic transition. Emerging differentials in fertility, contraceptive behavior, and reproductive preferences lend little support to the hypothesis that structural determinants explain the onset of fertility decline. The recent demographic history of Bangladesh is thus inconsistent with conventional interpretations of the structural causes of reproductive change in developing countries. In this chapter, our attention shifts to consideration of supply-side explanations.

First, we review theoretical perspectives that could accommodate the Bangladesh case and relevant evidence from special studies of family planning. The Bangladesh population literature exhibits a remarkable range of projects and studies aimed at interpreting and mitigating constraints on fertility regulation. Key findings from these projects and studies are examined for evidence that family planning services can have demographic effects. Three studies of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) will be reviewed together with corroborating evidence from other, less researched, special projects and programs in Bangladesh.

Next, we review the strategies of the Bangladesh program and address the question of why family planning programs failed to have an impact in the Pakistan era and the immediate post-war period. Several programs have been organized, disbanded, and restructured over time. Each phase involved large-scale operations and budgets, and each borrowed elements from the past. We review the history of family planning in the Pakistan era for evidence that credible and sustained services were being provided to rural couples by this program.

Finally, we review evidence that intensification of family planning services in recent years could have contributed to the observed fertility decline. Particular attention is accorded to strategies that replicate approaches used by successful pilot and experimental projects.

Conceptual framework

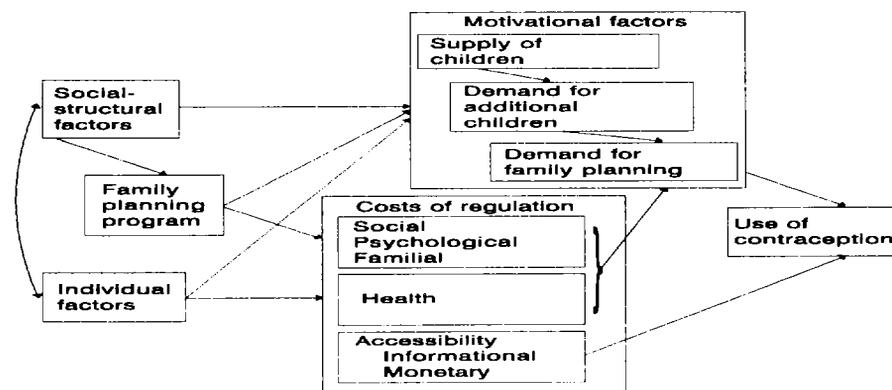
Sample survey data, compiled over the past three decades, consistently show that higher proportions of Bangladeshi women desire to regulate their fertility than are doing so. Various terms are used to describe this phenomenon—"unmet need," "the KAP gap," and "latent demand"—each implying that a receptive clientele for family planning services exists if services are offered. Considerable debate has been directed to the question of whether latent demand exists,¹ how to measure it,² and what policy implications emerge from the research record.³

International deliberations on this issue have been facilitated by the framework of Easterlin (Easterlin 1975; Easterlin and Crimmins 1985). According to this framework, programs can influence reproductive behavior through two of the sets of pathways illustrated in figure 4.1:

- The demand for children can be influenced by policies that foster sociostructural change by programs of communication and persuasion that alter reproductive aspirations. Changing demand for children, in turn, enhances demand for family planning.
- The costs of fertility regulation can be mitigated, where costs are defined broadly to include social and psychological constraints on contraceptive behavior (Hermalin 1983; Schearer 1983).

Program impact can arise from meeting "latent demand," in recognition of the possibility that women may have more children than they desire but refrain from using contraception because the costs of fertility regulation are unacceptably high.

Figure 4.1 Basic model for factors determining the use of contraception



Mitigating the "costs of contraception" through the provision of convenient subsidized family planning services has been the central aim of the Bangladesh program. In figure 4.1, the role of latent demand is shown by the direct influence of mitigating costs on use of family planning.

"Costs" in the Easterlin framework concern the broad rubric of constraints on contraceptive use that are unrelated to demand for children. Quite apart from reproductive preferences or demand for contraception, it is argued, are factors that determine constraints on use of contraception (see Easterlin 1975; Easterlin and Crimmins 1985; Hermalin 1983; Schearer 1983; Shah and Cleland 1993). Most obvious are the direct monetary costs of commodities and services, but related indirect costs, such as travel costs or opportunity costs associated with the time required for service utilization can be important. Subjective social, familial, and personal costs can also constrain contraceptive use, as can objective and subjective concerns about the health consequences of contraceptive use. In the Easterlin framework, such costs can be identified and addressed with appropriate program strategies. Thus, a comprehensive program is one that addresses the entire matrix of possible constraints on contraceptive use through effective information, services, and ancillary health care. In figure 4.1, the demand-side effect of the informational, promotional, and legitimizing role of programs is shown by the impact of programs on reproductive motives. But more importantly, program activities offset constraints, as shown by the pathway from costs to demand for contraception and the direct effect of offsetting costs on latent demand. The success of family planning in Bangladesh, we argue, mainly relates to the growing capacity of the program to mitigate a broad range of contraceptive costs. That these costs are complex and pervasive in rural Bangladesh society explains why demand for contraception remains latent and fragile.

The costs of contraception in rural Bangladesh

Research on constraints on contraceptive use in Bangladesh have focused on social and economic institutional determinants of reproductive motivation. While such factors may influence motives in the manner posited, influences may also operate in the manner of costs, as posited in the Easterlin framework. A woman seeking to regulate her fertility must incur considerable costs, some of which are the obvious direct costs of information and supplies, but many of which are more subtle social and psychological constraints on fertility regulation.

The costs of access to services, information, and supplies

Bangladesh, we have said, is one of the poorest countries in the world. In such circumstances, any monetary cost, however small, can be insurmountable for many rural couples who might otherwise seek a service (Maloney 1986; Jansen 1987; Alamgir 1976). Requiring clients to travel for services is fraught with difficulty in Bangladesh, where most villages are inaccessible by road and transportation of any kind is expensive, infrequent, and unreliable (Farouk and Ali 1977; N. Ahmad

1968). Studies have shown that objective costs of travel, services, and commodities constitute a major constraint on health service utilization in Bangladesh (Chen, Huq, and D'Souza 1981).

Economic survival in rural Bangladesh often requires mobilization of household labor resources. Women and children provide much of the agricultural labor, and women are increasingly forced by circumstances to be active in the nondomestic economy (Begum 1987; Maloney 1986; Quddus, Solaiman, and Karim 1985). Families confronting great poverty incur considerable opportunity costs when time must be spent on noneconomic activities. Under conditions of extreme adversity, travel is not only arduous and expensive but also costly in terms of economic opportunity lost (Farouk and Ali 1977). The opportunity costs associated with travel to accessible services is therefore extremely high whenever such travel interrupts routine familial labor activities (see, for example, Cleland and Mauldin 1991).

The psychological costs of travel can be substantial in rural Bangladesh. Objective inaccessibility of service points is compounded by the social cost of travel. The mobility of women is constrained by the custom of *purdah*, the culturally mandated seclusion and separation of women. Typically associated with Islam, *purdah* is practiced in Bangladesh by Hindus as well. The most obvious manifestation is that women cannot move freely from their hamlet to a service point. Even if contraceptives are available at convenient locations, the perceived costs of travel of any kind can be formidable.

Social costs

Bangladesh remains a predominantly traditional and rural society in which fertility regulation can threaten cultural norms. Unconventional behavior can incur considerable societal, familial, and individual subjective costs.

- *Costs at the societal level.* It is common knowledge that the practice of contraception is associated with notions of modernity and personal control over one's life that conservative religious leaders of all faiths can find distressing. The practice of Islam has been associated with low rates of contraceptive practice, particularly in settings where religious conservatism coincides with other traditional pronatalist beliefs. Although it is conventional to interpret the role of such influences as operating through the impact of religion on reproductive motives, religion also influences the cost of contraception.⁴ Messages, communication, and religious teaching emphasizing the moral correctness of fertility regulation can offset perceptions that contraception is somehow associated with moral or religious costs. If contraceptive behavior requires nonconformity with religious beliefs, family planning programs will be viewed as a threat to social values. Societal costs from programs often extend beyond religion, to notions that family values and morals are under assault if fertility control is widespread. Such notions often arise in the course of debate about family planning programs for unmarried women.

- *Costs to families.* As in many traditional societies, the concept of a nuclear family occurs only rarely in Bangladesh. Any event that causes embarrassment to

individuals also involves numerous kin and typically produces considerable disharmony in the extended family. Disharmony, or the threat of disharmony, represents a cost of contraception in the Bangladesh context. Mothers-in-law, for example, exercise considerable influence over household decisions; privacy among kin is nonexistent. Decisions to adopt contraception may involve prior discussions with kin about matters that are embarrassing or require actions, such as travel, that are associated with considerable shame.

Threats to disharmony in extended families are exacerbated by traditions of spousal noncommunication. Women's autonomy is an alien concept in Bangladesh, and equality and openness between spouses is uncommon. Under such circumstances, a woman seeking to use a contraceptive method must do so at considerable personal risk of embarrassment, shame, or rejection by her husband and his family. Marriage arrangements can be precarious and the cost of conflict with husband or kin can be unacceptable in circumstances where women are expected to subordinate preferences to those of the husband's family. A woman's independent decision-making about her reproductive future can thus involve considerable personal risk. As Abdullah and Zeidenstein (1982) have noted:

rural men and women rarely discuss sex or family planning with each other. If a young village woman uses contraception and has problems with it, she is in a very difficult situation. The person who speaks for her if the outside world is involved is her mother-in-law who will hear from her son that there is a problem. The young woman must then have their prior approval in order to go to them, and even then there is likely to be embarrassment. If there were no problem within the household, the woman in difficulty is still faced with the real problem of getting adequate attention because there is likely to be no one really knowledgeable about family planning in the village (p. 187.)

Much has been written about the impact of the economic and security value of children in Bangladesh on reproductive motives. From the viewpoint of many women, fertility regulation may incur costs of old age security and costs of lost labor. Such threats to the family are elevated by high mortality among children and prevalent widowhood (see, for example, Cain 1977, 1986b). In the Easterlin perspective, such influences operate not only through their effects on reproductive motives but also through their effects on the perceived cost of fertility regulation. In this view, a woman who has achieved her desired family size could choose not to contracept because the perceived family security costs outweigh perceived benefits. Much has been written about demand-side ramifications of security concerns. Sons are a valued source of personal status and self-esteem to Bangladeshi women (Ahmed 1981), and gender preferences have marked effects on the dynamics of contraceptive use (Rahman and DaVanzo 1993; Rahman and others 1992). But reproductive control can also have psychic costs related to guilt, anxiety and worry about the perception of such a decision among husbands or kin (see, for example, Ali and others 1978). Thus, for a variety of reasons related to women's roles and

status, contraceptive methods that depend upon spousal communication or cooperation have a limited clientele. Possessing supplies and monitoring the daily pill regimen can lead to embarrassment, ostracism, and worse for many rural Bangladeshi women (Aziz and Maloney 1985).

- *Costs to individuals.* Levels of female educational attainment in Bangladesh are among the lowest in Asia. About 12 percent of the adult female population is literate, only a third of the literacy rate of men. Low levels of literacy constrain capacities to absorb new ideas, weigh decisions, and gain control of reproductive choice. This in turn exacerbates dependency on others for information and guidance, elevating the social and psychological costs of contraception (see Lindenbaum 1975).

Without social or familial support, with limited education and awareness of the outside world, and with little autonomy over other matters of personal importance, a woman exercising control over fertility can subject herself to worries about unknown risks and consequences of her action.

Health costs

Morbidity from minor ailments is extensive in rural Bangladesh. Poor sanitation, marginal diets, crowded dwelling units, and other factors produce high rates of transmission of acute respiratory infections and diarrheal disease (Bhuiya 1989; Rahman, Mahmud, and Haque 1988; Chen, Rahman, and Sarder 1980; Black and others 1982). Nutritional adversity is widespread, and associated ill health, in combination with low literacy, *purdah*, and isolation, greatly exaggerates the perceived health consequences of contraception.

Prevalent health problems are not adequately addressed by public health services. Most appraisals find the quality of such services to be exceedingly poor. Family planning, in particular, has been associated with serious lapses in service quality. In the East Pakistan era, considerable controversy was directed to the IUD program, and anecdotal evidence indicates that perforations were commonplace. Subsequent problems in the Bangladesh era have impaired the quality of clinical services and led to unacceptably high case mortality rates associated with surgical contraception (Grimes and others 1982; Rosenberg and others 1982). Fear of illness represents a major cost of contraception in rural Bangladesh, and subjective health concerns are at least as significant a cost as the incidence of side-effects (Huq, Jahan, and Begum 1985; Islam 1980, 1985).

Minor side-effects represent a more prevalent perceived cost of contraception than concerns about serious but relatively rare complications. Studies have shown, for example, that prevalent reproductive tract infections can represent a significant health problem with symptoms that IUD users spuriously associate with their method (Wasserheit and others 1989). In the absence of information about methods, women often associate unrelated health problems with contraception and discontinue use when illness arises, even if the illness could not possibly be related to the practice of contraception (Basu 1984; Rahman and others 1980; Bhatia and others

1980; Kamal, Khan, and Ahmed 1989a). For this reason, discontinuation rates tend to be high for hormonal contraception, and perceived side-effects are the predominant concerns underlying such decisions (Akhter and Ahmed 1992; Akbar, Phillips, and Koenig 1991; Chowdhury and others 1986).

Subjective health costs have been noted, compounding the concerns noted above. Prevalent illness and poor medical services lead to concerns, superstition, and beliefs that can elevate the perceived costs of contraception (Blanchet 1984; Aziz and Maloney 1985; Islam 1980). Social circumstances of women can further complicate such concerns. For example, the presence of male medics and paramedics in health facilities can represent a perceived cost of contraception, particularly if medical procedures require a pelvic examination.

Finally, health concerns arise from contraceptive failure or worries about failure. Women who have heard about failure may prefer not to use contraception if they perceive family planning to be ineffective.

The costs of contraception, in summary, can be daunting to Bangladeshi women. Despite preferences and intentions that are consistent with fertility regulation, social, psychological, and health constraints, and direct costs of access to services interact with fragile demand for fertility regulation to sustain low levels of contraceptive use. Mitigating such costs has been the central strategy of research programs on family planning services. We turn next to a review of this experience.

Lessons from the experimental projects of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B)

A remarkable range of projects, pilots, and field experiments have been launched in Bangladesh to determine what works in family planning and what does not. Research from this experience provides incontrovertible evidence that latent demand for family planning is substantial in rural Bangladesh. Research has also clarified how costs of family planning are mitigated and demonstrated that substantial demographic effects arise if appropriate services are implemented. Much of what has been learned from field research has emerged from three experiments of the ICDDR,B. Since the early 1960s, the ICDDR,B has been conducting trials of cholera vaccines and research on the epidemiology of diarrhoeal diseases. This work has required demographic surveillance and field administrative capabilities that have proved to be uniquely suited to testing the demographic impact of family planning services in rural Bangladesh. In recent years other organizations, using a variety of approaches, have also contributed insights into what works and what does not. Three general conclusions emerge from this experience:

- Latent demand for family planning exists in Bangladesh, even in situations where actual use of contraception is limited and fertility regimes are pretransitional. This demand is not merely an artifact of survey research biases; it is substantial and can account for pronounced demographic changes when services are launched.
- Simply offering information and commodities can be an insufficient basis for meeting latent demand. Mitigating the costs of contraception, as they are broadly

defined above, must also be the focus of intervention. Although barriers to the spread of contraceptive innovation can be pronounced even if appropriate strategies for cost mitigation are instituted, the full force of social barriers diminishes with time, and the acceptability of contraceptive use spreads as innovative behavior if appropriate services are sustained over time.

- Experimental replication of special project approaches with the regular staff of government agencies and usual program revenue have succeeded. Experiments cannot be dismissed as costly distractions. They have served as models for large-scale actions.

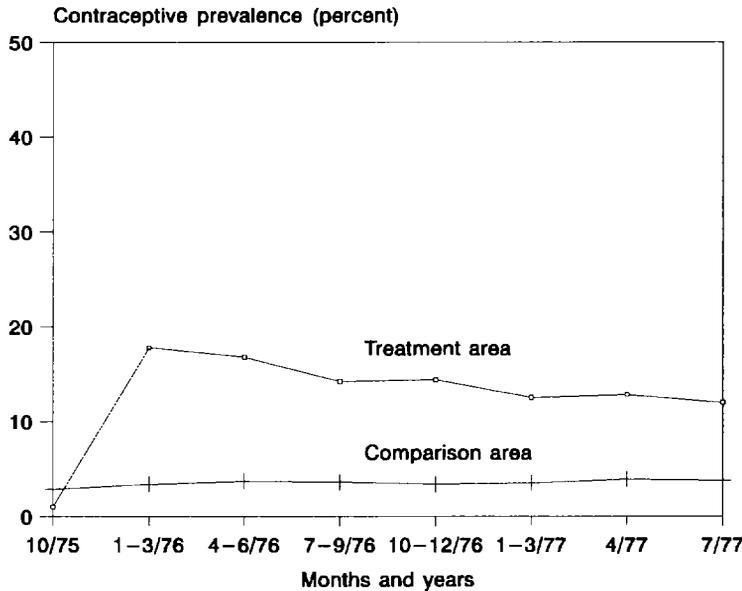
Testing the latent demand hypothesis: The Contraceptive Distribution Project (CDP)

In 1975, a Matlab field experiment known as the Contraceptive Distribution Project (CDP) was launched to test the latent demand hypothesis.⁵ The operational design of the CDP was exceedingly simple: village women were hired to visit households at 90-day intervals to supply oral pills to women indicating an interest in fertility regulation and to follow up clients for resupply in future visits. After a year, the contraceptive regimen was modified to include condoms. Women recruited for distribution work are referred to as *dais*, traditional birth attendants. *Dais* are widely known in their village but are typically women from lower social or economic strata households. Most are illiterate and elderly widows. At the time of the CDP, few *dais* had ever used contraception, and none had been trained to provide information about family planning or guidance about reproductive health issues. This strategy was justified on the basis of the latent demand hypothesis: since demand was extensive, supply strategies could be unencumbered with health or social service costs. All that was needed, in this view, was distribution of commodities to a receptive population.

Initial results substantiated the latent demand hypothesis. Prevalence of contraceptive use increased from about 1 percent to nearly 20 percent in six months. Most of this increase was registered in the initial three months of distribution (figure 4.2). Within nine months, however, treatment area prevalence began to decline—a trend that continued until the project was terminated in 1977 (Rahman and others 1980). Demographic effects were modest, as a consequence, and limited to a fertility differential of 6 percentage points between the treatment and comparison areas.

The diagnostic studies and field investigations on the causes of the CDP failure concluded that demand-oriented commodity distribution was inadequate; a more comprehensive service approach was required to address the social, psychological, and health costs of contraception. Women who adopted contraception had minimal social support for their decision to delay pregnancy: husbands were often ambivalent or openly opposed, mothers-in-law who traditionally speak for young women were not involved in the program and were therefore unsupportive. Sources of information, advice, and ancillary health care were lacking. Under such circumstances, a woman choosing to use contraception was doing so at considerable personal risk, with no system of program support to turn to if something went

Figure 4.2 Trends in contraceptive prevalence in the CDP treatment and comparison areas, Matlab 1975-77



wrong. The high discontinuation rates suggested that more frequent visitation and improved care and counseling were required.

Crucial to reducing the perceived cost of contraception is expanding the range of method options and means of conveniently switching methods when problems arise. The CDP results suggested that the oral pill and the condom were not popular choices to offer rural Bangladeshi women. Pill compliance in Matlab has always been poor, under even optimal circumstances of daily interviewing about use (Seaton 1985). In contrast to the pill experience, a pilot of injectable use in six CDP villages suggested that the method would be popular if a way could be found to offer it to women in their homes (Huber and Khan 1979).⁶ Reaching women frequently for injections required a well-trained workforce and improved field management, but the requisite operational changes were not possible with the existing CDP staff composition and management scheme.

Negative community reactions to the CDP led to an extensive dialogue on how to improve the credibility of the program. Rumors were commonplace; religious opposition was problematic. The ICDDR,B team concluded that the CDP was unduly oriented toward promoting the use of a particular method rather than more broadly oriented toward addressing client reproductive health needs. Community reactions suggested a need for strategies to establish the credibility of the program and its workers. Promoting particular methods or technologies is secondary.

Community leaders, husbands, and program clientele contacted during appraisals of the CDP often directed their comments to the role of the

worker, the importance of social status in community liaison work, and the impression, almost universally expressed, that illiterate and elderly birth attendants were not committed to family planning. As women who were obviously too old to bear children, few had ever used the methods that they were promoting, and, were not sufficiently knowledgeable about side effects and other concerns. CDP workers had little credibility with clients, husbands, or kin when contraception required discussion. The CDP experiment suggested that outreach workers, as agents of change, must be credible counselors with a role that extended beyond dispensing supplies.

The CDP demonstrated that demand for family planning exists in rural Bangladesh but demand is fragile: women seeking to regulate fertility are subject to various cross pressures that weaken their commitment to sustained contraceptive practice. Social and religious values favoring children, the economic utility of children, security concerns, and other societal supports for traditional fertility norms tend to sustain high fertility. This weak climate of demand is further reinforced by the extensive costs of contraception. Improving access to convenient pill supplies is only one of many aspects of mitigating such contraceptive costs. Addressing health concerns and information needs through a credible system of program support for fertility regulation is also critical to effective service delivery.

Mitigating the costs of contraception: The Matlab Family Planning and Health Services Project (FPHSP)

The ICDDR,B terminated the CDP in 1977 and redefined study areas for a new experiment designed to address strategic limitations of the CDP. Interventions emphasized the importance of follow-up, widened the range of methods to include injectables, the IUD, and sterilization, and improved the quality of paramedical support through health services outreach (see Akbar, Phillips, and Koenig 1991; Rob and others 1987). Traditional birth attendants who had been village distributors were replaced with a cadre of relatively well-educated younger women. Each of these strategic changes was designed to develop strategies more in keeping with village consultative opinion than had been the case in the CDP (M. Rahman 1986; Rahman and others 1980). Extensive management changes were undertaken to insure that visitation was dependable and frequent and that client problems with contraception were addressed with concerted action.⁷ Most important among these was the introduction of a dual leadership supervision system that emphasized technical paramedical supervision as well as administrative supervision (see Phillips and others 1988).

Strategic elements of the FPHSP were designed to address contraceptive costs that the CDP overlooked. This is illustrated by the contrasts shown in table 4.1. In both projects, the direct monetary and travel costs of contraception were addressed through the provision of outreach and free commodities. As the table shows, however, the FPHSP program was far more comprehensive than the CDP. The type of staff, management system, and worker coverage scheme permitted intensive follow-up at 14-day rather than 90-day intervals. In the course of encounters, far

more comprehensive services were available in the FPHSP than had been possible in the CDP approach. The utilization of young and educated women permitted continuous training, dialogue, and exchange about interpersonal communication strategies. Staff meetings could develop strategies for dealing with problems. Focused supervisory outreach to religious leaders, *bari* leaders, and husbands dealt with social and familial opposition from men. Focused paramedical outreach dealt with key health problems, referral needs, and side effects. The overall strategy of the FPHSP was to extend to women program support for contraception not otherwise available from traditional familial or social sources. The core strategy involved intensive and credible woman-to-woman household outreach services, augmented with requisite ancillary health care, family planning information, and community liaison.

The impact of the Matlab FPHSP was immediate and pronounced (figure 4.3). Prevalence rose from very low baseline levels to nearly a third of all women in a year. An onset of fertility decline in treatment areas was evident nine months from the beginning of the project. Neither contraceptive use nor fertility changed in contiguous comparison areas so that a 25 percentage point treatment-comparison area fertility differential emerged early and was sustained with time (Phillips and others 1982 and 1988; Koenig and others 1992). This finding confirmed earlier results from the CDP suggesting that latent demand exists and demonstrated that addressing costs of contraception can produce substantial demographic effects.

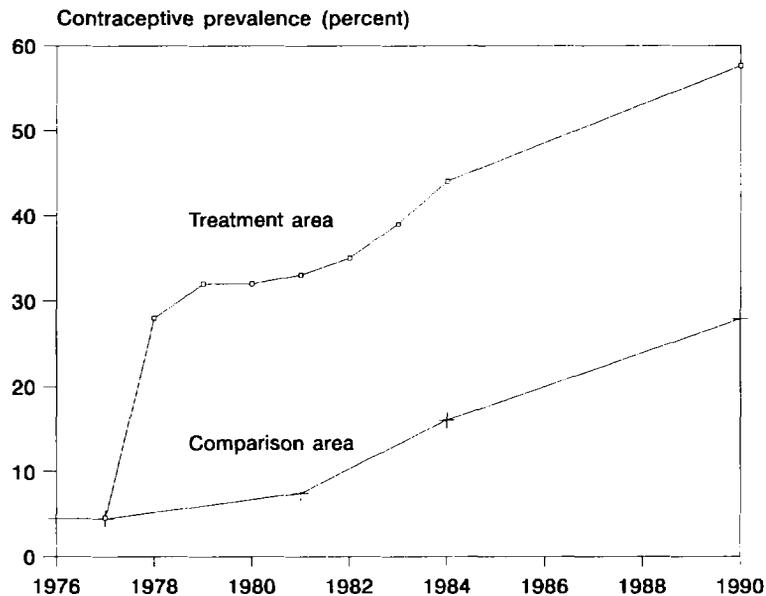
The two Matlab experiments demonstrated that substantial demographic effects can arise from providing family planning services to couples in their homes. Latent demand results from the combination of a desire to regulate fertility and a passive response to such preferences. Face-to-face encounters, combined with credible and effective contraceptive options, catalyzed contraceptive use in the initial phase of the Matlab project and sustained the process of reproductive change over a decade.⁸ Total fertility rates have declined from 6.8 to 3.5. Although economic, societal, and health conditions in rural Bangladesh constrain successful introduction of fertility regulation, such constraints can be addressed with appropriate service delivery strategies. Unresolved from the Matlab studies, however, was the question of whether the operational model of the Matlab project is replicable on a large scale.⁹

The Maternal and Child Health and Family Planning Extension Project

With successful Matlab demonstration that demand for family planning exists, ICDDR,B research priorities shifted to supply-side questions. The Extension Project began as a test of the hypothesis that elements of the Matlab project could be transferred to the government-sponsored service system without appreciable organizational change or incremental resources (Phillips and others 1984b and 1988). Two government subdistricts were selected for this trial, and a system of joint ICDDR,B-government of Bangladesh committees was constituted to direct work and monitor progress.

In the initial phase of Extension (1983–86), the transfer process was deliberately constrained: special operational inputs were disallowed, staffing was provided by

Figure 4.3 Trends in contraceptive prevalence in the FPHSP treatment and comparison areas, Matlab 1977–90



the government, and patterns of supervision and supplies were unchanged. As much as possible, program activities were designed to retain their Ministry of Health and Family Welfare (MOHFW)¹⁰ character so that the project did not take on a special quality that could dilute its relevance to policy. The aim of this activity was to establish a collaborative project that stood between Matlab and the larger public system, where operational diagnosis and change could be the focus of work with the Matlab success as the guiding operational model.

Initial dialogue and analysis demonstrated the diplomatic difficulty in transferring innovation to a large-scale bureaucracy.¹¹ Exchanges led to key operational changes in the national program, and decisions were made to pretest those changes in the Extension areas. The process of trial and experimentation generated a second phase in which incremental resources were added to pretest corresponding changes in the national program. These changes in the national program strategy were pretested by the Extension Project:

- The density of female village workers was nearly doubled to permit more intensive outreach.
- Village workers were trained to provide injectable contraception as a household outreach service.
- Field management and ancillary health services were upgraded to improve program technical and operational support for village work.

When these operational changes were undertaken in Extension areas, the national program replicated critical elements of Matlab without encumbering operations with nonreplicable costs. In the period following operational change, contraceptive use prevalence in Extension areas increased. The most dramatic increases occurred in Sirajganj, an area of central Bangladesh known to be a conservative, traditional, and noncontracepting population.

Extension Project findings suggest, in summary, that replication of Matlab is possible, even in the constrained institutional context of the Bangladesh public sector program (Simmons, Phillips, and Rahman 1984; Simmons, Koblinsky, and Phillips 1986; Simmons and others 1988; Koblinsky and others 1984; Yunus and others 1984). The ICDDR,B research experience demonstrates however, that supply-side requirements in Bangladesh are stringent: a poorly planned and administered program will have only limited effects, even if one or two methods are made freely available. Demand is fragile and contraceptive costs are pervasive. The introduction of family planning programs therefore merits careful trial and preparation. While effective service delivery is possible, in the context of the Bangladesh public sector program merely providing outreach services is not sufficient. The wide range of costs of contraception must be mitigated through a variety of strategies.¹² Contrasting results of the three ICDDR,B experiments attest to the importance of comprehensive family planning strategies addressed to a wide range of social, psychological, and health costs of contraception and to the replicability of results when the appropriate package is identified. The CDP, which failed in Matlab, did not address the need for the mitigation of costs of contraception. This is illustrated in table 4.1, which illustrates how strategies of the FPHSP and Extension Project were more generally configured to serve the needs of clientele than the inordinately simple distribution approach of the CDP. These findings, and the extensive experience of other studies, demonstrate that the success of family planning services is not simply a matter of dispensing supplies to a population but, rather, requires offering a range of services that mitigate interlocking costs of contraception. Such a program, combined with social marketing and mass communication, makes services and information freely available at convenient locations and overcomes traditional reticence and ambivalence about family planning and reproductive change. Matlab results are not mere artifacts of an unusual setting but recur when services are available and dependable, even in the context of the less rigorous Ministry of Health and Family Welfare service system.

The Extension Project resolved the question of whether replication of Matlab is possible in the public sector, but left open the question of whether the particular strategic design of the Matlab project is essential to achieving such effects. Many small-scale projects have been launched in Bangladesh, some of which have had research, monitoring, and experimental designs (see Appendix table A.1). Findings from these studies provide useful insights into how family planning services translate into demographic changes in rural Bangladesh and which operational elements are essential for such effects to arise.¹³ We turn next to the issue of lessons that emerge from pilot projects in rural Bangladesh.

The ingredients of success: common elements of successful pilot and experimental projects

With so many organizations actively engaged in family planning work, and so many projects achieving results, what are the common themes from this experience? What are the operational elements of "success" in the Bangladesh context? Donor reports, external reviews, and the like often conclude their comments on the Bangladesh national population program with exhortations to "improve management" or "strengthen supervision." What, precisely, does this mean?

Successful projects in Bangladesh typically establish an organizational culture that sets them apart from other institutions, insulating the workforce from dysfunctional social pressures on performance, and instilling a sense of being exceptional individuals working in an exceptional organization.¹⁴ The allocation of resources, the direction and planning of activities, and other strategic components of management are designed to separate management functions from social networks. By insulating the workforce from external pressures, workers can be recruited for tasks, promoted by merit, and held accountable for achieving objectives, without external encroachments on operations. Job security depends upon service and productivity rather than patronage or informal influence.

Much has been written about the social structure of village life that brings into question the broader relevance of small-scale management excellence to large-scale organizational operations. Social networks, patronage systems, and fragile traditional government weaken capacities to organize communities or link new programs to existing social structures. Organizational legacies for human services in Bangladesh extend to the traditions of the public sector, to the Colonial era, and even earlier, to Mogol kingdoms. Management traditions in Bengal derive from a long history of organizing for revenue collection, military leadership, and police functions. Management tends to be mechanistic, control oriented, and directive—leadership styles that are ill-suited to focusing services on the periphery. The broader institutional climate for translating successful model projects into large-scale operations is weak. Further weakening the organizational integrity of large-scale programs are the operational effects of social and economic changes discussed in chapter 3. The shift from agricultural to nonagricultural pursuits without a concomitant growth in manufacturing or industry has led to a growing class of petty entrepreneurs, facilitators, power brokers, and traders whose precise economic roles and occupations are difficult to characterize. A secure job in the civil service is occupied for what it can earn, but competing economic opportunities in the informal sector increasingly undermine the integrity of operations.

The extent to which the ingredients of success are relevant to large-scale national programs depends upon the extent to which successful transfer of innovation can also confront the underlying organizational cultural constraints on success in large-scale bureaucracies. At least three strategies have worked, to some degree:

The first strategy simply involves scaling up small-scale organizations to larger-scale operations, while retaining their culture of excellence.

At least two organizations, the Grameen Bank and the Bangladesh Rural Advancement Committee (BRAC), appear to have succeeded in establishing a large-scale national organization while retaining a unique organizational culture (Fuglesang and Chandler 1988; Abed 1990). Neither organization has been active in the population sector, but this may change in the near future.

More important to the family planning program than scaling up NGOs has been the policy of promoting NGO proliferation. First promulgated in 1981, government regulation now permits nongovernmental agencies to operate as family planning service organizations in rural areas and allows donors to provide direct assistance to this effort. From a handful of such organizations in 1980, there are now over 400 service NGOs blanketing the country (Allen and Khuda 1992). Questions of whether small-scale operations can be replicated in the public sector are supplanted by questions of how to coordinate multiagency operations at the periphery, how to monitor activities and performance, and whether so complex and expensive an effort can be sustained in the future.

Organizations that succeed often devote extraordinary attention to countering dysfunctional management traditions by providing support services for grassroots workers. In successful family planning projects, purveying contraceptive technology is of secondary importance to addressing the perceived needs of villagers for quality services. This requires providing workers at the periphery with basic skills and system support. A key component of this support system is realistic goal setting, involving workers affected, and reliable logistics and supply operations that assure workers that their individual efforts will not outpace the system at large. Ensuring that requisite supplies and transportation services are available facilitates rational goal setting, since failure to achieve goals can be attributable to the workers responsible, not to obstacles over which they have no control.

Even with the expansion of NGO effort, however, the public sector program remains the predominant source of services in Bangladesh. Much attention has been directed to the transfer of innovation from small-scale projects to the public sector, under the assumption that the organizational culture of successful projects is, in part, derived from sound management principles that are relevant to organizations anywhere. There are, however, features of successful organizations in Bangladesh that derive from successful adaptation of strategies to the public sector environment.¹⁵

Successful projects share a certain institutional culture of excellence comprised of an *esprit de corps*, management support systems, and community liaison capabilities that are missing in the relatively less successful large-scale public sector programs.¹⁶ Can special capabilities be replicated? What has been learned from success and failure that is generic to family planning program efforts in Bangladesh? From the viewpoint of rural couples, organizational issues matter little if services at the periphery meet minimal standards of intensity and quality. This, in turn, requires strategies enabling programs to mitigate the cost of contraception by fostering program-client exchanges that lead to contraceptive use (Simmons and others 1988).

The relationship between strategies and client initiatives to use services is depicted in figure 4.4. In fostering exchanges, programs can develop convenient services at fixed locations—a "passive strategy." Alternatively, outreach can be used under the assumption that clients are essentially passive and require an "active strategy" for the requisite exchanges to take place. The "client dimension" in figure 4.4 refers to the implementation of demand among clientele. Programs and policies can aim to foster demand among clients through communication and information or other demand-generation activities that create the "active clientele" dimension of figure 4.4. Alternatively, program strategies can be designed on the assumption that clients will not travel or seek family planning care even if they desire to regulate fertility—the "active" program dimension. In this condition, latent demand is assumed to be met by outreach.

Table 4.2 applies the figure 4.4 typology to selected special projects. The Companiganj Project represents the Type I approach in figure 4.4. Health and clinical services were effectively developed; contraceptives were available from the project and were actively promoted. Little was achieved, however, because static services alone failed to address the need for active outreach.

Type II services have made an important contribution, as demonstrated by the successful social marketing strategy of subsidized sale of contraceptives at fixed delivery points with mass media advertising and promotional campaigns. But Type II strategies focusing solely on demand generation typically fail unless Type

Figure 4.4 Typology for the intersection of client and provider transactions: four types of special project strategies in Bangladesh

		THE CLIENT DIMENSION	
		Clients are assumed to be passive...	Strategies motivate clients to be active...
		in seeking services	
THE SERVICE DIMENSION	Services are designed to be... passive...	Static health services (Companiganj) I	Information, education, and motivational components, demand generation (ZPG) II
	... in reaching clientele active...	Clinic services plus outreach (Matlab and Extension, Munshiganj, UGNPS, TAF and TPF) III	Clinic + IEC + outreach + community organization and development (Swanivar, Grameen Bank, BRAC, Jiggasha) IV

Table 4.2 Features of five experimental projects and impact on contraceptive prevalence

<i>Projects and major strategies</i>	<i>Operational design</i>	<i>Research design of the most recent study</i>	<i>Results of impact assessment: contraceptive prevalence rate</i>
Clinic only			
Companiganj Develop comprehensive primary health services; offer community health outreach; integrate family planning with clinical services.	Comprehensive health services in upgraded government clinics.	Multiround surveys	Prevalence remained under 10 percent.
Demand generation only			
Zero Population Growth FP motivation; organize women for income-generating activities; create employment opportunities; undertake overall community development activities.	FP project aimed at achieving zero growth through community development.	Posttest-only group design.	CPR was found to be 29.9 percent in 1981 compared to 24.8 percent in the comparison area.
Clinic and intensive outreach			
Munshiganj Utilization of local Ministry of Health staff; adding of supervisory staff from the project side; ensuring uninterrupted flow of contraceptive supply; construct and equip clinics; upgrade clinical staff and operations.	Community and clinic-based service project delivery with particular emphasis on developing union-level static health centers.	Posttest-only group design.	CPR increased from 12 percent in 1981 to 44 percent in 1987 compared to 32 percent in the comparison area.

ICDDR,B

Household services for pills, condoms, injectables, clinical services for basic medical care; health education for both preventative and curative services by field workers including disease prevention, MCH care, nutrition, and FP.	Comprehensive health and FP outreach service delivery program in existing government rural health centers with increased number of workers.	Baseline and midterm household-level health survey data with longitudinal panel surveys.	Substantial increase in utilization of health care services; home visits by health workers were positively associated with use of modern health services; CPR increased from 3 percent in 1982 to 42 percent in one area, and from 17 percent in 1982 to 62 percent in 1987 in a second area.
<p>Unity of Government and Nongovernment Population Services</p> <p>Distribution of equal case-load for each government and NGO workers; coordination of fieldwork; daily and weekly reporting system; task-oriented training backed by on-the-job guidance; monitoring and supervisory coverage NGO side; ensure regular bi-monthly home visits; ensure regular supply of contraceptives; inspiration for work.</p>	Community- and clinic-based service delivery through a government and NGO collaborative program designed to increase outreach intensity.	Pretest-Posttest control group design.	CPR increased from 21 percent in 1987 to 45 percent in 1989 compared to 34 percent in the comparison area.
Demand generation and outreach			
Grameen Bank			
FP motivation and service outreach; organize women and income-generating activities; create employment opportunities; undertake community development activities through loans.	Poverty alleviation project aimed at improving women's status.	none	unknown

I services are also offered, as demonstrated by the disappointing achievements of the ZPG project.

"Active" strategies appear to be the most successful, and most projects represent some variant of this basic approach. Matlab and Extension are Type III outreach schemes, but most Pathfinder and Asia Foundation projects also pursue this approach. Type III services are designed on the assumption that many clients will not leave their homes for services and that much can be achieved by addressing this fundamental constraint.

Type IV approaches assume that demand generation and active outreach must be simultaneously pursued and require management capacities to implement complex community programs. The conceptual appeal of this approach is counterbalanced by the challenging operational requirements of community development schemes in Bangladesh. Nonetheless, the Swanirvar Project has apparently been successful, and the Grameen Bank is likely to provide a strong institutional base for family planning services of the Type IV variety.

An example of a Type IV initiative is the Trishal Project (Kincaid, Messiah, and Das Gupta 1993).¹⁷ In Trishal thana of Mymensingh district, 24 villages were the focus of a study of communication networks. Building on research clarifying the nature of networks and replicable procedures for identifying opinion leaders, an outreach scheme has been developed that forms network groups around opinion leaders. Family Welfare Assistants (FWA) meet with *Jiggasha* (in Bangla, the term *Jiggasha* means to inquire) to discuss family planning, promote use, and foster open discussion of family planning. Research shows that this procedure empowers women to make family planning decisions that were previously undertaken without social support. *Jiggasha* thus mitigate the social cost of contraception and enhance the efficiency of outreach encounters. Services are provided at meetings, but women apparently prefer the privacy of household visits for actual service delivery. In terms of the figure 4.4 typology, the *Jiggasha* alone is a Type II strategy that becomes a Type IV program when pursued in conjunction with FWA household services (Type III approach). Quantitative appraisal of the impact of *Jiggashas* shows that Type IV is more effective than Type III, which in turn is more effective than *Jiggashas* alone (Type II). The *Jiggasha* has marked effects even in the absence of household encounters, lending support to the view that face-to-face communication provides social support to users that does not arise from passive services and communication approaches (Type I).

While the *Jiggasha* research demonstrates an effective approach to simultaneously providing supply- and demand-side services, other promising approaches achieve this aim, though with markedly different operational designs. The Grameen Bank scheme for extending credit to rural women has enhanced women's empowerment and autonomy. Family planning outreach to lending program participants is more effective than outreach to nonparticipants or to women residing in areas where the Grameen Bank is not active.¹⁸ Similar conclusions have been reached in regard to the impact of other women's development and health initiatives.¹⁹

In theory, Type IV programs hold considerable promise if feasible and sustainable schemes can be developed, since they comprise the most comprehensive

combinations of strategies— clinical services with promotional campaigns, outreach, social marketing, and community organizational efforts all operating simultaneously, each serving a different segment of the population of couples who demand contraception. In practice, however, priority has been consigned to developing relatively simple Type III models. Existing demand is so extensive that substantial impact can be realized with this approach. The official program emphasis on outreach, clinical services, and promotional campaigns has the goal of creating a Type IV national program. Although lacking many of the unique management strengths of the special projects, the national program increasingly conforms to the Type IV model in which active outreach is combined with demand generation in an increasingly active and client-oriented approach that reaches hamlets and households throughout the country. We turn, next, to a review of this development.

The evolution of government policies and programs

If organized efforts in the family planning sector are traced to the Pakistan era, the Bangladesh program is among the oldest in the world. Since the creation of a private Family Planning Association in 1953, private agencies have offered clinical services in cities and large towns. By 1960, the Pakistan government had launched a program in the public sector—a commitment that was initially limited to clinical services, but has since become a complex interagency program that reaches villages throughout the country. Although the development of the Bangladesh population program has been accompanied by numerous structural and strategic changes, key elements—high-level political support, extensive external support, and large-scale bureaucratic support—have sustained the program throughout its long history.

The commitment to the family planning program in Bangladesh was premised on the view that latent demand exists. Couples seek to control their fertility but fail to act on this desire because the costs of contraception outweigh demand. The central strategy has been to minimize the costs of contraception through free clinical services or commercial sales located at convenient outlets throughout the country and through household outreach services nationwide.

Numerous reports and appraisals on the Bangladesh population program diagnose problems, prescribe solutions, and engage in exhortations for change.²⁰ In this section, we adopt a somewhat different perspective: viewed in the broader context of the institutional constraints on family planning program operations, achievements in the past decade constitute a remarkable success. There is little reason to believe, however, that family planning programs in the pre-war or early Bangladesh era could have had an impact, given the societal constraints, political turmoil, and bureaucratic malaise that plagued program-organizing efforts in its first 25 years.

The organizational history of family planning in Bangladesh

Recent reviews of the public sector Bangladesh population program have noted a number of dysfunctions—public bureaucracies are overly centralized,

decisionmaking tends to be autocratic, and operational planning is based upon fiat rather than trial and learning. Sectoral ministries lack mechanisms for interagency coordination, weakening capacities to implement multisectoral programs or initiatives involving the private sector. Structural change is promulgated without attending to the operational implications of orders. We argue, nonetheless, that the Bangladesh program of the 1980s and 1990s differs in fundamental ways from the post-independence Bangladesh program of the 1970s and the Pakistan program that preceded it.

Early operational problems of the new Bangladesh can be traced to the pre-independence institutional history of the Bangladesh civil service and to key decisions that were taken in the early post-war period:

THE COLONIAL LEGACY. The government of British India designed the colonial civil service to be administered by a small elite who were charged with the tasks of tax collection and maintaining public order. This required a rigid system for the promulgation of orders, and a chain of command that ensured that directives were carried out. The periphery of the civil service was located in the district office, where the courts, police stations, and administrative offices were based. Government was not designed to provide social or other services in villages, and government presence did not extend below the district level.

Although civil service positions were prestigious in the British Raj and salaries were high in comparison to wage income outside the public sector, the vast expansion of development programs in the Pakistan period transformed the public sector bureaucracy into a mass organization. The civil service was extended to include village-based programs in the health, development, education, and agriculture sectors.

Organizational traditions borrowed from the Raj were ill-suited to accommodate this expansion. Although community programs require participation, flexibility, and action at the periphery, there was an excessive preoccupation in population initiatives of the Pakistan era with demographic directives, targets, and performance incentives at the expense of a methodical preparation of service strategies, training schemes, and support services. In keeping with the bureaucratic traditions of the Raj, population was organized as a program that was imposed on the populace by fiat, and workers were to deliver outcomes as ordered by their superiors.

LEGACIES FROM THE PAKISTAN PERIOD. The predominant thrust of population policy in Bangladesh has been clinical family planning services augmented with village outreach and mass communication activities. This approach originated in the Pakistan era in three successive programs:

- *Private nongovernmental agency clinical family planning (1953–59).* The Family Planning Association of Pakistan established clinics in cities and large towns, with financial assistance from the government and external donors. Only a limited promotional campaign was incorporated in the program. Knowledge of contraception remained at low levels, and the rate of utilization of clinical services

was low. Nonetheless, nearly 3,000 service points were established, and the program claims to have served a catchment population exceeding one million in this period. Although this program failed to have demographic effects, its pilot projects and training activities developed experience in family planning that was applied to subsequent efforts.

- *Integrated health and family planning services (1960–65)*. With the aim of enhancing the acceptability and accessibility of family planning, the program was modified in 1960 to include government health clinics as primary service providers. An outreach program was created to provide education to couples through "village aides." However, the village aide campaign was abandoned after only 18 months, and the clinical training program was poorly planned. Because staff were poorly trained, and services were narrowly focused on family planning to the exclusion of health, services offered by this program were unpopular. Resources were inadequate, and field supervision was severely constrained as a result. In the absence of supervision, the educational campaign was not linked to the clinical program. Achievements of this program were limited to "stage-setting." Experience was gained with clinical services and outreach, but very few services were delivered in nonclinical settings.

- *Intensification of family planning services (1965–70)*. In 1965, the first attempt at comprehensive family planning services was launched, comprising clinical services, communication programs, and greatly expanded outreach.²¹ In view of the lethargy of the public sector in launching the earlier effort, a parastatal Family Planning Board was created to establish a program that was independent of the Ministry of Health. Despite a considerable investment in this program, it achieved little more than promoting public awareness of population issues and increasing basic knowledge of contraception.²²

The service strategy of this program, widely applauded by international donor organizations at the time, was based on female paramedical staff—Lady Family Planning Visitors—with an outreach system comprised of *dais* and male organizers. The main task of the *dais* was recruitment of IUD acceptors; male organizers were supposed to recruit vasectomy cases and distribute condoms. Neither effort succeeded.

In retrospect, high-level commitment to the 1965–70 program was one of its major pitfalls. The program was established in an exceedingly short time with a large budget. A smaller and more focused program with careful pilot testing might have established a better long term framework for deliberations on future policies and programs. Public pronouncements at the time were aimed to arouse commitment to concerted action, but the government of Pakistan's political standing was deteriorating throughout this period, and its capacity to organize a mass movement diminished with its waning political credibility. The autonomous agency concept was novel, staff recruited into the program were new to the task of family planning program management, and internal administrative problems mounted. A tactical mistake was to focus the program on promoting the intrauterine device, a method known to be clinically effective, but one that was not universally favored by women seeking family planning. The "loop" became a focus of political criticism of the

program and a source of worry and concern among women. Problems associated with the quality of services were compounded by target and incentive schemes. Although basic support systems were never effectively developed for logistics, supply, and training operations, targets were imposed and incentives were awarded as if performance desired by senior management was actually possible at the periphery. Corruption and misreporting were rampant, morale was low, and work had virtually ceased by 1969.²³

A clear insight into the meager achievements of the 1965–70 program is given by the results of the National Impact Survey of 1969. In East Pakistan (that is, Bangladesh), 64 percent of women interviewed were aware of a method after probing, but only 22 percent knew of a place where they could obtain supplies and only 14 percent knew of a supply point. Among rural women, only 16 percent claimed that their husbands approved of family planning. One reason, perhaps, for this apparent failure of the program to legitimize family planning was the political context. To many Bengalis, the program was seen as a Pakistan-inspired population control measure, with the ultimate aim of removing the numerical superiority of the East Wing. To rural women, little in the regimen of service addressed their concerns about contraceptive costs. Harangues about the need for family planning were designed to generate demand that already existed. Services were focused on promoting the IUD rather than meeting client needs. Outreach was sporadic at best, training was weak, and worker credibility at all levels suffered.

The Pakistan program, although failing to have an impact, contributed to future efforts. Staff who were deployed in the program were later utilized in the clinical services, communication, and outreach components of the Bangladesh program. On balance, however, the rapid expansion of the program, faulty planning, and poor service quality that discredited family planning in the Pakistan era weakened succeeding efforts for years.²⁴ The dysfunctional separation of family planning from health services created parallel organizational structures that were never completely disbanded in the Bangladesh period.

The subsequent Bangladesh program differs little from the intent of the Pakistan program to offer the broad outlines of clinical services augmented with outreach and IEC. There was an implementation failure, however, and the Pakistan program never really reached the periphery. Service quality was poor. Intervening events, such as political turmoil in the 1960s, war and its aftermath, and famine, prevented the development of a program. Until the Bangladesh era, there was no program to speak of.

THE IMMEDIATE POST-WAR CONTEXT: 1973–79. Since independence the Bangladesh program has been large and complex with a staff in the tens of thousands. Rather than to reform and renew operations with a new workforce, workers employed by the Pakistan program were enlisted in the Bangladesh era.²⁵ Decisions to reinstate the Pakistan program relate to the sense of emergency that was consigned to population at that time. Bangladesh was recovering from its tragic War of Independence, its economy was in disarray, and famine was imminent. An atmosphere of crisis permeated all national planning and donor negotiations at that

time. The devastation from the war was particularly debilitating to the health and social service sectors of the government. The bureaucracy had collapsed, universities and training institutes were decimated, and many of the critically needed health facilities were destroyed. Basic communication was disrupted, further straining capacities to organize effective government. The nation's only political party was new to the task of governing, and its extensive grassroots organization was oriented more to the war effort than to development. Mechanisms for coordinating complex tasks at the periphery, where family planning services would have their effects, simply did not exist. Yet, a sense of urgency prevailed, leading to deliberations on creating and financing a large and complex program.²⁶ For this reason the supervisory staff and personnel of the Pakistan program were enlisted by the new organizations established by the post-war Bangladesh regime. This decision, undertaken in a crisis atmosphere, reinstated the organizational culture of the Pakistan era and institutionalized some of its more dysfunctional characteristics in the Bangladesh era,²⁷ thus impeding renewal and reform.²⁸

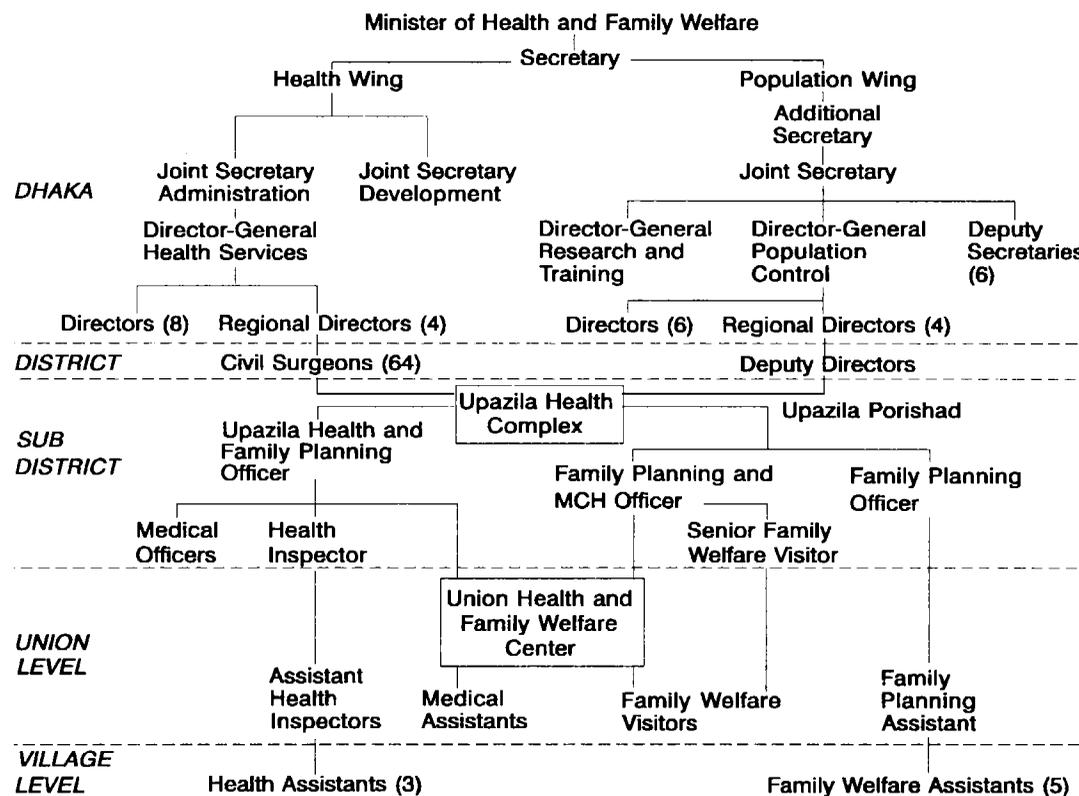
The most serious consequence was the decision to enlist the male outreach staff from the Pakistan era as the Health Wing of the Ministry of Health and Population Control and to absorb units of the Pakistan family planning program into a separate Population Wing (figure 4.5). This bifurcated leadership of health and family planning created rivalries and conflicts that detracted from the meaningful integration of health and family planning outreach. As shown in figure 4.5, the two services are separated and operations remain polarized, despite several attempts at integration (BRAC 1990). At the local level, primary health services are the responsibility of male staff: the health assistants and their supervisors, assistant health inspectors. Their existence is largely a legacy of past campaigns against smallpox, tuberculosis, and malaria. Now that the major focus of primary health care has shifted to maternal and child health, the grassroots health service is irredeemably ill-equipped for the job. With the exception of mass immunization, male workers cannot provide maternal and child health services because of customary restrictions on the interaction of men and women.

The family planning service, on the other hand, is staffed by women at the grassroots level, though they are supervised (ineffectively) by men. These female FWAs see themselves primarily as providers of family planning counseling and supplies, though they receive rudimentary training in maternal and child health and spend perhaps 20 percent of their time on health matters.

Despite the structural problems implicit in the figure 4.5 design, action in the 1970s constituted a tenacious expansion of services and activities. The First Five Year Plan (FFYP) of Bangladesh (1973-78) established a clear focus on the population problems facing the country, and left little doubt that the new government of Bangladesh viewed the population crisis with considerable concern.²⁹ The plan marked the beginning of a commitment to a multisectoral and broad-based population control and family planning program, with priority assigned to the family planning service delivery activities of the MOHPC.

Considerable progress was registered in establishing a system of family planning service delivery; however, program activities were seriously curtailed

Figure 4.5 Organizational structure of the Bangladesh Ministry of Health and Family Welfare, 1990



Note: Upazila has been renamed Thana

over conflicts concerning the integration of health and family planning wings of the health ministry. The year 1975 nonetheless witnessed the beginning of program development and implementation. Table 4.3 suggests that program activities began to produce results by 1975.

Deliberations on the future of family planning in the post-war period were influenced by the Bucharest debate and by the lack of clear evidence that family planning strategies could succeed. In 1975, substantial efforts were undertaken to identify demand-generation strategies (Ministry of Planning 1975) that could accompany efforts to strengthen family planning service delivery. Attention was accorded to the efforts of a few communities such as the Swanirvar (self-reliant) villages in northern Bangladesh. Policy changes also aimed to develop outreach services that would be more closely coordinated with the clinical family planning program and an integral part of national development efforts. Concerted efforts were undertaken at the cabinet level to ensure that the program had the full support of all concerned ministries, and that a multisectoral approach would emerge.

Elements of this program may have neutralized resistance to family planning among conservative religious leaders, and outreach services may have improved the intensity and quality of information and services reaching women. The strengthening of information and mass communication activities, motivational themes, and promotional information may have contributed much to improving knowledge about contraception and awareness of services.

Prevalence may have accompanied these operational developments, but the impact of program effort on contraceptive use was modest. Contraceptive use prevalence increased from 3.9 percent in 1969 to 7.7 percent in 1975 (MOHPC 1978).

THE MULTISECTORAL PROGRAM. Apart from the Ministry of Health and Family Planning, eight ministries have participated in the population program in the period following 1975. The role of each Ministry is discussed in the Appendix. Rather than develop a coordinated program, family planning and population have been incorporated into the line functions of the eight ministries, creating a disjointed program that is not necessarily implemented in all of its elements.

Table 4.3 Number of reported acceptors and volume of contraceptives distributed during 1972-75

<i>Year</i>	<i>IUD</i>	<i>Vasectomy</i>	<i>Tubectomy</i>	<i>Condom (000)</i>	<i>Pill (000)</i>
1972 (Jan-Dec)	8,541	2,066	217	12,608	57
1973 (Jan-Dec)	18,629	173	231	16,080	215
1974 (Jan-Dec)	34,650	4,190	2,565	8,642	587
1975 (Jan-Jun) ^a	31,930	10,667	2,989	2,954	655

a. Figures for Jul-Dec 1975 are not available.

Source: Directorate of Population Control and Family Planning 1975.

Evaluation of the program

Several structural and strategic changes have transformed the program from its initial focus on clinical services to a complex interagency program with large public sector components. Where problems have been encountered, they relate to premature implementation of large-scale operations before complex management requirements had been ascertained, and before strategic designs had been tested in practical field trials. A repeated pitfall of the Bangladesh program is also its greatest resource: high-level commitment leads to large-scale commitment and action. Implementation is being achieved by the sheer weight of the layering of activities in the population sector. Viewed in relation to the programs of East Asia, the Bangladesh program lacks coherence; its activities are difficult to identify and describe; and its operational model bears little relation to traditional social structure or historic patterns of village governance. From the perspective of the villager, the program must also seem like an exceedingly disjointed affair. But it may work for just that reason. Every village has something happening with some regularity that relates to family planning outreach. It is impossible to listen to a radio without hearing about family planning. Every market has outlets where contraceptives are advertised and sold at subsidized prices. Every household receives visits from workers offering free supplies. These and other activities have introduced the concept of reproductive planning and have fostered reproductive change.

Evidence of program impact in Bangladesh

Analyses of the implementation of the Bangladesh population program tend to dwell on problems and deficiencies. Only recently has such criticism been confronted with evidence that contraceptive use is increasing and that the program can no longer be summarily dismissed as an operational failure (Robinson 1985). Contraceptive prevalence is increasing and fertility is declining in a social and economic setting where little else is occurring that could explain observed trends. This has led some observers to characterize the Bangladesh program as a "success story." This assessment must be weighed against the considerable criticism that has been directed to the program in the past. What is it about the failed program of the past that now represents success? Why did evidence of success begin emerging in the 1980s, fully three decades after efforts were first launched in the Pakistan era?

The relationship of inputs to outputs

If a program is having an impact, temporal, areal, and strategic variance in inputs produces corresponding covariance in outputs. Evidence for temporal and strategic variance derives from service statistics (table 4.4). In the Bangladesh era, the steady growth of financial inputs has been associated with unequivocal evidence of implementation. As activities intensified, there were corresponding outputs. This is shown in table 4.4 by the growth in facilities and staff in place and concomitant increases in commodities dispensed and services rendered.

Temporal variance is suggestive of a demographic role for the program. Stronger support is provided by corresponding input-output evidence at the client-provider level. National surveys show that women who are contacted by outreach workers are more likely to be using contraception than those who are not contacted (Sufian 1986). One study of worker coverage has shown that the prevalence of use is inversely related to walking distance from outreach workers' homes (Phillips and Koblinsky 1984) and directly related to the intensity of exchanges (Phillips and others 1993) and the quality of outreach services (Koenig, Hossain, and Whittaker 1992). Choice of method is also influenced by worker contacts (Phillips, Hossain, and Koblinsky 1989). Research thus suggests that the intensification of outreach services in the period following the 1979 hiring of FWAs may explain the concomitant increase in program outputs. No single study of input and output relationship is conclusive, but the weight of evidence strongly suggests that services are reaching the periphery and that latent demand is met when this occurs.

The implementation of strategies for mitigating contraceptive costs

The argument for program effects is further buttressed by evidence that national program efforts resemble small-scale projects that are known to have worked. Consider the typology in figure 4.4 in reference to the strategies developed over the course of the First, Second, and Third Five Year Plans.

The precise mechanisms through which program activities translate into reproductive change are, as yet, poorly understood, but it seems likely that at least four sets of strategies have been implemented, each resembling corresponding features of successful small-scale projects:

TYPE I: STRATEGIES TO IMPROVE THE COVERAGE AND QUALITY OF STATIC SERVICES.

- *Clinical services and back-up.* A system of clinics now blankets the country at convenient locations. Most couples live within five miles of a service point where long-acting contraceptives are offered at no cost and where contraceptive side effects can be treated by trained paramedics.
- *Surgical contraception.* Sterilization services are offered in every subdistrict hospital in Bangladesh by medical officers trained to provide vasectomies and tubectomies free of charge.
- *Ancillary health services.* Efforts to extend child immunization services to rural households have been linked to family planning outreach activities. Successful health outreach services have contributed to the credibility of family planning. Clinical support for family planning is offered by paramedics who also provide basic maternal and child health services. Although much needs to be done to improve the quality of such services, basic health care for women and children is closely linked with the availability of family planning.
- *Accessible nonclinical supply sources.* Nearly all pharmaceutical outlets in Bangladesh are supplied with low-cost subsidized contraceptives. Contraceptives are widely advertised and conveniently available at low cost in every locality. Recent

Table 4.4 National-level appraisal of family planning inputs and outputs

Year	<i>Facilities implemented</i>		<i>Field workers in place</i>			<i>Methods provided</i>				
	<i>THC</i>	<i>FWC</i>	<i>FWV in place</i>	<i>FPA</i>	<i>FWA</i>	<i>Sterilization^b</i>	<i>IUD^b</i>	<i>Injectable^b</i>	<i>Pill (cycles)</i>	<i>Condom (dozens)</i>
1975	147	—	425	122 ^a	122 ^a	—	—	—	—	—
1975-76	151	28	546	1,444	3,639	49	78	2	5,943	4,562
1976-77	179	52	698	2,521	6,418	116	59	3	4,639	2,938
1977-78	253	78	855	4,388	11,347	77	41	5	7,487	5,447
1978-79	275	113	1,019	4,241	12,234	106	23	11	7,121	4,795
1979-80	275	278	1,300	3,948	12,185	199	22	26	6,228	4,907
1980-81	275	452	1,994	3,932	12,128	259	42	112	8,138	7,259
1981-82	312	618	2,547	3,924	12,076	303	84	81	7,751	7,769
1982-83	319	905	2,981	3,908	12,013	363	118	73	8,258	9,735
1983-84	344	1,083	3,404	3,892	11,963	552	303	122	9,726	10,925
1984-85	346	1,365	3,850	3,886	11,952	492	432	166	11,553	12,662
1985-86	352	1,648	3,948	3,875	11,925	268	368	216	12,137	11,326
1986-87	361	1,923	4,024	3,875	12,583	351	420	315	15,023	12,436
1987-88	364	2,069	4,046	3,875	16,101	196	379	389	19,100	13,872
1988-89	364	2,214	4,046	3,875	18,199	231	362	599	24,620	15,165
1989-90	364	2,354	4,046	3,875	21,155	225	366	126	34,346	16,502

— Not available.

a. A team of one male and one female motivator per union were recruited in 1973 in 35 thanas under 5 districts. These motivators were subsequently absorbed as FPAs and FWAs. b. in thousands.

Note: THC, Thana Health Complex; FWC, Family Welfare Center; FWV, Family Welfare Visitor; FPA, Family Planning Assistant; FWA, Family Welfare Assistant.

decisions to encourage private voluntary agencies to expand services in rural areas have increased service accessibility.

TYPE II: STRATEGIES TO IMPROVE AWARENESS AND MOTIVATION.

- *Mass media communication.* Owing to extensive publicity, program outreach, and mass communication, knowledge of contraception is virtually universal. Young women learn of contraception before marriage. Family planning is openly discussed in the public media, supplanting traditional conservatism about interpersonal communication on this issue.

- *Focused programs in awareness and consensus building.* Sectoral ministries have been involved in communications and consensus-building programs. Most important among these have been efforts to orient religious leaders and promote understanding and exchange between the program and Islamic organizations.

TYPE III: STRATEGIES TO FOSTER VILLAGE-BASED AND HOUSEHOLD SERVICES.

- *Outreach by government workers.* A large cadre of female workers has been hired, trained, and equipped to deliver family planning services to couples in their homes. This strategy addresses the problem that village women are often not allowed by their husbands to travel from their village to receive health or family planning care. Although problems have been noted with this outreach system (BRAC 1990; Koblinsky and others 1984, 1987, 1989; Miah and Reynolds 1988), 40 percent of all women are visited by such workers quarterly and nearly all women have been reached at least once in their homes.³⁰

- *Outreach by nongovernmental service agencies.* Restrictions on the role of NGOs have been relaxed in recent years, and NGOs have rapidly proliferated. Until 1985, service NGOs were restricted to activities in cities and large towns, and external resources for NGOs were channeled through the External Resources Division of the Ministry of Finance. New policies permit NGOs to seek external funds directly, and six agencies were sponsored by USAID to expand operations into rural areas. In all, 90 projects were supported by this arrangement, covering 350 field sites throughout the country. Although the full contribution of the program to the national effort is unknown, it is generally believed that NGO expansion has had a major impact on the availability and quality of family planning services.³¹

TYPE IV: STRATEGIES TO FOSTER COMMUNITY DEVELOPMENT AND DEMAND GENERATION.

- *Scaled-up operations of special projects.* Much has been written about the rationale for measures to generate demand for service through community action and women's development programs in Bangladeshi villages (see, for example, Abed and others 1984; Ashaduzzaman and Rahman 1986; Ali and Islam 1985; Ghani, Ashaduzzaman, and Nessa 1990; Hartmann and Standing 1985). The Swanirvar Project is a long-standing and large-scale effort to extend credit to rural households. While this effort has demonstrated success, its impact has been achieved primarily through demand fulfillment rather than demand generation (Howlader 1990; Alauddin, Sorcar, and Ali 1984). Various studies have shown,

Table 4.5 Strategic responses to objective and subjective costs of contraceptive information and supplies

<i>Type of cost</i>	<i>Manifestations of cost in Bangladesh</i>	<i>References</i>	<i>Strategic response</i>	<i>Studies on means of mitigating costs of contraception</i>
Objective costs				
Monetary	Extreme and pervasive poverty	Maloney 1986; Jansen 1987; Alamgir 1976; Van Schendel 1981	Compensation and referral fees for long-acting methods; free supplies for reversible methods; subsidized commercial sales.	Cleland and Mauldin 1991; Davies, Mitra, and Schellstede 1987
Time	Geographic isolation, high travel costs	Farouk and Ali 1977; Ahmad 1968	Convenient clinics (THC&FWC renovation. H&FWC construction; convenient social marketing outlets; outreach services.	Davies, Mitra, and Schellstede 1987; Phillips and others 1993; Kamal, Khan, and Ahmed 1989b; Rahman, Mahmud, and Haque 1988
Subjective costs				
Perceived service accessibility	Purdah constrains travel and reproductive autonomy	Mernissi 1975	Reach women with services that extend beyond the provision of supplies with social and psychological support for contraceptive behavior: "helpers' fees."	Simmons, Phillips, and Rahman 1984; Simmons and others 1988
Perceived constraints on choice	Limited access to supply points		Offer multiple methods at convenient locations; facilitate method switching and free choice through outreach, and other clinical services for all methods.	Phillips, Hossain, and Koblinsky 1989

Note: THC, Thana Health Complex; FWC, Family Welfare Center; H&FWC, Health and Family Welfare Center.

however, that programs targeted on women's improvement can have pronounced fertility effects if family planning services are combined with development activities (Mabud 1990; Adnan 1988; Chowdhury and Huda 1990). The complexity of effective multisectoral programs often militates against their use in the Bangladesh public sector, and the Type IV approach remains largely a nongovernmental effort. While the Bangladesh program is not explicitly a "beyond family planning" effort, the layering of service strategies and communication schemes and consensus building may have fostered demand for services as the climate of service availability was improved.

Program strategies for mitigating contraceptive costs

Viewed in terms of strategies to mitigate costs, the Bangladesh program is currently a very comprehensive effort. This is illustrated by the classification of Easterlin costs in tables 4.5-4.7 and corresponding strategies to mitigate their effects.

Table 4.5 illustrates strategic responses to the problems associated with objective and subjective accessibility. For procedures requiring travel—the IUD and sterilization—compensation is paid to defray travel costs and fixed service points have been expanded to improve accessibility. Services are free, or, in the case of social marketing, heavily subsidized. Even psychological costs have been addressed by the hiring and deployment of 28,000 female village outreach workers, trained and equipped to offer a range of contraceptive options to women in the home.

The Bangladesh program has implemented strategies to address social and psychological costs of contraception. This is illustrated by table 4.6. Outreach, in the Bangladesh context, provides more than supplies. It provides an important substitute for social support for contraception that is otherwise lacking (Simmons and others 1988). Outreach programs are directed toward men to address societal costs of contraception. This male-oriented outreach is sporadic and unsystematic, but together with social marketing campaigns and mass communication, it has reached a majority of married men with the message that family planning is a wise and responsible practice. This program of outreach and communication often focuses on themes and issues designed to legitimize family planning and to counter familial constraints on its practice.

To reinforce this message, key elites have been the subject of focused initiatives—religious leaders, agricultural workers, and educators. These and other activities have legitimized family planning and desensitized matters that were previously too controversial to discuss in public. This openness, together with the multiphasic implementation of the program, places services and information within reach of every household and has undoubtedly mitigated social and psychological costs of contraception.

Health costs have been addressed by direct interventions to improve the quality of services and the intensity and quality of information (table 4.7). Recent efforts to improve and expand health service components of outreach may enhance the credibility of family planning services and address subjective health costs. Considerable attention has been addressed to improving the quality of surgical

Table 4.6 Strategic responses to social and psychological costs of contraception

<i>Type of cost</i>	<i>Manifestations of cost in Bangladesh</i>	<i>References</i>	<i>Strategic response</i>	<i>Studies on means of mitigating costs of contraception</i>
Societal costs				
Discomfort with nontraditional behavior	Traditional beliefs and practices regarding childbearing	Blanchet 1984; Maloney, Aziz, and Sarkar	Design culturally appropriate information and service programs.	Phillips and others 1988, Simmons, Phillips, and Rahman 1984; Simmons and others 1988
Nonconformity with religious beliefs	Islamic conservatism	Ahmad 1974	Offer orientation courses to religious leaders; involve religious leaders in policy deliberations.	Mosleuddin and Kabir 1989
Fear of ostracism	Weak social support for contraception; the diffuse society	Arthur and McNicoll 1978; Hartmann and Boyce 1983; BRAC 1983a and 1983b	Outreach services, women's cooperatives, mothers' clubs; multisectoral and other strategies for community-focused initiatives with minimal reliance on community management or village-generated resources.	Mabud, Ali, and Rahman 1990; Phillips, Simmons, and Koblinsky 1985; Chowdhury 1990
Familial costs				
Disharmony in the extended family	Patriarchy; weak social standing of young married women; social influence of husbands and mothers-in-law.	Abdullah and Zeidenstein 1982	Outreach services by male service workers (Health Assistants and Family Planning Assistants, Agricultural Extension.	Muhuri and Rahman 1982

Spousal discord	Female dependency and subservience; potential spousal conflicts over reproductive intentions	Abdullah and Zeidenstein 1982; Papanek 1973	Outreach from female providers; communication campaigns directed toward men.	Noman 1983; Abdullah and Zeidenstein 1982; Davies, Mitra, and Schellstede 1987
Noncommunication between spouses about sex	Infrequent spousal communication	Bhatia and Newmann 1990; Davies, Mitra, and Schellstede 1987	Mass communication to desensitize families and focus on education and motivation of men.	Mitra and Kamal 1983, 1985; Mitra and Associates 1986, World Bank 1990, Ministry of Information and Broadcasting 1979
Threats to family security	Reliance on children for security and support	Cain and Mozumder 1980; Cain 1981	Provide outreach health services to women and their children; emphasize the potential health impact of interventions and the economic cost of children.	Caldwell, Reddy, and Caldwell 1986
Personal costs Psychological costs of personal control	Weak women's autonomy and low status	Hartmann and Boyce 1983	Loans targeted for women; rural credit schemes; women's cooperatives.	R. I. Rahman 1986a and 1986b; Ahmad 1983; Mabud 1990; Mabud, Ali, and Rahman 1990

(table continues on following page)

Table 4.6 (continued)

<i>Type of cost</i>	<i>Manifestations of cost in Bangladesh</i>	<i>References</i>	<i>Strategic response</i>	<i>Studies on means of mitigating costs of contraception</i>
Threats to personal role in the family	Security of the elderly and dependency of women	Aziz and Maloney 1985; Cain 1977; Chaudhury 1982	None	
Loss of enjoyment of children	Son and daughter preference	Ahmed 1981; Rahman and others 1992	None	
Threats to sexual adjustment	Condoms and oral pills are unpopular	Seaton 1985	Expand contraceptive options and choice through outreach and training; introduce home-based injectable services.	Phillips, Hossain, and Koblinsky 1989

Table 4.7 Strategic responses to health costs of contraception

<i>Type of cost</i>	<i>Manifestations of cost in Bangladesh</i>	<i>References</i>	<i>Strategic response</i>	<i>Studies on means of mitigating costs of contraception</i>
Objective health costs				
Major side effects	Poor medical services; prevalent morbidity	Rahman and others 1984; Measham and others 1981; Wasserheit and others 1989	Sterilization surveillance; BAVS training programs; continuing education.	Khan and Mia 1984
Minor side effects	Illiteracy and ignorance about contraception	Basu 1984; Stoeckel and Choudhury 1967; Women for Women 1978	Outreach counseling and follow-up; paramedical training, information, education, and communication; population education activities.	Bhatia 1981; Haider 1989
Subjective health costs				
Perceived discomfort, fear of side effects	Fear that illness is contraceptive related	Wasserheit and others 1989; Huq, Jahan and Begum 1985; Islam 1985	Organize regular follow-up; train field workers to provide advice, counseling, and paramedical support.	Bhatia 1981; Bhatia and others 1980
Fear of permanent damage to health	Fear of loss of fertility	Maloney, Aziz, and Sarkar 1981	Train field workers to provide information.	Kincaid, Messiah, and Das Gupta 1993; Nag and Duza 1988a and 1988b

(table continues on following page)

Table 4.7 (continued)

<i>Type of cost</i>	<i>Manifestations of cost in Bangladesh</i>	<i>References</i>	<i>Strategic response</i>	<i>Studies on means of mitigating costs of contraception</i>
Fear of infant death	High mortality	Chen, Rahman, and Sarder 1980	Improve MCH coverage.	Chen and others 1983
Shyness toward gynecological examination	Male dominance in the medical profession	Maloney, Aziz, and Sarkar 1981	Develop female paramedical services; expand number of female physicians.	Kincaid, Messiah, and Das Gupta 1993
Anxiety over contraceptive failure	High failure rates; problems with compliance	Akbar, Phillips, and Koenig 1991	Offer menstrual regulation as a service to women with contraceptive failure.	Dixon-Mueller 1987, 1988; Bhatia and Ruzicka 1980; Fauveau and Blanchet 1989; Begum and others 1986, 1991; Begum, Kamal, and Kamal 1987

Note: BAVS, Bangladesh Association for Voluntary Sterilization.

contraception, IUD services, and contraceptive counseling. Training programs have been intensified at all levels, including efforts to increase the number of female physicians and paramedics. A key focus of the Third and Fourth Population and Health Projects of the government of Bangladesh and the World Bank has been improving the quality and intensity of maternal and child health services and improving links between health and family planning services.

Constraints on contraceptive behavior have been the subject of considerable investigation in Bangladesh. The research record illustrates how actions of the Bangladesh program have responded to the latent demand for family planning. Of the constraints that have been noted, each has had a corresponding programmatic response, leading to a comprehensive program that contributed to the recent increase in fertility regulation and decline in marital fertility.

Conclusions

The critical characteristic of Bangladesh society that explains the impact of family planning services is the phenomenon that is termed "latent demand." We have argued in chapter 3 that this latent demand stems primarily from the longstanding mortality decline and the corresponding increase in numbers of surviving children. Other social and economic changes, such as increased monetization of the economy, greater exposure to outside influences, and a shift away from a dependence on agriculture may well have facilitated a reappraisal of desired numbers of children. Constraints on implementing reproductive preferences persist, however, creating "costs" to regulation that prevent spontaneous fertility decline. Debate about the demographic significance of family planning services has often focused on interpretations of survey data from the 1960s and 1970s. Skepticism about the existence of latent demand was grounded in the fact that stated intentions are not always reliable predictors of behavior. Thus, the demographic relevance of family planning services was doubted until the results of field experiments became available.³² There is now little reason to doubt that there is substantial demand for family planning and that supply-side approaches are having net demographic effects in rural Bangladesh.³³ This demand for family planning remains latent in the absence of contraceptive services. When localities are isolated from information and services, the prevalence of contraceptive use remains low. If services are delivered to couples in their homes, *baris*, or hamlets, contraceptive use rapidly increases. This response suggests that women have a need for family planning, but lack sufficient resources, motivation, or social support to act on these desires. Pervasive ambivalence about contraception, and social pressures mitigate against the success of family planning. But when convenient contraceptive services are offered to rural women that offer advice and address concerns about side-effects and other worries, one-third to one-half of all couples will use a method.

While this conclusion emerges most clearly from the ICDDR,B studies, other pilot projects have arrived at similar conclusions with somewhat different approaches. In general, experience from these projects demonstrates no single "best design" for a family planning program in Bangladesh. Some successful projects have used

an integrated health and family planning approach; others have emphasized the provision of contraceptive counseling and supplies but have made little attempt to address general issues of maternal and child health. Still others have worked through development programs, with family planning as part of a comprehensive package. Organizational philosophies and designs of successful projects thus differ. But most importantly, government efforts to replicate special projects have succeeded.

Although there is no single best design for family planning services in Bangladesh, there are common elements of successful projects, and these elements may have implications for policies and programs elsewhere:³⁴

- First, frequent contact between outreach workers and clients increases contraceptive use. Establishing this contact requires a management system that is oriented to the needs of rural women for regular encounters with service providers. Workers need to understand basic technical tasks, have basic management information, supervisory support, and reliable logistics. This process of contact becomes more efficient if communication outreach organizes extrafamilial discussions of family planning for women, and open exchanges about contraception and population issues among men. The *Jiggasha* initiative, and other approaches to enhancing the roles and status of women, suggests that program services can mitigate barriers to the flow of information and legitimize the open discussion of family planning.

- Second, the quality of services matters, not only because quality is an intrinsically appropriate goal, but also because elements of service quality enhance program credibility and effectiveness. In Bangladesh, the availability of follow-up, multiple methods, and ancillary health services provided by trained and caring workers contribute to the acceptability of contraception. Although acceptor targets have been emphasized, until recently, by the national service system, targets do not seem to matter if workers are supported and supervised.

- Third, strong supervision and effective outreach have been a priority of every successful project and the relatively weak supervision of government efforts may explain relative effectiveness of different approaches. Clear lines of authority delegated to supervisors, decentralized personnel decisionmaking, systems for management control, and salaries commensurate with tasks all contribute to effective implementation. When implementation places services in convenient locations, field work typically produces changes in reproductive behavior. Adapting strategies and organizational designs to social conditions contributes to success.³⁵ Family planning program communication activities undoubtedly nurture emerging demand, but outreach services have had the most important effects. A recent analysis of the 1989 BFS suggests that women who live in a village with a resident female outreach worker are 50 percent more likely to use modern contraception than other women (Kamal and Sloggett 1994). If trained and well-supervised workers visit rural households on a regular basis, and offer a range of family planning services, contraceptive use increases and fertility declines. Even when such services are readily available, however, demand is fragile, and the need for

intensive outreach and ancillary health services continues to be acute. As adoption rates increase, contraceptive failure rates and discontinuation rates increase as well. Turbulent use dynamics betray an underlying ambivalence about contraception that is sustained by social conditions even as reproductive behavior is modernizing.

Research and demonstration strongly suggest that the basic thrust of the Bangladesh program—to support the provision of convenient contraceptive care to the rural poor—has been sound. Even with the imperfect system in place, a substantial demand for services has been met, contraceptive use has increased, and fertility has declined.

This achievement is all the more impressive when weighed against the context of the Bangladesh population program, which was launched under difficult institutional circumstances. In 1972, the economy was in disarray, disrupting operations in the civil service, and capacities to mobilize political support for the program at the periphery were weak. The most basic technical tasks to be performed by the new Bangladesh family planning program faced formidable organizational constraints.

The strategy pursued was nonetheless ambitious, and key elements appear to have worked. The approach has been to try everything at once: clinical services, outreach, information and communication, demand-generation activities, health services, and more. The outreach component and subsidized sale of contraceptives, in particular, have fulfilled a critical need, but a case can be made for nearly every component of the regimen of services that has been deployed. Clinical services are important, particularly for sterilization and the IUD; outreach meets the demand for reversible methods. Several special projects have succeeded, each with unique operational designs, suggesting that no particular operational model is optimal for the Bangladesh environment. If one lesson stands out, however, it is the evidence for substantial latent demand. Services delivered to the periphery generate very substantial increases in contraceptive use, even without concomitant economic improvements or social changes that alter reproductive motives.

Some critics have argued that the Bangladesh formula for success appears to be an inelegant one: saturating the country with overlaid initiatives in a disjointed and uncoordinated fashion. But the result has been that every household is exposed to information, every village is the site of services, and nearly every woman who seeks to regulate her fertility knows how to do so and where to obtain modern contraceptives. The Bangladesh program can be faulted for its inefficiency, but the fact remains that it works despite formidable odds.

Elements of the Bangladesh experience may be illustrative of how program development should proceed in constrained settings elsewhere.

The sustained commitment of various governments has been crucial to the success of the program. Every officer of every ministry in the public sector is oriented to the importance of family planning. Widespread awareness and commitment reassures workers at the periphery that concerted action has the general support of their government, and that honest efforts will not be met with controversy or political difficulty.

Research has also played a critical role. Careful trial and development of a system of service delivery at the periphery can focus strategic planning on what works. Pilot projects and research have been instrumental in developing the Bangladesh programs.

Donor and government flexibility have fostered the creative utilization of research. Where institutional capacities are weak, flexibility and leadership is required, but sustained donor commitments are also vital and have provided time for the government of Bangladesh and NGOs to phase in initiatives and develop effective operations. Mechanisms established for coordinating donor activities have also proven to be critical to maintaining support and streamlining donor dialogue.

The relative contributions of different program activities to reproductive change are, as yet, incompletely understood, but it seems likely that at least six of the elements of the Bangladesh service delivery strategy have been crucial to the success achieved to date:

- *Communication.* Owing to extensive publicity, program outreach, and mass communication, knowledge of contraception is virtually universal. Young women learn of contraception before marriage. Family planning is openly discussed in the public media, undermining traditional conservatism about interpersonal communication on this issue.³⁶

- *Outreach.* A cadre of nearly 24,000 female workers has been hired, trained, and equipped to deliver family planning services to couples in their homes. To address the social isolation of village women, outreach workers are instructed to visit households and provide women with basic family planning services in their homes.³⁷ Various studies suggest efforts to make services accessible in Bangladesh are critically important to the impact of the program. Because of the social restrictions that *purdah* imposes on rural women, most women are not free to travel to fixed service points, even for primary health care. In the absence of outreach, demand for family planning can be substantial, and contraceptive use minimal, even if clinical services are readily available. For this reason, outreach has played a particularly crucial role in the Bangladesh family planning program (Simmons, Phillips, and Rahman 1984; Simmons and others 1988).

- *Clinical back-up.* A system of maternal and child health clinics now blankets the country and serves as primary care facilities for intrauterine device insertion, side-effect treatment, and basic family planning ancillary health care. Basic ambulatory services are also offered.³⁸ At each clinic, long-acting contraceptives are offered and ancillary health care is provided at no cost. Although there are extensive operational deficiencies of the clinical program, and considerable room if left for improvement in the quality of care,³⁹ there is little doubt that the clinical system has contributed to the increase in contraceptive use.⁴⁰

- *Accessible nonclinical supply sources.* Nearly all pharmaceutical outlets in Bangladesh are supplied with low cost, subsidized contraceptives. Contraceptives are widely advertised and conveniently available at low cost in every locality of Bangladesh. Recent decisions to encourage private voluntary agencies to expand services in rural areas have increased service accessibility.⁴¹

- *Surgical contraception.* Sterilization services are offered in every subdistrict hospital in Bangladesh by medical officers trained to provide vasectomies and tubectomies to clients free of charge.⁴²
- *Ancillary health services.* Efforts to extend child immunization services to rural households have been linked to family planning outreach activities. Successful health outreach services have contributed to the credibility of family planning.⁴³
- *Services provided by NGOs.* Originally organized as a public sector program, the population program in Bangladesh is increasingly a collaborative effort involving NGOs. By 1990, 120 NGOs were involved in providing family planning services. Although estimates are undoubtedly subject to error, it is estimated that approximately 20 percent of all modern method users are supplied by NGOs (USAID 1991). The proliferation of NGOs, and the services provided by them, has been facilitated by the decision to permit them to provide services in rural areas, and to receive foreign aid funds for such activities.

In a setting where contraceptive knowledge is now universal, supply points are ubiquitous, and a desire for small families is widespread, why is such a complex and expensive program necessary? First, it is likely that the desire for small families is offset by enduring high fertility norms and values that confront individuals with mixed messages about the value and importance of children. In such circumstances, the addition of an additional child may be greeted with indifference; the control of fertility may be fraught with considerable fatalism and disinterest. Demand for family planning is fragile as a consequence. Second, the social, psychological and monetary costs of contraception can be unacceptably high even if the desire for small families is widespread. Bangladesh remains a traditional, conservative, and largely Islamic society, where openness about contraception does not naturally arise and where birth control remains an alien concept. Third, the custom of female seclusion severely constrains women from attending clinics or implementing their reproductive goals. An active family planning program extends logistical and psychological support for fertility regulation that does not otherwise arise.

Notes

1. Latent demand is a term used to characterize survey findings suggesting a gap between desires to regulate fertility and the actual practice of contraception. Often employed without reference to any framework or theory, the latent demand concept has long been the subject of considerable controversy (Ravenholt and Chao 1974; Blake and Das Gupta 1975). Bangladesh has been central to this debate. Survey research suggests that the "KAP gap" is pronounced. Contraceptive prevalence, until recently, has been low despite three decades of policies aimed at promoting family planning (see Demeny 1975). Longitudinal studies in Bangladesh show that stated preferences predict subsequent use (Bhatia 1982; Chowdhury and Phillips 1989; Chowdhury, Phillips, and Rahman 1985), suggesting that latent demand, as measured by surveys, corresponds to actual demand for contraception.

2. Survey responses are subject to varying interpretations. Some analysts argue that differentials provide prima facie evidence of latent demand (Lightbourne 1985). Others argue that the KAP gap is an artifact of the definitions employed (Westoff 1988). This perspective is also the subject of debate (Bongaarts 1991).

3. In the 1970s, deliberations were marred by inconclusive debate and contradictory recommendations (see, for example, Demeny 1975; Khaleque, Islam, and Khan 1975). See also, Robinson 1985.

4. Survey research shows, for example, that religion has no effect on demand for children or unmet need for contraception (Mitra and Pebley 1982; Khuda and Howlader 1986a), but religious concerns represent important reasons for nonuse (Khuda and Howlader 1986b).

5. The experiment utilized a two-celled factorial design in which half of the Matlab area was designated a "treatment area" and half was designated a "comparison area." Demographic surveillance and quarterly contraceptive prevalence surveys were used to gauge impact. Treatment areas were provided with household contraceptive services for a period of two years (see Huber and Khan 1979; Rahman and others 1980; Stinson and others 1982).

6. Injections must be given at 90-day intervals by workers who must walk from house to house. Experience has shown, however, that as prevalence increases, so does the amount of duplication in territory covered. Moreover, the density of women due for an injection at any time declines, increasing the travel time and workload accordingly. Reaching all women at the appropriate time raises the demands on workers and requires a more intensive workcycle than was possible in the CDP operational plan.

7. Domiciliary family planning services were provided in fortnightly household visits rather than the relatively infrequent rounds of the CDP visitation scheme. The intensive regimen of outreach was supported by an administrative and technical hierarchy designed to enhance service quality and intensity. Female paramedics were assigned to community-donated clinics in clusters of 20 villages, and paramedics were trained to deal with minor maternal and child health problems and family planning service needs. A female physician visited each rural clinic in preannounced fortnightly rounds to insure backup and continuous paramedical training. A cadre of male supervisors was assigned to clusters of villages corresponding to the clinic catchment areas. In each cluster, a supervisor conducted routine village visits to support female workers in their discussions with leaders, husbands, or households with special service problems. Overall service and research work was coordinated by a male field manager and technical work was directed by the physician.

8. In a careful analysis of survey data from Matlab, DeGraff (1991) subjected the Easterlin model to a formal test. The analysis showed that the predominant effect of the Matlab experiment was to mitigate psychic and resource costs. Social disapproval is the most important obstacle to contraceptive use in Matlab, and program support for contraception offset this constraint. Although the experiment had no apparent impact on reproductive preferences, project activities had an effect on demand for spacing methods. In comparison areas, respondents viewed family planning as a means to terminate fertility; whereas, in treatment areas, respondents had much more sophisticated ideas about the role of various methods and the use of family planning for spacing. Thus, effective service delivery has an impact by supply-side effects on costs and by demand-side effects of introducing ideational change. Without altering the demand for children, the experiment had a major impact on the demand for family planning and constraints on contraceptive use (see also, Koenig and others 1992).

9. Considerable discussion has been directed to whether Matlab has been "contaminated" by the field presence of the ICDDR,B in the locality (see, for example, Thomas 1991). The most obvious distinction between Matlab and surrounding areas is the legacy of special health services and research in the area. Beginning in 1966 the area was the site of successive vaccine trials. All were externally funded, carefully organized, and directed by well-trained and highly paid specialists. A remarkably tight system of field work developed in which diarrheal disease morbidity could be monitored and major field studies requiring sophisticated logistics and supervisory support could be fielded at short notice. When the FPHSP was launched a large team of skilled supervisors was available who knew the locality and were known by scientific staff to be able and dedicated workers. This has obviously "contaminated" the supply-side: Matlab has unusual supervisory and administrative capabilities for implementing complex field programs. There is no evidence, however, that contamination has affected demand for family planning in the area. Patterns of reproductive preferences in Matlab comparison areas closely correspond to patterns observed in the neighboring subdistricts of Munshiganj Division (Phillips and others 1984a). Demographic dynamics in Matlab comparison areas are similar to circumstances observed elsewhere in Bangladesh (see Menken and Phillips 1990).

10. Previously known as the Ministry of Health and Family Planning and prior to that as the Ministry of Health and Population Control.

11. The key barrier to transfer of Matlab strategies was the staff composition of government operations. In Matlab, 20 female workers serve a union along with one female paramedic and one male supervisor. Government operations have 5 times as many workers but one-sixth the density of female workers. Without female workers to rely upon, the Matlab outreach system, particularly for injectable services, could not be replicated (Phillips, Koblinsky, and Huque 1987; Phillips and others 1987 and 1989; Phillips and others 1988; Huque and others 1984).

12. A closely analogous argument has related the importance of the quality of care in the design of programs (Jain, Bruce, and Kumar 1992).

13. The Appendix presents a detailed discussion of these special projects (see Allen and Khuda 1992).

14. See, for example, reviews of the success of NGOs by Chowdhury 1990; Alauddin and Khan 1983; Alauddin, Sorcer, and Rahman 1987). Analyses of the Matlab management system in Bhatia 1981; Phillips and others 1988; and Rahman 1981 stress the role of management information, staff meetings, and supervisory social support for workers in maintaining operational integrity of the program (Phillips, Simmons, and Koblinsky 1985).

15. In recent years, a growing spirit of experimentation has introduced flexibility in government-sponsored programs (see, for example, Yunus and others 1984). This is best exemplified by the organizational development activities of the Maternal and Child Health and Family Planning Extension Project (Phillips and others 1984b; Phillips, Koblinsky, and Huque 1987; Phillips and others 1987), but has also involved other NGO-sponsored efforts to change public sector operations (see, for example, Management Development Unit 1990). Government-NGO collaboration has produced new approaches to management information (Choudhuri, Ahmed, and Ali 1988; Choudhuri and others 1988), supervision, worker recruitment (Hussain and others 1991), training, and deployment schemes (Allen and Khuda 1992).

16. Reviews of special projects often focus on their unique management capabilities. Attributes that have garnered attention are reviewed the Appendix.

17. The Trishal Project is also referred to as the Jiggasha Approach. In Bangla, *Jiggasha* means "to inquire." (see Kincaid and others 1993.)

18. See Kamal and Chowdhury 1992; Hossain 1988; Mahmud 1990; R. I. Rahman 1986b; Schuler, Meekers, and Hashemi 1992; Amin and Pebley 1990.

19. The Bangladesh Rural Advancement Committee (BRAC) organizes women's development initiatives. Although family planning is not formally incorporated in the scheme, women's empowerment enhances the efficacy of FWA outreach. (see Schuler, Meekers, and Hashemi 1992; Hashemi and Schuler 1993.) The very different organizational and service approach of the Save the Children Federation has similar effects: creating networks enables women to implement their reproductive intentions; women isolated from such services are constrained in their practice of family planning (Allen and Khuda 1990).

20. Among the more comprehensive reviews are the studies by Chauls, Ryder, and Zaman 1984; P and M Consultants 1977; and Korten 1975. Various appraisals of the World Bank's population projects review management issues and organizational structure and impact (see, for example, World Bank 1975 and 1990). Management studies commissioned by the government of Bangladesh more typically focus on the effectiveness of component strategies (Mabud 1989 and 1990; Mabud, Ali, and Rahman 1990). Brief histories of the family planning program in Bangladesh have been published by UNESCAP (1981) and the UNFPA (Choudhuri and Akhter 1990).

21. Most analysts view the period following 1965 as the only phase in which a credible effort was launched. Some argue that family planning services were, for all practical purposes, nonexistent in rural East Pakistan until 1966 (Adil 1966).

22. A useful review of the history of family planning efforts in East Pakistan and its impact on the Bangladesh program appears in Duza 1985. Early concerns about the consequences of rapid population growth are summarized in an influential article by Khan (1973). Findings from the 1969 National Impact Survey are reported in Sirageldin, Norris, and Ahmad 1975; Sirageldin, Hossain, and Cain 1975.

23. Despite the problems noted, the 1965-70 Pakistan Family Planning Program was a much heralded effort at that time (see, for example, Adil 1968). Descriptions of the plans for that program include a network of clinics, communication, and outreach that resembles current operations. Incentives, political statements, worker recruitment, and other initiatives signaled a bold commitment to the effort. In fact, little in this service regimen actually occurred with the rigor implied by official statements.

24. Although the program had no demographic impact, it did have some effect on contraceptive knowledge. It is unclear, however, whether stated knowledge in surveys corresponded to a well-defined understanding of how contraception is practiced (Sirageldin, Norris, and Ahmad 1975).

25. Much debated at the time was the future role of staff from the Pakistan program. Senior planners pressed for fundamental strategic and organizational change, arguing that past efforts had failed and the revolutionary regime had a mandate to start afresh. Senior civil servants, with considerable support from the donor community, argued that the urgency of the situation required rapid implementation of the existing program.

26. An influential conference in the immediate post-independence period focused on projections and consequences (Bangladesh, People's Republic of, 1972). Although drastic action was called for, there was little attention to what that entailed in practical operational terms. Discussion was dominated by debate on alternative administrative structure of the program and whether family planning should be integrated into health, rather than on designs for field trials that would resolve controversy.

27. See, for example, Freedman 1987. Various units were established for research, such as the East Pakistan Research and Evaluation Center, the Central Evaluation Unit, and the Academy for Rural Development at Comilla. Nonetheless, research was viewed as a means of assessing impact rather than a resource for guiding operational planning. The important rural experiments of the Comilla Academy had no appreciable effect on policy.

28. This policy was pursued in all sectors of the civil service and was not limited to population.

29. Official documents stated that the population of Bangladesh should not exceed 150 million in order to maintain the sheer ecological viability of the country (Ministry of Planning 1975).

30. Research has demonstrated that contraceptive use clusters in the vicinity of workers' homes (Phillips and Koblinsky 1984). One study of CPS data shows that the odds of contraceptive use are elevated by 50 percent among respondents who live in a village where FWA are also residing (Kamal 1993).

31. The U. S. Agency for International Development estimates that in 1986 about 22 percent of the active users nationwide received services provided by NGOs. No reliable statistics are available on the net contribution of this program, although the impact of the private sector is generally believed to be growing (USAID 1991; Allen and Khuda 1992).

32. Several projects have had careful research and monitoring, and at least one study has incorporated an experimental design and demographic monitoring. See the reviews by Chowdhury and Huda 1990; Alauddin and Khan 1983; Choudhuri and Akhter 1990; Phillips 1987. Studies suggest that simple distribution of contraception fails, however, because many couples are ambivalent about contraception, and a support system is required that addresses a range of family planning needs (Rahman and others 1980).

33. See, for example, Phillips and others 1982 and 1988.

34. See for example, Nag and Duza 1988a and 1988b; Alauddin and Khan 1983.

35. Traditional gender roles require women to remain close to home and to retain familial duties even if they are hired into full-time jobs. Men will travel in their work roles, but other economic roles compete for their time. A few full-time, and well-paid male workers are more effective than a large male staff; a large part-time female workforce is more effective than a small staff of full-time female workers. Sociologically appropriate designs for supervision, management control, and information are suggested by the successful management systems of small-scale projects (see, for example, Phillips and others 1988 and 1993).

36. According to survey research, about 6 percent of all married women had heard about contraception prior to the Pakistan Third Plan in the mid-1960s. By 1969, this had increased to 52 percent, although few women knew where to obtain services. By the end of the 1970s, 94.8 percent of all women knew of at least one method (National Institute of Population Research and Training 1981). By 1983 98.6 percent knew of at least one method (Mitra and Kamal 1985). In the most recent CPS, nearly all women reported knowledge of several modern methods, where to obtain them, and what costs are involved.

37. Problems have been noted with this outreach system (see BRAC 1990). Survey responses suggest that 37 percent of all rural women are visited by female village workers in a 6-month period (Mitra and Associates 1993). Contraceptive use correlates with distance from workers' homes to clients' homes, with the frequency of encounters with workers, and with the range of services that workers can provide. Assessment of social and programmatic determinants of areal variance in contraceptive use has shown that the quality and intensity of outreach is a key determinant of contraceptive use (see Rahman 1984 and 1986; Kamal

and Sloggett 1994).

38. Staffed by a female paramedic and a medical assistant, clinics are now located in 2,716 of the 4,325 unions in Bangladesh. If the goals of the Fourth Population Project are met, more than half of all couples will live within five miles of a clinic by 1995.

39. For example, regulations stipulate that paramedics reside in the clinics they serve—a regulation that is often broken owing to security concerns or supervisory lapses (Mahbud, Ali, and Rahman 1990). There is considerable need to improve paramedical training and medical back-up, logistics support, and supervision (see, for example, BRAC 1990).

40. Owing to the large number of clinics, even with low case loads averaging about 30 clients a day, the volume of care is substantial. By 1989, 2,716 of the 4,325 unions had clinics constructed and equipped to provide services. By the end of 1995, all unions will be equipped with MCH clinics.

41. By 1989, about 40 percent of the couples practicing contraception in Bangladesh were using condoms and pills supplied through subsidized commercial sales (Mitra and Associates 1990). The success of subsidized commercial sales of contraceptives is due to the efforts of a privately owned and USAID subsidized "Social Marketing Corporation." (SMC) While not involved directly, the SMC has enjoyed full encouragement and support from the GOB for licensing, importation, and other legal needs. This collaborative effort of the GOB with the SMP is the most successful project of its kind in the world.

42. Field workers are given monthly targets for recruiting sterilization clients. Whether targets for specific methods are helpful or detrimental is the subject of considerable debate (Huq and Ahmad 1989). There is little doubt, however, that priority is placed on long acting contraception.

43. Clinical support for family planning is offered by paramedics who also provide basic maternal and child health services. Much needs to be done to improve the quality of such services. Nonetheless, basic health care facilities for women and children are closely linked to the availability of family planning.

Interpretation and Implications

We start the chapter with a recapitulation of the evidence. In chapter 2, we described the demographic facts that need to be explained. The verdict was that a major part of the large decline recorded in successive surveys is genuine and not an artifact of poor data. The decline probably started in the late 1970s and accelerated in the mid-1980s, though this acceleration was not as pronounced as the 1989 BFS data suggest. In 1975 the total fertility rate was about seven births per woman. By 1988, it had fallen to about five births per woman, equivalent to a 30 percent drop. Results of the most recent survey, conducted in 1991, reveal a continuation of the downward trend. Fertility in 1990 was almost certainly well below five births. This is a steep fall by world standards, faster for instance than ever experienced by India, and is particularly surprising in view of the modest economic and social improvements that have taken place in Bangladesh since independence in 1971.

All major socioeconomic strata have modified their reproductive behavior. The small elite—couples where the husband has a white-collar job or where the wife is well educated—have particularly low fertility, but this divergence was also true 15 years ago and merely reflects the fact that this stratum lives in a very different social and economic world from the bulk of the population. One remarkable feature of the Bangladesh fertility transition is that it has been synchronous for all large socioeconomic groups. Broadly speaking, the poor, the landless, and the illiterate have modified their reproductive behavior at the same time and to the same extent as the less poor, the landed, and the literate. Such a pervasive change is not unique. Both Indonesia and Mexico experienced something similar. But it is unusual. Much more common is a stratified and staggered decline where the habit of birth control and consequent fertility reduction diffuses down the socioeconomic strata over a period of several decades, giving rise to very large, but transient, fertility differentials.

Just as the decline in Bangladesh has affected all couples, regardless of their position in the socioeconomic structure, so it has affected all age groups, except the oldest. The oldest cohort for which we have recent data consists of women born in 1940 to 1945, whose peak years of childbearing were in the 1960s and early 1970s.

Those women recorded an average of over 7 births by the end of childbearing. Clearly, the changes of the last decade or so came too late for them. They will be the last cohort to experience such high fertility.

The youngest cohort for whom recent data are available are women born in the early 1970s, who were aged 15 to 19 years in 1988. They are less likely to be married than women of similar age in 1975: only 50 percent were married in 1989, compared to 70 percent in 1975. This trend towards later marriage has affected fertility at very young ages, but its impact is diluted by a faster pace of reproduction in the early years of marriage. Over time, the interval between marriage and first birth has shortened, and the number of children born within the first five years of marriage has increased. This is a common pattern in Asia and reflects biological rather than volitional factors. Later marriage ages imply a freedom from the restraints of adolescent subfecundity. Coital frequency within early marriage also may have increased, though there is no direct empirical evidence for such a change.

In the central age span—women aged 20 to 40 years in 1989—appreciable fertility declines are apparent. These are greater among the older age groups, and it is clear from parity progression analysis that the shift in reproduction has affected higher order births more than lower-order ones. Birth intervals have remained constant in length. These characteristics are the hallmarks of a "classic" fertility transition where family size limitation rather than prolonged spacing of births is the dominant expression of change and contraception within marriage is the dominant mechanism. Induced abortion may be a supplementary mechanism, but it is impossible to estimate with any confidence its contribution. During the period of the rise in contraceptive practice—from 8 percent prevalence in 1975 to 40 percent in 1991—breastfeeding customs have remained intact and Bangladeshi women still breastfeed for exceptionally long durations. There is some evidence that the protection against conception offered by lactation has waned, perhaps in response to earlier supplementation of breast milk. But any concern that contraception is merely replacing traditional methods of fertility restraint is unfounded.

In chapter 3, we searched for explanations of this fertility decline in terms of the changing costs and benefits of children. Many analysts, perhaps even a majority, approach this topic axiomatically. A decline in fertility must be an expression of a declining utility of children. Yet we emerged from this review almost empty handed. There is no evidence that the contribution of children to household welfare has fallen. School enrollments have not increased greatly in the last 20 years, and thus costs of childrearing and availability of children for productive work have not been transformed by this means. Paid employment for women may have increased slightly, but only a small minority of wives are engaged in cash-generating activities. Even among those who work for payment in cash or kind, the place of work is often the homestead. It is thus totally implausible to argue that the opportunity costs of children have risen in rural Bangladesh. Similarly we can discern no ways in which any risk-reducing value of sons has been eroded by the advent of alternative institutions (Robinson 1986). To be sure, Bangladesh is a society where there is a preference for sons over daughters, most vividly demonstrated by the excess mortality of daughters in childhood; but the

evidence from individual testimonies indicates there is no unbounded appetite for sons (and probably never has been). Many couples appear content to have one son, and few consciously desire more than two.

It is difficult to argue that fertility decline in Bangladesh has been driven by a process of socioeconomic development involving urbanization, mechanization, growing prosperity, and literacy. An alternative thesis of a poverty-led decline is superficially more plausible: couples may have been forced to limit their family sizes by an ever more desperate and precarious struggle for day-to-day subsistence. Poverty trends are a matter of controversy; indeed economists have as much difficulty in measuring it as demographers do in ascertaining the level of fertility. Our reading of the evidence is that no secular trend toward greater poverty has taken place. Standards of living, however, did deteriorate for many families in the 1970s following the War of Independence, and not until the 1980s did average living standards in the rural sector return to pre-independence levels. It is entirely possible that this experience, together with the trauma of the war and the 1974 famine, destabilized fertility norms and ushered in the era of decline. What can be refuted is more simple microeconomic arguments. The very poor in Bangladesh have fertility attitudes and behavior similar to the less poor. Whatever the forces of change, they must have impinged on all economic strata with equal force. A poverty-fertility link at the micro level is at odds with the evidence and can be rejected.

Despite the general stagnation in living standards, life in Bangladesh villages has not remained static over the past 20 years. Some of the changes can be charted in statistical series. Farm sizes have diminished, and many more families are now functionally landless. This trend has been accompanied by a major shift in labor force composition away from agriculture and toward a greater diversity of livelihoods. There has probably been a growth in multiple sources of income for households and a partial breakdown in traditional patron-client relationships. Economic life has become more complex, more monetized, and perhaps more volatile. Villages have become less isolated. They are now more likely to be linked to the outside world by the mass media, by motorized transport, by temporary migrants to towns and cities, and by the intrusion of a myriad of nongovernmental organizations. Though these changes have not yet brought growing prosperity, their collective impact represents an element of modernization, with unknown, but perhaps profound, effects on outlooks and expectations. It is unlikely that family planning would have flourished in the absence of all these other changes. Thus the results of our analysis should not be regarded as an emphatic rejection of demand theories of fertility decline. There is simply insufficient evidence, particularly on adult perceptions of the economics of childbearing, to justify such a claim.

Chapter 4 was devoted to a discussion of the means of fertility control. We were able to adduce from considerable positive evidence that improved access to contraception brings about a response in terms of declining fertility. The Matlab experiment is the best known and most convincing case, but there are sufficient other examples of the success of special localized efforts to improve the coverage and quality of services to be reasonably sure that the Matlab experience is not a

maverick. There is unassailable evidence that routine household visits by family planning workers have an impact on reproductive behavior that is not merely transient. At the national level also, the growth in contraceptive use and the decline in fertility coincide with the scale and nature of the effort made by the government family planning program.

In a society where knowledge of contraceptive methods and supply sources is universal and where a desire for small families appears widespread, why are such large operations required to translate these apparently favorable predispositions into appropriate behavior? Three main answers were proposed in chapter 4; probably all act synergistically. First, it is likely that the desire for small families, though genuine, is not felt with great intensity. The economic and social realities of Bangladesh may mean that the advent of a marginal extra child does not make a huge difference to many families. Thus there may still be a tolerance concerning family size outcomes that has disappeared in advanced economies. Second, there may be a residual ambivalence about the principle of birth control and its material manifestations. Such doubts are compounded by side effects of most modern methods and by stories—some true, many false—of serious illness and death caused by contraception. The third answer relates to a more practical barrier: the seclusion of women. As described in chapter 3, rural Bangladeshi women are still excluded from much of public life, and their independence of movement is severely circumscribed by the dictates of modesty and custom. A visit to a health center for treatment of a sick child or to obtain family planning supplies is a major feat of logistics and persuasion. Most women need to be accompanied by another adult, and permission is required from the husband or a senior member of the family. It is not surprising, therefore, that access is such a problem in Bangladesh and that "doorstep" services have been important.

Synthesis

In most theories of fertility decline, the main underlying cause is identified as falling demand for children, in response to economic and social change. Acceptability of and access to birth control may influence the timing and the speed of decline, but the effect of these supply-side factors is contingent upon and subordinate to the demand factors. Within this theoretical stance, the search for an understanding of fertility decline therefore must be directed primarily toward an examination of prior changes in economic or social structure that impinged upon the economics of childbearing.

The evidence for Bangladesh suggests that the relative importance and primacy of the demand and supply side factors should be reversed. The crucial change that has taken place concerns acceptability of and access to birth control and *not* structural change that has driven down the demand for children. Economic and social change, with concomitant shifts in ideas and outlook, may have been an important facilitating factor, just as contraceptive availability is seen as a facilitating factor in demand theories.

In bare outline, our explanation for fertility decline is composed of the following propositions:

- *In common with most of Asia (but unlike Africa), the inhabitants of Bangladesh have never been emphatically pronatalist.* There never was an unbridled desire or need for many children. The indications of a large latent desire for smaller families, found in the surveys of the late 1960s, were essentially correct. This latent desire may be traced to mortality declines of the preceding 50 years. At the expectation of life of 23.7 years, estimated for 1900 by Davis (1951), about six births on average were needed merely to achieve two surviving children and a stable population. By the 1960s, life expectancy was nearly 50 years and the average woman was seeing about five of her children survive to adulthood. The origin of a latent demand is obvious. The role of mortality decline has been crucial, but remote.

- *In Bangladesh, again as in many other cultures, there was hostility to and suspicion of birth control.* Part of this reaction reflects the attitude of a conservative society to any innovation, but particularly to one that goes to the heart of family life and sexuality. Part of the reaction was specifically religious in origin. Both Christianity and Islam typically present an opposition to birth control because both religions have strongly pronatalist tenets ("go forth and multiply") and because birth control appears to usurp the divine will. In the 1960s, there are numerous journalistic accounts of religious opposition to contraception; men and women, for instance, were refused burial rites because they had been sterilized. As discussed in chapter 4, the climate of opinion regarding family planning, revealed in the 1969 NIS, was hardly congenial, as only 16 percent of rural women claimed that their spouses approved of contraception. The insensitive 1965–69 family planning program did little to alleviate these concerns and collapsed as a dismal failure.

- *After the collapse of the 1965–69 family planning program, little serious effort was made to popularize birth control for six years.* The country's attention and energy was first directed to a bitter War of Independence and then to the aftermath of a major famine. In those years, fears of a Malthusian catastrophe for the country were widely expressed. The need for a policy to control the birth rate was indisputable, and the new government laid the foundations of the current family planning program. The multifaceted strategy between 1975 and 1989 has been described in chapter 4. Here we need only stress its unremitting tenacity. Gradually, the barriers to contraception—religious, ideational, social, and logistical—were reduced, and there has been a correspondingly steady increase in acceptance and use of methods. *In parallel with increased use, and the realization that childbearing need not be a matter of fate, came a re-evaluation of family size desires.* As in most Asian countries, the downward shift in desire for children accompanied rather than preceded the advent of fertility regulation and was an expression of a new freedom as much as a reflection of changing microeconomic realities. This re-evaluation of fertility desires implied that the potential market for family planning services was continually expanding throughout the late 1970s and 1980s. The unmet need for contraception actually grew, as contraceptive use itself increased—an apparent

paradox but a common finding elsewhere (e.g. Westoff 1978). A saturation point was never reached and the level of contraceptive practice continued to rise steadily and should continue to do so in the future provided that the momentum of the program is not relaxed.

This explanation has the attraction of extreme simplicity. While its validity cannot be proved, it is consistent with both the economic and demographic evidence. There are, however, a number of points that require further elaboration. The first is the crucial role of government policy in the Bangladesh fertility transition. It is instructive to compare Bangladesh and Pakistan in this regard. They were, of course, united as a single country for nearly 25 years, and they shared the common experience of the 1965–69 family planning program of President Ayub. Since the split in 1971, their demographic and population policy paths have diverged. It could be argued that Pakistan has never completely recovered from the failure of that early attempt to reduce the birth rate. Family planning policies have existed on paper, but no government has made a major commitment of its prestige or funds. Indeed, the climate of government opinion and public debate in the 1980s became more hostile in some ways to family planning, with a partial reversion to traditional Islamic values and laws. Islamic fundamentalism is a more powerful force in Pakistan than in Bangladesh, and this difference helps to account for the divergence in population policies. It is also obvious that Pakistan does not have the extremely high population densities of Bangladesh, nor did it experience the jolt of deepening poverty in the 1970s. Population control could never become the top priority that it was in Bangladesh.

Fertility in Pakistan remains persistently high at about seven births per woman. The latest national survey, conducted in 1991, shows that only 12 percent of married couples use contraception (table 5.1). There are no grounds for believing that Pakistani couples are inherently more pronatalist than Bangladeshi couples. In 1975, not only was the level of fertility almost identical but so was the mean desired family size (4.2 in Pakistan, 4.1 in Bangladesh). More recent surveys in Pakistan—the Population, Labor Force and Migration Survey of 1979–80, the Contraceptive Prevalence Survey of 1984–85, and the Demographic and Health Survey of 1991—have all shown that substantial proportions of Pakistan couples want no more children and have a large unmet need for contraception.

Economically, Pakistan has done better than Bangladesh in the past 15 years, with a much higher growth in per capita income, a larger industrial base, more modernized agriculture, and a larger urban population. Only in the more strictly social indicators—literacy, school enrollment, and child mortality—do the two countries still resemble each other.

It is not plausible to explain the persistence of high fertility in Pakistan and the decline in Bangladesh mainly in terms of differences in the utility of children. Do couples in Karachi find children a net economic asset in the short or long term in a way that Dhaka couples do not? Do wheat-growing farmers in the Punjab need larger families, whereas rice-growing farmers in the Meghna delta do not? No. A large part of the explanation lies in the difference in government attitudes and

Table 5.1 Bangladesh and Pakistan compared

	<i>Bangladesh</i>	<i>Pakistan</i>
Economic and social factors		
Per capita GNP (U.S. dollars)		
1975	110	150
1985	150	286
Percent adult literacy 1980	26	26
Percent urban 1980	18	29
Infant mortality (per 1,000) 1975	145	136
Fertility-related factors		
Total fertility rate		
1975	7.0	7.0
1988	5.0	6.5
Mean desired family size		
1975	4.1	4.2
1991	2.9	4.1
Percent of contraceptive use		
1975	4	5
1989-91	40	12

policies and in the underlying factors that shape those policies. In Bangladesh, the "population problem" took a highly visible form, and the economic deterioration of the 1970s left the government little choice but to address it seriously. The lack of an entrenched religious opposition facilitated the development of family planning services and associated publicity. In Pakistan, the case for population control was less pressing and religious opposition more of a force. Governments could and did vacillate on the issue, with the result that the barriers to birth control still remain.

The central role that we see for government policy and programs in the fertility decline of Bangladesh is not intended to reflect any universal truth. There are plenty of instances where contraception has flourished and fertility fallen against a background of government indifference or hostility. There are many paths from high to low fertility, and we are attempting a specific explanation of fertility transition in one country rather than a general theory.

It will not have escaped attention that our interpretation of fertility decline in Bangladesh makes little reference to broader social and economic changes that may have altered attitudes to family size or to family planning. Between the 1960s and the 1970s, did Bangladeshi society undergo changes that affected not only government policy but also the readiness of the mass of the population to reduce their fertility?

A negative answer to this question implies that well-designed family planning services publicity would have worked as effectively in the 1960s, or even the late 1950s, as they appear to have done in the late 1970s and thereafter. In other words, a Matlab-type experiment would have succeeded ten or even twenty years earlier.

The answer is bound to be speculative. An initial consideration suggests that there was a crucial disjuncture between the 1960s and the following decade. After all, the family planning program of the 1960s was a failure, and special projects of that era, such as that organized by the Bangladesh Academy for Rural Development in Comilla, also failed. By contrast, in 1975, when ICDDR,B started a simple contraceptive distribution service, using *dais* to distribute condoms and pills, there was an immediate response. The level of use rose initially to 18 percent of the population covered by the scheme before falling to 12 percent as side effects took their toll. The scheme is typically castigated as yet another failure, but the most remarkable feature is that such a simple approach made such an impact. Judged by the experience of the 1960s, it might be regarded as a brilliant success.

The obvious explanation of this sequence of events is that some profound change occurred in Bangladesh in the early 1970s. The War of Independence and the famine of 1975 may have intensified the hitherto ambivalent and latent desire for smaller families, or religious conservatism may have been eroded by the radical experience of war. To the extent that this scenario is valid, an interpretation of fertility decline in Bangladesh based solely on the impact of government policies and programs is inadequate. A change in the outlook of the people, perhaps encompassing demand factors, was a prerequisite for the success of the family planning program in the late 1970s and 1980s.

There is an equally plausible alternative explanation, namely that the 1965-69 family planning program, far from being a serious attempt to popularize contraception that failed because of indifference or lack of need, was counterproductive. The program itself was largely driven by financial incentives—to a far greater extent than the 1975 program. There was much corruption, and little attempt was made to provide any back-up services for the treatment of side effects. Efforts to win the support of local secular and religious leaders were minimal. The advent of such a program, on a mass scale, in a population where the alien idea of contraception was bound to be greeted with suspicion, may have served to deepen this suspicion rather than dispel it. Perhaps the simple house-to-house delivery approach would have worked in the 1960s. Regrettably, we shall never know the truth of the matter.

The emphasis in our explanation on cultural rather than economic change makes sense of the strong regional contrast in fertility and related behavior. Table 5.2 compares women in the high-fertility Chittagong division with the rest of the country. For all but one of these indicators, there is a statistically significant difference, but the magnitudes of the differences vary greatly. Economically, households in Chittagong are slightly more affluent, and husbands are more likely to have white-collar occupations and less likely to work in agriculture. This compositional difference surely should favor rather than impede fertility decline.

In terms of family planning program coverage, Chittagong is less well served. Fewer women there have been visited by a field worker in the last three months

Table 5.2 Comparison of residents of Chittagong division with those of other divisions, 1989 BFS

	<i>Chittagong</i>	<i>Other Divisions</i>
<i>Economic</i>		
Percent urban	6	8
Percent husbands in white-collar	13	9
Percent husbands in agriculture	38	51
Mean household possessions score	3.5	3.1
<i>Social</i>		
Percent women with some schooling	34	30
Percent women ever worked for payment	8	16
Percent Hindu	8	16
Percent pray daily	59	35
Percent practice religion "more strictly"	27	18
<i>Program-related</i>		
Percent ever visited family welfare center	21	20
Percent visited by worker in last 3 months	39	47
Percent know family planning or health worker	47	57
<i>Attitudinal</i>		
Percent husbands favor family planning	58	77
Percent family members favor family planning	43	67
Percent friends, neighbors favor family planning	40	62

and fewer know of such a worker than in other parts of the country. However, the contrast is not large, and it is not convincing to attribute the regional differential in fertility solely to this factor.

In terms of social characteristics there are some strikingly large differences. While married women in Chittagong division are as well educated as elsewhere, they are much less likely to have worked for payment. In terms of self-reported religiosity, the regional divergence is very large. Attitudes toward family planning are much less positive in Chittagong and, as was shown in chapter 2, family size preferences are somewhat larger.

The overall impression is that Chittagong is rather advanced economically compared to the rest of the country but in social terms is more conservative. This diagnosis accords with common belief and casual observation. The east of the country is generally considered to be more conservative, and the origin of this distinction probably lies in an earlier and more pervasive Islamic penetration

through the port of Chittagong. To conclude, it is much more plausible to suggest that fertility has declined more slowly in Chittagong because of a greater cultural resistance to birth control than to claim that economic factors favor larger families in this part of the country than in the other three divisions.

Also consistent with our general explanation are the results of one of the few detailed sociological studies of fertility-related behavior (M. Rahman 1986). Rahman studied the spread of contraception within Matlab at various levels: the village; the block covered by a family planning worker; and the *bari*. He found little evidence that the development level of the village was related to fertility behavior. The characteristics of the family planning worker, however, were important determinants. If she was affiliated with an influential clan (*Sama*), for instance, acceptance of contraception tended to be high.

The most interesting finding concerned the link between the nature of the *bari* head and, propensity for other family members to use contraception. High use was recorded in *baris* where the head was a modern leader—for instance, a union council member. Intermediate levels were found in *baris* where the head was a more traditional leader (*matabbar*) and the lowest where the *bari* head was a religious leader (*imam, moulvi, hazi*). Once again, it appears that the spread of contraception in Bangladesh, and in its wake, lower fertility, follows cultural rather than economic contours.

We have attempted in this study to account for the onset and early stages of fertility decline. We have found it unnecessary and indeed implausible to invoke economic change and shifts in the utility of children as the central determinant. However, it remains entirely possible that economic change will be an essential precondition for a drop in fertility to replacement levels of about 2.5 births per woman. In other words, the factors that determine the onset of decline and the advent of reproductive choice may be different from those that determine the achievement of replacement-level fertility.

Implications

Prospects for further fertility decline

Before attempting to identify future policy priorities, it is essential to appraise the prospects for future declines in fertility under current socioeconomic conditions. The fear is widely expressed that further reduction will be more difficult to achieve than in the past. The basic idea here is that a large proportion of the unwanted or surplus births has already been eliminated, leaving a bedrock of children who are both desired and needed. If this is so, severe resistance to further falls in fertility can be expected. From this perspective, it is argued that a greater emphasis is now needed on measures to reduce the demand for children.

The view that fertility transition may proceed in two phases—an initial phase where unwanted childbearing is reduced and a second phase where socioeconomic change drives down the demand for children—is intuitively appealing. But what is the evidence that Bangladesh is now approaching the end of the first phase? To the

extent that we can rely upon the testimony of the actors themselves, there is little justification for such pessimism. In the 1989 BFS, 25 percent of all women claimed that they wanted no more children prior to the conception of their last child. As implied in figures 2.11 and 2.12, this difficult retrospective question appears to have been understood by the majority of respondents. An almost identical indication of surplus fertility is provided by a comparison of total desired family size and current number of living children. Nearly one-quarter (23 percent) of all women stated a desired size that was smaller than their achieved size. The corresponding figure from the 1975 BFS was only 11 percent, raising the possibility that unwanted fertility, far from declining in magnitude over the last 15 years, has actually increased.

These survey results suggest that there is still a large, unfilled potential demand for fertility regulation. More direct measures of unmet demand or need are available and lead us to the same conclusion. In the 1989 BFS, 31 percent of all currently married women said that they wanted no more children but were using no method of contraception. If we include in the estimate nonusers who want to delay the next child for at least two years, the level of unmet need rises to 45 percent. Of course, some of these women are pregnant or in a state of lactational amenorrhea and thus not exposed to the risk of conception at the time that they were interviewed. But even after allowance for alternative forms of "protection," one-quarter of all currently married women in 1989 may be classified as being in need of contraception for family limitation. Under the idealistic assumption that all unmet need could be fulfilled, contraceptive use would rise to a level of about 60 percent and fertility would fall to the range of 3.0 to 3.5 births per woman.

The impression that there is still scope for substantial fertility decline can be buttressed further by considering the achievements of special programs. As discussed in chapter 4, the best known example is the ICDDR,B intervention in the Matlab treatment area. In 1990, the level of contraceptive use in this study population was 60 percent and the total fertility rate was 3.5. Certainly, the intensity and quality of services offered here far exceed what could ever be achieved throughout the whole country. Nevertheless, the intellectual point is beyond dispute: fertility can be further lowered in rural Bangladesh with a high-quality service.¹

In conclusion, we can say that improvements in information, education, and motivation (IEM) efforts and in service outreach and quality are needed for the family planning program in Bangladesh to consolidate and improve upon the gains of the 1980s. According to successive Contraceptive Prevalence Surveys (CPS), the population is far from receiving the benefit of adequate domiciliary family planning service. The percentage of currently married women who reported a household visit by a family planning worker within the preceding six months has fluctuated from 25 to 36 percent between 1983 and 1991. One obvious target in coming years would be to raise this proportion, by improvements in efficiency, further increases in the number of workers, or both.

These survey results on field worker visitations suggest that coverage of services is very uneven. The existence of sharp local variations in the level of

contraceptive use leads to the same general conclusion. It will be recalled that much of the overall rise in contraceptive practice in the Matlab treatment area during the 1980s took the form of a "catching-up" by laggardly localities which had hitherto been poorly served or whose members were conservative in outlook. The same trend should be encouraged for the whole country by better management of services at local levels.

While our prognosis for further fertility decline in Bangladesh is rather favorable, it should be stressed that any deterioration in family planning services or funding might have catastrophic consequences. The achievements thus far are program dependent and we have argued that demand for services is still fragile. There is no evidence to suggest that Bangladesh has reached the stage where large-scale reduction in public sector investment can be made without running the risk of a rise in unwelcome pregnancies. This consideration raises the important issue of sustainability, to which we now turn.

Toward greater sustainability

While the prescribed priority for the immediate future is essentially improved outreach and quality of services and better planned and coordinated IEM efforts, the issue of sustainability will have to be addressed as the decade progresses. The proportion of the total development budget allocated to family planning is still modest. For instance in the Fourth Development Plan (1991-95), the share amounts to only 4.5 percent (Ministry of Planning 1991). Nevertheless, in absolute terms, funding for family planning has increased sharply from 900 million taka in the First Plan to 17,100 million taka (equivalent to about US\$430 million) in the Fourth Plan period. Moreover, about three-quarters of total expenditure on family planning is expected to come from foreign donors in the current plan period. The Bangladesh family planning program is thus extremely vulnerable to the vagaries of international support.

If the present pattern of family planning provision continues unchanged, costs will be forced up by the ever-increasing size of the potential clientele² and the number of actual users.³ In the medium term, the search for the most cost-effective delivery of services will become urgent. The main possibilities are to find cheaper service delivery modes, cheaper methods, and/or a greater degree of cost recovery from clients.⁴ We briefly examine these possibilities in turn.

SERVICE DELIVERY. The Bangladesh program, we have said, is comprised of a network of clinics, a program of outreach in surrounding villages, and communication campaigns designed to promote services. Improvements in the efficiency of the program must focus on these key elements.

Studies of the clinical system have shown that caseloads are low, that service quality is poor, and that clinical coverage is inadequate in areas where facilities are not yet constructed. Although clinics are much wanted by the communities served, choice of construction sites, maintenance, and supervision remain highly centralized. Accountability suffers, implementation lags, and inefficiencies abound. The

decision to add medical assistants to clinic staff has created a new cadre of male workers without resolving the major constraints on maternal and child health service delivery, such as the availability of pharmaceuticals, the need for security for resident female staff, and the need for flexible funds for maintenance and other operations. The high staff cost of the clinic scheme and its obvious operational inefficiency suggest that strategies are needed to improve local government oversight of clinics, meaningful decentralization of supervision and decisionmaking, and strategic planning about the role of community participation in clinic operations. Lessons from the NGO experience are instructive in demonstrating ways in which the cost of clinical services can be reduced and the quality of services improved. Union-level governments will donate facilities, ensure security, and supervise operations if local officials can be assured that pharmaceuticals, equipment, and technical support will be provided to support their organizational efforts.

The current outreach program relies almost exclusively on full-time salaried workers (whether employed by government or NGOs) for contraceptive services. A problem arising from the proliferation of NGOs has been the tendency of government workers to disengage from work when other outreach workers are assigned to an area (Rahman and Siddiqui 1989), indicating a clear need to improve government and NGO coordination at the periphery so that incremental NGO efforts have their intended effect of adding worker coverage. A clear implication of the successful UGNPS Project is the need to unify supervision when multiple agencies are charged with outreach work. One strategy that merits consideration is focusing the NGOs on areas known to be particularly difficult to cover and disengaging outreach government operations in those localities.

A more fundamental issue concerns the long-term sustainability of house-to-house outreach. The costs of outreach are high. Left unresolved by research demonstrating the impact of outreach is the question of whether intensive house-to-house outreach is required as a long-term program strategy. Now that demographic transition has begun, the numerous social costs of contraception may dissipate, opening prospects for less provider-intensive depot approaches in the future. Such strategies must be pursued with caution, however. Research suggests that couples who rely on outreach for adoption continue to depend upon outreach services for resupply. Just as service efforts generate new use, interruptions in the intensity of the program produce supply-dependent discontinuation.

Depot approaches are nonetheless promising cost-saving complements to the house-to-house outreach strategy. Among the possible strategies that merit trial are use of unpaid community-based volunteers; local supply or depot-holders; traditional birth attendants (TBAs) and other part-time workers; and commercial outlets.

Some of these alternative supply or service agents have already been tried in Bangladesh. TBAs formed a major element in the 1965–69 national program and are deployed in a number of current NGO schemes. The general experience with TBAs in South Asia, however, is not very encouraging. Similarly, the development of unpaid community-based volunteers in family planning and health programs has been tried often without much evidence of lasting success.

An increased use of local depot-holders, on the other hand, is worthy of serious consideration. One consequence of the upward trend in contraceptive practice in rural Bangladesh has been that FWAs spend an increasing proportion of their time in resupplying women who are using oral contraceptives. At least in principle, much of this routine work could be taken over by village-based depot-holders, leaving FWAs more time for counseling and motivational work. Operations research to test the practicability and efficiency of depot-holders would be a worthwhile investment (see, for example, Kabir 1990).

Distribution of pills and condoms via commercial outlets is already an important component of the program and is the most obvious way of improving access at low cost. According to the 1989 CPS, 40 percent of pill and condom users obtained supplies from shops and pharmacies. Contrary to expectations, the preliminary results of the 1991 CPS show a steep drop in the market share of commercial outlets. In 1991, only 24 percent of users of these two methods reported shops and pharmacies as their source of supply. There was a large urban-rural disparity, with urban users being twice as likely to obtain contraceptives from a commercial outlet than rural users (40 percent versus 20 percent). The reason for this change between 1989 and 1991 is not yet clear. "Competition" from the increased number of fieldworkers may be one contributing factor; the proportion of users relying on fieldworkers for supplies rose sharply over the 2-year period. It is also possible that irregularity of supplies in the subsidized commercial sector may have played a role. Whatever the reason, the setback to the social marketing of contraceptives is probably only temporary. As Bangladeshi women become more mobile, and as shops and stalls continue their penetration into remote rural areas, commercial outlets should become an increasingly important component of access.

METHOD MIX. Trends in method-specific use have already been discussed (see table 2.16). The dominant change in recent years has been the increasing popularity of hormonal methods, particularly the pill. By comparison, the numbers of sterilizations performed and IUDs inserted in recent years are well below the levels achieved in the mid-1980s. Whether expressed in terms of couple-years of protection or births averted, the cost of hormonal methods is much higher than the cost of surgical contraception or IUDs. In the interest of containing future commodity costs, therefore, it is important to attempt to re-establish the popularity of other methods.

Sterilization and its promotion has always been controversial in Bangladesh. Both the government and donors have been attacked on grounds of coercion and of using client compensation as an incentive (O'Reilly 1985; Hartmann and Standing 1985). One response, based on the recommendations of a comprehensive investigation (Cleland and Mauldin 1991), was to remove in 1988 the fee paid to sterilization canvassers. This change in policy may be one reason for the declining popularity of sterilization, particularly vasectomy. Another contributory cause may have been the decision to stop "sterilization camps" on safety and quality considerations.

Clearly, any move to increase the number of sterilizations has to be undertaken with extreme care and with great attention to clinical and ethical standards. Despite these caveats, there is a very strong case for vigorous promotion of sterilization, and not solely on grounds of cost-effectiveness. In a young-marrying population, such as that in Bangladesh, the majority of women have reached their family size by the age of thirty years. A ten to fifteen year regime of uninterrupted hormonal protection is surely unsatisfactory from the point of view of clients and service providers alike. Irreversible methods have a vital role to play. Once again, however, there is a need for action to be guided by research. As intimated above, it is not at all clear how sterilization might best be promoted without contravening ethical standards. The existing barriers—be they social, cultural, or economic—need to be identified before sound strategies to overcome them can be devised.

COST-RECOVERY. The final main possibility for reducing public sector costs of family planning provision is to charge clients for services and supplies. In Bangladesh, the application of this principle to clinical methods would involve a major reversal of the current policy of reimbursing IUD and sterilization clients for their expenses in the form of a fixed cash sum. For pills and condoms, the idea of charging small sums is less radical because many users already obtain supplies from subsidized commercial outlets.

In a country as poor as Bangladesh where the demand for birth control is fragile, more widespread cost recovery from clients is not an attractive option. While many families can afford to pay a share of the costs, these will remain a very substantial proportion for whom any cash outlay would be a serious disincentive. When day-to-day survival is the priority and contraception is still regarded with ambivalence and perhaps some fear, the imposition of even small fees could represent a substantial barrier to adoption and sustained use. Accordingly, while the social marketing of contraceptives should be vigorously promoted for those with appropriate access and reasonable incomes, we see little prospect for introducing fees-for-service in public provision without the risk of serious interruption of progress.

The relationship between primary health care and family planning

No discussion of future family planning services is complete without consideration of the vexing issue of the relationship between family planning and health provision. Field operations, we have said, reflect the structural bifurcation of the Ministry of Health and Family Welfare. Under this arrangement, health activities are the responsibility of men; family planning activities are the responsibility of women. Coverage areas overlap, coordination of effort is extremely weak, and inter-divisional conflict hampers management at the periphery.

In an ideal world, the best way ahead is obvious. Most of the male health workers should be phased out as rapidly as possible and replaced by women. The implied improvement in the ratio of female workers to population would permit a

true integration of basic MCH and family planning services without harming the latter activity. In terms of practical politics, however, this option appears to be problematic. Government jobs in rural Bangladesh are highly prized and will not be easily relinquished. The vested interests behind the status quo are powerful. There is prospect of change in this cadre of workers, however. A policy already agreed to in the current World Bank project is replacing retiring male health workers with women. Because most male field workers were hired in the Pakistan era or early Bangladesh period, most will be retiring by the end of the current Bank project. This rehiring and restaffing phase represents a unique opportunity for restructuring operations at the subdistrict and below. Rehiring should be pursued in the context of phasing out health wing field operations and reorienting family planning wing operations to truly integrated maternal and child health service delivery.

Pending this shift from male to female health workers, there is a real dilemma concerning the extent to which family planning workers can and should take on additional health functions, without distracting them from their primary purpose. The general experience of community-based schemes suggests that additional tasks should be added incrementally; they should be made as clear-cut and simple as possible; their implications in terms of required frequency of household visitation should be anticipated and feasibility ensured; and appropriate training, supervision, and record-keeping changes should be made (Simmons and Phillips 1986; Phillips and others 1984c; DeGraff and others 1987; Simmons and others 1987). No doubt these largely commonsense lessons apply as much to Bangladesh as elsewhere, and they should serve as a warning against ill-considered integration.

It is often argued that a more integrated service would enhance the credibility of workers and the acceptability of contraception. This matter was carefully investigated in a series of quasi-experiments by ICDDR,B. The main conclusion is that minimal health provision indeed may indirectly benefit contraceptive acceptance. However, the addition of a broader range of health skills and supplies made no further impact on the success of family planning. Rather there was evidence of a drop in contraceptive use as the attention and energies of workers were diverted into MCH activities (Phillips and others 1984c). Thus, we doubt the validity of the claim that an integrated MCH and family planning service is always more effective than polarized services. Integration must be justified on grounds other than enhanced family planning effectiveness. Practical experience is now available to guide such efforts. Careful operations research on the role of FWAs as Expanded Program on Immunization (EPI) workers has provided invaluable lessons on the feasibility of large-scale efforts to bring family planning and MCH services closer together (Khan and others 1988). These efforts should be pursued in the interest of increasing worker density and of improving health and family planning outreach efficiency.

A closely related argument concerns the link between child survival and fertility reduction. It is commonly asserted that sustained fertility decline cannot be expected until parents are confident that the risks of infant and child death are very small. One surprising feature of demographic transition in Bangladesh is that infant and

child mortality was still high at the time that fertility decline started. Indeed, as noted in chapter 3, falls in childhood mortality in the 20 years from 1960 to 1980 were modest, almost certainly too small to affect parental perceptions.

Recent trends in childhood mortality are not known with precision, but several strands of evidence suggest that the infant mortality rate fell in the late 1980s from a level of 110–120 deaths per 1,000 live births to about 90. There has probably been a larger proportionate decrease in childhood mortality in response to the nationwide program of immunization. Further reductions can certainly be achieved, but prevailing poverty and poor maternal nutrition are likely to sustain the infant mortality rate at a level of 60 to 70, implying that at least 10 percent of children will die before the age of five years. It is a matter of opinion whether the continuation of death rates at this level will prevent further substantial declines in fertility. We are doubtful that this would be the case.

Improving the climate of management and coordination

We have noted that structural problems in the Ministry of Health and Family Welfare should be addressed. A wealth of information and experience is available from special projects on how basic management can be improved. In general, problems are systemic and will elude facile solutions. Dysfunctional subsystems for supervision, logistics, training, and the like will not be readily reformed with national orders on piecemeal themes. More promising is the notion that renewal and reform will begin at the periphery in a few subdistricts. Pilot projects demonstrate that a more efficient and effective management system could be scaled up in an orderly fashion over a period of years (Simmons and others 1987).

Bangladesh has a number of highly effective human service NGOs that have demonstrated successful management strategies for difficult situations. A coordinated partnership between NGOs and the government could lead to a large-scale effort for management renewal and reform of the public sector program.⁵

Measures to improve the climate of demand

We have argued in this volume that Bangladeshis probably never had a strongly pronatalist outlook and that a substantial latent demand for birth control may have arisen as early as the 1960s, in response to improvements in child survival between 1930 and 1960. At the same time, there is much evidence to suggest that this demand is fragile. By the word "fragile," we mean that the desire for small families may be ambivalent and attitudes to birth control tinged with suspicion and fear. When combined with the traditional seclusion of women within their homesteads, these characteristics have the effect of making the typical Bangladeshi couple rather passive about reproductive control. A considerable amount of counseling and reassurance is often needed to translate demand into appropriate contraceptive adoption. Moreover, large proportions of women who initiate contraception stop using within a year.

No doubt, the reservations about birth control will erode gradually until it becomes a routine part of everyday life. This expectation is based on the commonsense assumption that high levels of contraceptive practice will reinforce its social and moral legitimacy and diminish fears about side effects and adverse health consequences. However, it is uncertain whether ambivalence about the merits of small families will diminish in a similar manner. In this section, we discuss whether social or economic policy measures can be identified that would increase effective demand for contraceptive services, either by reinforcing positive attitudes to contraception or by strengthening the desire for small families.

The social policy that is most likely to drive down fertility—albeit after a lag of at least ten years—is the promotion of education for girls. As shown in table 2.26, a few years of primary schooling makes little difference to reproductive behavior, but beyond that threshold, changes are profound. Women with complete or nearly complete primary schooling and those with higher levels of education experience much lower fertility and much higher levels of contraceptive practice. Moreover, they marry later, a practice that has an additional negative impact on fertility.

The precise mechanisms by which length of exposure to formal schooling influences reproductive attitudes and behavior are not well established. In Bangladesh, cash employment does not appear to be an intervening factor. As shown in table 5.3, the relationship between education and employment is curvilinear. The least and the best educated women are most likely to work for cash, and the lowest levels of employment are found in the intermediate educational categories. However, education does have a marked effect on the social lives of women. In particular, their independence of movement is vastly improved. Whereas, for instance, only 6 percent of women with no schooling reported in the 1989 BFS that they were able to visit a health center unaccompanied, the corresponding proportion among women with secondary schooling was 30 percent. The mean mobility score, based on a sum of affirmative answers to the items listed on page 55, rises steeply with each increment in educational status (table 5.3).

A similar change in domestic decisionmaking is associated with female education. Respondents in the 1989 BFS were asked who made decisions on such matters as children's education and visits to friends and relatives. Were these decisions made solely by the husband, solely by the wife, or jointly? As shown

Table 5.3 Economic and social characteristics of women, by educational status, 1989 BFS

<i>Education</i>	<i>Percentage working for pay</i>	<i>Mean mobility score</i>	<i>Mean score on husband's domination in decisionmaking</i>
None	12.6	2.3	2.2
Primary	7.4	2.3	1.8
Secondary	6.3	3.9	1.1
Higher	27.3	5.9	0.5

in table 5.3, a summary score, designed to reflect the extent to which the husband alone decides, shows a very strong relationship with women's education. The more education a woman has, the less likely she is to report domination in domestic decisionmaking by the husband.

The link between education and women's autonomy, and the fact that these indicators of autonomy are powerful predictors of contraceptive use (even after controlling for education and economic status), suggest that any development policy that will enhance the status of women is also likely to exert a downward influence on fertility. Thus, the activities of the Grameen Bank, BRAC, and other NGOs with a focus on economic and social uplift of poor rural women may well enhance the prospects for further fertility decline.

Except for education and women's development, our analysis of fertility determinants has failed to identify other practical policies that would impinge on fertility. The banning of child labor, the introduction of a state pension scheme, and large increases in women's labor force participation are all perhaps desirable social goals and might further hasten fertility decline. With the possible exception of labor force participation, their achievement lies in the more distant future.

Conclusions

Evidence emerging from Bangladesh is consistent with the supposition that program efforts have played an important role in inducing and sustaining reproductive change in Bangladesh. The timing of fertility decline accords with observed increases in contraceptive use, confirming findings from experimental studies which have demonstrated that substantial demographic effects can be achieved by strategies aimed at providing quality services coupled with motivational efforts. Moreover, time series data show that national-level program inputs produced corresponding outputs and that time trends in contraceptive use and contraceptive choice parallel the timing of program implementation and the nature of priorities and activities. Careful longitudinal studies of the relationship of program activities with changing reproductive behavior provides further confirmation of the demographic role of family planning services. Furthermore, studies of areal variance in program effort show that service activities are associated with corresponding variance in the patterns and levels of use. Estimation of the extent of this impact cannot be known with precision, but it is clear from experimental studies that substantial fertility falls can be induced by intensifying family planning program effort. Success in Bangladesh suggests that potential exists for reproductive change even in settings where the economic and social institutional environment appears unfavorable to such change. Specific details of the Bangladesh program may not be transferable to other settings, but the broad elements of its success are highly relevant to challenging circumstances elsewhere.

While the design of the program may be faulted for its inefficiency or inelegance, criticism should be tempered by the context in which the program was established and by the results achieved.⁶ The program was introduced in the post-War of Independence period when the country was ravaged by war and famine. The

launching of so large an effort at a time of national crisis and chaos represents a remarkable achievement. That success was possible derives from the fact that the government of Bangladesh initiated bold policies, took action to implement them, and sustained the effort for two decades. Strong political commitment at the top of the program was translated into actions to orient political leaders, religious elites, and bureaucrats to the importance of the population problem and the need for action. The strong political support for the program is neither historical happenstance nor a legacy of the Pakistan era. Policies and actions have been pursued consistently by successive Bangladesh governments with equivalent emphasis and resolve that translated high-level political support into national commitment and action. The consistent commitment of a succession of governments has been crucial to success in Bangladesh, and is likely to be equally critical to such efforts elsewhere. Bangladesh demonstrates that poverty, adversity, and crisis should not be a rationale for inaction.

When evidence suggested that demand for family planning was fragile in Bangladesh, the program responded by establishing as comprehensive a program as possible under the circumstances. Success in other constrained settings is likely to require correspondingly comprehensive programs. Outreach services, clinical support, communication programs, and organizational efforts of various types are needed to make services as convenient as possible and information as compatible as possible with prevailing traditions, norms, preferences, and beliefs. By succeeding with such strategies, Bangladesh has demonstrated not only that a massive effort can succeed, but also that sustained effort is necessary over time. Although the Bangladesh program taps a very substantial pool of unmet demand for contraception, underlying ambivalence about contraception, lack of social support, and other societal constraints on effective family planning will continue to constrain progress at least in the immediate future.⁷ Program effort substitutes for social and familial factors that would otherwise mitigate such costs in more favorable settings.⁸ Widespread dependence on the program brings into focus unanswered questions about sustaining this effort in the future. As in other settings where programs have succeeded, reproductive preferences have begun to change as an adjustment to new ideas and patterns of reproductive behavior, but the pace of reproductive change has been more rapid than the pace of change in the social and economic institutions that have underpinned demographic transitions elsewhere in Asia. Future success will therefore require sustained program effort, including continued IEC activities and donor support for the foreseeable future.⁹ Where traditional social and economic institutional conditions for reproductive change are weak, the formal program must be correspondingly comprehensive and strong.

The achievements of the Bangladesh program have been based on an international partnership involving the government and donors acting in close coordination. Challenging financial burdens have been incurred,¹⁰ but costs have been distributed to a consortium of donors, each funding complementary components of a coordinated assistance effort. Much of the cost increase reflects the obvious consequences of success. Commodity costs have increased exponentially, salary costs have risen dramatically, and dependence on program services is

widespread.¹¹ Although intensification of services has been critical to the success of the program, rising costs demonstrate the importance of long-term donor commitments administered with both patience and resolve.

Positing lessons from Bangladesh for settings in Africa merits caution. Children are typically in greater demand in African settings than in Bangladesh, and the social institutions that act to sustain high fertility norms are very different and far reaching. Though desired family sizes are larger in Africa than elsewhere, there nevertheless exists an appreciable demand for fertility regulation, particularly for spacing of births. Moreover, it is increasingly clear that desired family sizes can change very rapidly. In Kenya, for instance, the number of children wanted by married women fell from 6.5 to 4.4 percent between the late 1970s and the late 1980s, and the percentage wanting no more children rose from 16 to 49 percent (Demographic and Health Surveys 1989). As we have argued for Bangladesh, the advent of reproductive choice (rising knowledge, legitimation, and accessibility of contraception) in Kenya during the 1980s may itself have played a significant role in encouraging couples to reappraise matters of family size. The costs of fertility regulation may also be less daunting in Africa than in South Asia. Moreover, village and other indigenous institutions may be more amenable to community-level programs, and thus may be more facilitating to large-scale action in Africa than in Bangladesh. Community structure and traditional indigenous leadership represent potentially powerful organizing resources in Africa that have been missing in Bangladesh. They may be marshalled in the future to produce more efficient, and more self-sustaining programs than has been possible in Bangladesh. Until comprehensive programs are tried in the African environment, arguments predicting failure must be greeted with the same skepticism that is now accorded to such arguments once directed to Bangladesh. Concerted effort may introduce reproductive change even if social, economic, and institutional circumstances are unfavorable. Because of Bangladesh, it would be imprudent to conclude that constraining factors provide *a priori* evidence that programs will fail. If policies are implemented with sustained resolve, fertility decline is possible, even in the absence of rapid economic development and social change.

Notes

1. Recent research has shown that gender preference affects the dynamics of contraceptive use (M. Rahman and others 1992). At high levels of prevalence, couples use contraception to seek an optimum gender balance of two sons and a daughter (Rahman and DaVanzo 1993). Yet to be determined, however, is whether prevalent control of fertility leads to subsequent changes in preferences, as occurred in Sinitic East Asia (Chang, Freedman, and Sun 1987).

2. Between 1990 and 1995 the number of currently married women in the reproductive age range is expected to increase by 17 percent.

3. Future commodity requirements and costs depend on future method mix. An analysis by Kantner and Noor (1991) assumes that an overall contraceptive prevalence of 50 percent will be reached by 1997, a realistic target. Under this scenario, the absolute number of users of hormonal methods is projected to increase by 78 percent, from

4,103,000 to 7,291,000.

4. See, for example, studies testing less intensive outreach schemes than the current strategy promotes (Kabir 1990; Kabir, Moseleuddin, and Azim 1990; Kamal and Chowdhury 1992).

5. The growth of the private sector in general and the proliferation of NGOs in particular have been important, but the policy ramifications of this have to be developed in all sectors (see Sobhan 1990, 1992).

6. Some analyses have criticized the cost of the program. According to one estimate, the cost of a birth prevented is about US\$50 (Simmons, Balk, and Faiz 1991). Most cost estimates typically range between \$50 and \$60 per birth averted. An additional criticism that is directed to the program is its "top-down" or bureaucratic nature that places little reliance on community participation or leadership. This style of program design may be its principal strength, however. Bangladesh is a diffuse society, where the weak structure of community organization has plagued development efforts more generally. Although this externally assisted program has produced its intended medium-term effects, institutionalization of activities at the periphery will encounter difficult organizational challenges. In the present program, village workers are civil servants paid largely from externally financed projects. Even the proliferation of NGOs is external in its origins, design, and sustainability: resources from abroad finance central agencies; these, in turn, establish regional programs that recruit local officers who field a local staff to undertake village-level work. An Indonesian-style program, organized and sustained at the periphery, has no known Bangladeshi counterpart, largely because village organization in Bangladesh lacks analogous traditional institutions producing clearly defined traditional leadership. Therefore, the rather top-down design of the Bangladesh program may have been crucial to success. This particular character of the Bangladesh approach may not be appropriate for other settings where social and community structure is more amenable to truly participatory approaches (see, for example, Phillips, Simmons, and Koblinsky 1985).

7. Projects, such as Matlab, demonstrate that prevalence rates exceeding sixty percent are possible with intensive high-quality services (Koenig and others 1992).

8. The Bangladesh transition contrasts markedly with East Asian demand-driven demographic transitions (see, for example, Thailand: Knodel, Chamrathirong, and Dabavalya 1987). One could argue, for example, the modernization of reproductive behavior is institutionalized in Thai society, and that social, psychological, and other contraceptive costs are not so pervasive in Thailand as in Bangladesh.

9. A review of this issue, and its implications for the donor community, appears in Operations Evaluation Division 1992.

10. Each successive World Bank project budget has doubled; the most recent of which was US\$601 million (although it includes a health component of US\$205 million). This commitment, together with other donor contributions, implies that nearly US\$1.50 per capita per year is invested in the health and population sectors (Operations Evaluation Division 1992).

11. The 1991 CPS reports, for example, that 76.9 percent of all pill supplies were received from government or externally funded NGO sources—nearly double the proportion using program sources in 1983 (Mitra and Associates 1993).

Appendix

Poverty trends in Bangladesh

Several recent studies of poverty trends of the 1970s and 1980s indicate a decrease in poverty through the 1970s. Analyzing data produced by the HES, the BBS shows the proportion of the rural population below the poverty line to be 83 percent, 74 percent, and 51 percent in 1973–74, 1981–82, and 1985–86 respectively (Ravallion 1991). A different analysis of the same series of HES conducted between 1973–74 and 1985–86 shows an increase in poverty in the 1970s and a decline in the 1980s (Rahman and Haque 1988).

These estimates of poverty trends flew in the face of the conventional wisdom that there has been a trend toward deepening poverty, and inspired several authors to take a critical look at the evidence. Their findings, compiled in a special 1990 issue of *Bangladesh Development Studies* entitled "The Face of Rural Poverty in Bangladesh: Trends and Insights," consider the trend estimates produced by BBS and Rahman and Haque inaccurate for several reasons:

- *The BBS reports indicate that the consumption data from the 1973–74 HES did not completely count caloric intake and gave an overestimate of the level of poverty for that year.* In contrast to the base figure for the beginning of the BBS series, there is marked improvement over time. More realistic estimates have to adjust for the 1973–74 undercount of caloric intake.

- *The HES series for 1973–74, 1976–77, 1981–82, 1983–84, and 1985–86 are not strictly comparable. Income data from this series differ from national account estimate data.* While HES estimates were 12 percent higher for 1973–74 and for most other years, in 1981–82 they were 11 percent lower. The calculation of poverty trends hinges critically on 1981–82 estimates, and as these estimates are at odds with trends suggested by national income data, it is best to leave out 1981–82 from trend estimates of poverty. Osmani (1990a and 1990b) chooses 1983–84 as the better year for comparison with 1973–74.

- *By adjusting for these biases and using 1973–74 and 1983–84 as points of comparison, Osmani concludes that moderate poverty declined during the period, while extreme poverty increased.* Osmani also used an estimate that allows for

changes in relative prices that altered the pattern of consumption. People consumed larger amounts of cheap sources of calories and decreased their consumption of proteins—a change corroborated by data on consumption patterns (Shahabuddin 1989).

• *Ravallion (1991) concentrates on poverty trends in the 1980s, adjusts for bias in income reporting in the HES mentioned earlier, and concludes that the proportion of people living below the poverty line has remained fairly stable throughout the 1980s but the absolute number who are poor has increased.*

The conclusion, therefore, is that the HES data exaggerate poverty decline. Contrary to the findings reported in BBS/WB and Rahman and Haque (1988), poverty probably increased slightly in the 1970s, and remained stable in the 1980s, in terms of absolute numbers of people. The proportion of people with income levels that do not allow for the minimum level of caloric consumption has probably decreased between 1973–74 and 1983–84, but the proportion below the 1,300 calorie level has increased.

Special projects and NGO efforts designed to improve the accessibility of family planning services

No single organizational structure is indicative of success in Bangladesh. Where projects have worked, however, it is clear who is in charge of what. Compensation for supervisors is typically high in projects, and the ratio of supervisors to workers is low. Workers, in turn, have a well-defined and realistic task regimen. Supervisors are expected to support their teams in the field. Peer leadership, support mechanisms, and communication of goals are integrated into control systems. Successful projects typically have a simple but effective information and management system to provide the requisite tools for maintaining control and cohesion. Village workers often maintain registers for keeping track of information that they require for their routine work and maintain some simple procedure for aggregating data for staff meetings. Management control is thus established by providing workers with a system for monitoring their own performance and reporting achievements to peers and supervisor in problem-solving sessions. Field checking by supervisors ensures that assigned tasks are being carried out and that reports are accurate. Discussion of problems is designed to instill a sense of peer leadership wherein workers compare their performance, discuss problems, and develop solutions. The role of the supervisor is to orchestrate these exchanges in order to ensure that problems are solved. Supervisors prepare a roster of activities to support the community workers, and paramedics prepare a list of households in need of special paramedical care. In this way lower-level workers provide direction to their supervisors. Bottom-up communication is established with simple-to-use worker-oriented management information systems, networks are cemented around task objectives, and supervisory leadership and support is established. Efforts are directed to maintaining close correspondence between plans and reality wherein plans are formulated in response to a systematic assessment of societal constraints. This lesson, that programs can succeed if policy is informed by the broader societal

constraints on program effort and insulated from them, has guided strategic planning of several special projects. None of the successful projects, however, resort to acceptor targets or incentives to achieve their aims.

Inspired by the examples of Indonesia and successful programs elsewhere, Bangladeshi leaders often call for "strengthening community participation" in the program through improved liaison with community groups. Project leadership typically maintains close community ties, but the mode of community participation in successful projects is typically very different from patterns of community involvement in East Asia. Community liaison is carefully pursued when participation is needed, but most successful projects do not depend upon community institutions for the routine operation and management of programs in the Indonesian sense. Resources are typically externally controlled, but community leaders are informed of any new project initiative and are requested to sanction it before activities are undertaken. However, overreliance on the community for the initiation of activities, the control of resources, or decisionmaking would inflict on projects the factionalism and intrigue that often characterize village life.

According to the Directorate of Social Welfare, over 7,000 registered NGOs are working on social development and welfare. Of these, about 400 work primarily for promotion of maternal and child health and family planning (MCH-FP), the most viable of which are supported by 7 U. S. Agency for International Development (USAID)-funded Cooperating Agencies (CAs): The Family Planning Association of Bangladesh (FPA,B), Bangladesh Association for Voluntary Sterilization (BAVS), The Pathfinder Fund (TPF), The Asia Foundation (TAF), Family Planning International Assistance (FPIA), Family Planning Services and Training Center (FPSTC), and the Social Marketing Corporation (SMC). Recently, the Overseas Development Administration (ODA) funded similar NGOs to field family planning in the context of integrated maternal and child health services. The combined effects of this program are unknown, although USAID has assembled evidence from service statistics suggesting that about 22 percent of all contraceptive protection emanates from USAID-funded NGOs.¹

Brief descriptions of each of these NGOs follow (table A.1):

FAMILY PLANNING ASSOCIATION OF BANGLADESH (FPA,B). FPA,B was established in 1953 as the Bangladeshi affiliate of the International Planned Parenthood Federation (IPPF). Services and information are provided by volunteers. The FPA,B also employs 250 field personnel. In all, some 3,000 volunteers are involved in the program, and 19 clinics are operating in cities and large towns. Innovative projects include pilot studies of traditional rural healers in family planning, village family planning clubs, and other projects for enhancing volunteer involvement in family planning. Population education courses have been offered to 61,698 out-of-school youths. Through literacy programs and loan projects 13,066 rural women were offered occupational skill development training and functional literacy training. Small loans have also been the focus of experimentation. Each such scheme is designed to provide family planning services in the context of some other social program that women seek from the FPA,B.

Table A.1 Operational design and impact of NGO projects

<i>Projects</i>	<i>Major strategies</i>	<i>Operational design</i>	<i>Research design of the most recent study</i>	<i>Results of impact assessment</i>
Family Planning Association, Bangladesh (FPA,B)	Use of volunteers, youth, and women as service providers; IEC campaigns, film shows, use of mobile van, etc.; involvement of traditional healers and village clubs; training of rural women; orientation of leaders, media personnel, etc.	Community and clinic-based service delivery system	Figures based on the data generated from internal service system of FPA,B.	Covered 7 million couples, out of which 4.14 million were provided with any FP method.
Bangladesh Association for Voluntary Sterilization (BAVS)	Providing high-quality clinical FP services; training of health professionals on sterilization; setting standards for quality assurances; clinical services through camps and satellite clinics.	Clinic-based service delivery system	Estimation based on the total national performance vis à vis BAVS performance according to the internal service statistics system of BAVS.	16 percent of the national VSC figures were achieved by BAVS up to July, 1990.
The Pathfinder Fund (TPF)	Implementation of staff workplans; focus on low-parity couples; emphasis on high-quality services.	Community and clinic-based service delivery system	External evaluation through a sample survey of eligible women.	CPR was 54 percent in 1988.
The Asia Foundation (TAF)	Easy but effective fieldwork procedure; effective record keeping system; daily and weekly reporting system; frequent monitoring from headquarters.	Community and clinic-based service delivery system	Operations research to improve the performance of service delivery program following three phases—problem analysis, solution development, and validation.	CPR increased from 40 percent to 50 percent in the experimental area within a year, in contrast to 44 percent to 48 percent in the comparison area.

Family Planning International Assistance (FPIA)	Focus on specific socioeconomic groups; use of part-time workers; reduced caseload per worker; self-help scheme for FP workers utilizing part of worker salary for skill training and creation of revolving fund.	Community-based service delivery system	Operations research on role of part-time workers in rural Bangladesh in one of the innovative projects of FPIA: SOPIRET; FPIA internal service statistics.	CPR increased from 32.4 percent to 37.1 percent within one year; overall CPR in FPIA projects was 39.7 percent in 1990.
Family Planning Services and Training Center (FPSTC)	Promote, strengthen, and institutionalize local-level institutions; training of field-level managers and supervisors; serve as council of voluntary organizations.	Community and clinic-based service delivery system	External evaluation through a sample survey.	CPR was 42 percent in 1989.
Social Marketing Corporation (SMC)	Marketing of non-clinical contraceptives at subsidized rates; use of commercial outlets; creation of stockists and retailers; IEC campaign through mass media; training of school children, pharmacists, and rural medical practitioners	Social marketing of non-clinical contraceptives	Bangladesh National Contraceptive Prevalence Survey 1989	60 percent of condom users and 21 percent of oral pill users in Bangladesh use brands marketed by SMC.

Note: CPR, contraceptive prevalence rate; VSC, voluntary surgical contraception.

FPA,B has been active in orienting Muslim religious leaders to family planning. In all, 18,500 religious leaders and 600 imams were oriented on problems of population through seminars at the subdistrict level. About 1,100 rural, unregistered medical practitioners and 1,125 volunteer workers from 225 local social welfare organizations were also trained and involved in motivation and delivery of services for family planning. Through community volunteer-based projects, nearly 49,000 families have been imparted health and population education by 2,000 trained community volunteers.

Approximately 476 journalists from national and local dailies in every district and metropolitan area of the country have been oriented on the family planning program through regional workshops. FPA,B has produced 11 films on family planning and related subjects for cinemas and mobile units.

Results of evaluation studies of the Traditional Healers project estimated the CPR at 51 percent in study areas (Alam and others 1989a). A study of volunteer projects showed that prevalence in 1989 was 53 percent (Alam and others 1989b). No controls were incorporated in the designs of these studies, and their contribution to the observed prevalence rate is unknown.

BANGLADESH ASSOCIATION FOR VOLUNTARY STERILIZATION (BAVS). For the past 15 years, the Association for Voluntary Surgical Contraception (AVSC) has been providing funding and technical support to BAVS, its largest grantee in Bangladesh. Working through BAVS, AVSC introduced new technologies and quality assurance systems for voluntary sterilization. In the early 1970s, "minilap" was almost unknown in Bangladesh, but with technical assistance from the BAVS, the government adopted the BAVS approach, thereby expanding the availability of voluntary sterilization services.

BAVS is the only national NGO working in the field of voluntary surgical contraception, providing clinical contraceptive services and training in 33 clinics. Over the 1975 to 1990 period, BAVS provided 16 percent of all sterilization procedures nationally. BAVS has expanded its service regimen to include IUDs, injections, pills, condoms, and NORPLANT®. More important than its service contribution has been the role of BAVS in training health professionals in sterilization and in continuing education in surgery.

THE PATHFINDER FUND (TPF). Since 1953, TPF activities have made an important contribution to the national family planning program in Bangladesh. Initial financial support from TPF established several key institutions with activities in community and clinic-based family planning service, training, and training materials development. Experimental studies have focused on cost-recovery schemes designed to test the financial sustainability of local family planning NGOs. In all, 30 subprojects located in 67 service sites receive TPF support. Of these, 34 are urban and 33 are rural. Forty-two percent of the 654,210 eligible couples served by these sites are acceptors of modern contraceptives (Alauddin 1988). In 1988, the CPR in TPF project areas (excluding recently covered Swanirvar Bangladesh project areas) was 54 percent (Foo 1989).

TPF projects attribute their success to management procedures that resemble the Matlab field management scheme. Women are contacted at home by female village workers who promote contraception and offer services. Workplans systematize the field activities of project staff, ensure regular contact with assigned couples, and support the information requirements of sound supervision. Strategies and training emphasize the quality of client care. Considerable attention is addressed to careful selection of personnel and to training in counseling, contraceptive technology, infection control, and field procedures for the delivery of contraceptive services. Simple-to-use field guides have been devised for counseling and training in family planning, health services, and nutrition.

THE ASIA FOUNDATION (TAF). TAF implements its family planning program through 25 subprojects which, in turn, offer services at 73 sites in urban and rural areas nationwide. As of December 1990, the organization served a total population of 8,746,761 in their catchment areas, including 991,756 eligible couples. Of these, 531,185 are active users of modern contraceptives (53.6 percent).

The operational design of the TAF projects is similar to the Pathfinder approach. Young married women are employed to canvass rural households. A factor contributing to TAF's success is its simple but effective recording and reporting system and a systematic regular monitoring of its subprojects by TAF Program Officers. The reporting system involves a standard daily field report, weekly supervisory reports, and monthly central management summaries. As in the case of TPF projects, considerable emphasis has been placed on maintaining the simplicity of information systems, and rigorous procedures for utilizing field information in supervisory exchanges. The reproductive status of women is recorded in a worker register, which, in turn, facilitates field monitoring of discontinuation and contraceptive prevalence. This recording and reporting system has evolved during several successive projects.

Most TAF subprojects are located in rural areas, and salary scales have been fixed at government levels. Worker density and other features of TAF project are designed to be similar to government conventions so that operations can be replicated by the national program.

FAMILY PLANNING INTERNATIONAL ASSISTANCE (FPIA). FPIA has been funding projects in Bangladesh since 1972. This funding was increased in 1984, when large consolidated subprojects were funded through local NGOs. By the end of 1989 FPIA funded 5 projects with activities at 64 sites in rural Bangladesh, reaching a population of 2,465,858, including 423,045 eligible couples. According to service statistics estimates of prevalence rates, 39.7 percent of all couples were using contraception at the end of 1990.

FPIA projects tend to focus on priority socioeconomic groups rather than the total population, which may explain the lower contraceptive prevalence rate in FPIA areas. FPIA also utilizes part-time field workers and volunteer schemes. Although focused on family planning, projects are also designed to develop vocational skills and income-generating activities.

FAMILY PLANNING SERVICES AND TRAINING CENTER (FPSTC). FPSTC provides training courses for managers and technical staff engaged in family planning. The training activities of the FPSTC have been instrumental in the proliferation of service NGOs. FPSTC provides technical assistance and funding to 50 local-level NGO projects serving about 3.5 million people. To date FPSTC's subgrantees have recruited 445,854 FP acceptors, and have 273,579 active users.

SOCIAL MARKETING CORPORATION (SMC). SMC began as the Social Marketing Project in 1975. Its objective was marketing non-clinical contraceptives at a subsidized rate, using commercial outlets throughout the country. SMC employs about 100 sales officers in 8 area offices. Their products are marketed through pharmacies, general stores, groceries, cigarette shops, and wholesalers. About 5,000 wholesalers and 12,000–15,000 retailers are involved in the program.

In addition to contraceptive distribution, SMC is widely known for its advertising and promotional campaigns, which complement family planning IEC campaigns organized by the national program. SMC conducts regular training programs for school children, pharmacists, and rural medical practitioners. By 1990 SMC had trained over 90,000 secondary school children and about 9,000 pharmacists.

The 1989 CPS findings revealed that 60 percent of the condom users and 21 percent of the pill users in the country use brands marketed by SMC (SMC 1991).

Special projects in family planning service delivery

Starting in late 1975 several innovative "special" projects have been undertaken to identify strategies for greater success of the family planning program. These projects are described below:

COMPANIGANJ PILOT HEALTH PROJECT (CPHP). CPHP was initiated by the government of Bangladesh in collaboration with the Christian Commission for Development in Bangladesh (CCDB) as a comprehensive health and family planning service delivery pilot program superimposed on an existing government rural health center. The principal orientation of the project was provision of primary health care in clinical settings.

Most of the service components of CPHP were fully operational by the end of 1975. Medical services included disease prevention, MCH care, promotion of child nutrition and family planning, and basic medical care. During the project, agreements with the ministry ensured that facilities were stocked with adequate supplies and that positions sanctioned by the ministry were filled.

The focus of the project was on establishing high-quality fixed service points for health care, with provision for integrating family planning in the context of primary health care. Efforts were made to decentralize CPHP services by operating five active subcenters where health clinics were held every week. Outreach arms of the project were thus static service points from which curative and preventive services such as basic medicines, immunization, health education, and family

planning methods were provided. Utilization of hospital and clinic services increased, but the approach had no effect on family planning use (Zaman 1984; Amin 1988).

MUNSHIGANJ MCH-FP PROJECT. The Munshiganj project was a collaborative activity of the Ministry of Health and Family Welfare (MOHFW) and the German Agency for Technical Cooperation (GTZ) that was launched in 1979 and completed in 1988. The project aimed to develop existing government health and family planning services, with a focus on union stationary centers known as Health and Family Welfare Centers (H&FWCs). Activities were carried out in six subdistricts of Munshiganj district (Allwardt 1988). In addition to facilities development, the project aimed to improve management capabilities, and to identify major constraints on effective health service delivery. Most of the interventions had four components in common: on-the-job training of MOHFW local staff, monthly staff meetings, supportive supervision, and logistics support.

The project utilized existing MOHFW field staff up to the subdistrict level. However, a number of key supervisors were directly employed by the project. Also, the supply of contraceptives and pharmaceuticals was ensured by the project, as were facilities, special discretionary funds, and other resources.

Results of a 1988 study revealed that the CPR increased from 12 percent in the baseline year of 1981 to 44 percent in 1987, in contrast to 32 percent in a comparison area (Banu and others 1988).

UNITY OF GOVERNMENT AND NONGOVERNMENT POPULATION SERVICES (UGNPS). UGNPS was implemented in 1987 in four rural subdistricts of Bangladesh to foster coordination between government and NGO programs through collaborative fieldwork. Project results demonstrated that contraceptive use increases if regular home visits by field workers can be ensured. Findings also indicate that government and NGO workers perform equally well if basic management support is accorded to workers. Research suggests that modern method prevalence increased from 21 to 45 percent within two years in project areas (Kamal and Chowdhury 1992) in contrast to 34 percent in a comparison area (Rahman and Siddiqui 1989).

The success of UGNPS in increasing CPR was mainly attributed to regular home visits by field workers to all couples (Kamal and Chowdhury 1992). This, in turn, was attributable to realistic work areas, the introduction of a simple-to-use information recording system and field management operation, clear job definitions, uninterrupted logistics support, regular supervision and guidance, and attention to participatory management.

Special development and health projects with integrated family planning services

In the course of negotiations for the World Bank's First Health and Population Project, considerable concern was expressed by government of Bangladesh and

World Bank experts about the prospects for success with family planning alone. Several pilot projects were instituted at that time. Although the impact of these projects was not evaluated, they were scaled up and institutionalized over time. Recent evaluation research suggests that the impact of multisectoral projects may have been substantial. However, of the projects described below, at least one, the Zero Population Growth project, appears to have failed.

ZERO POPULATION GROWTH PROJECT (ZPG). ZPG was initiated in 1976 in five subdistricts with the exceedingly ambitious objective of reducing the growth rate from 3 percent to zero within four years. The approach was designed to test the hypothesis that a comprehensive community-development approach would be more effective than population strategies based solely on the provision of family planning. Testing the hypothesis utilized a demand-generation approach involving community development, village government, and community involvement. Careful emphasis on community participation was employed in what was termed a "holistic development process." Family planning motivation and service delivery was integrated into health, MCH, and parasite control services. Community development involved organizing mothers' clubs and women's cooperatives, organizing youth for population education, sanitation schemes, and other developmental activities designed to foster nonformal education and create employment opportunities.

ZPG covered a population of 980,184 in the five areas, including about 188,497 eligible couples. The project was launched in 1977 and was terminated in 1981.

An evaluation conducted in mid-1981 revealed that the CPR was 29.9 percent in treatment areas and 24.8 percent in the comparison area. While results suggest that the community development hypothesis was not supported, in fact the ambitious scheme was never effectively implemented, and hypotheses could not be tested (Research Evaluation and Training Consultants 1982). While development activities may have fostered demand for family planning, service activities failed to address that demand with an adequate supply-side component.

BANGLADESH RURAL ADVANCEMENT COMMITTEE (BRAC). BRAC was founded in 1972 and expanded into one of the largest NGOs in Bangladesh, with nearly 3,600 full-time employees. Initially established as a war rehabilitation organization, it subsequently became a community development program emphasizing family planning, health services, and functional education. By December 1990 BRAC had 93 branches operating in 40 subdistricts with a membership of over 300,000, half of whom were female. Women who join BRAC are entitled to receive small loans for income-generating activities. In 1980, BRAC launched a diarrheal disease treatment program, and recruited health workers to teach mothers a simple procedure for rehydration therapy. By 1990, outreach workers had reached 12 million households comprising 75 percent of the rural population (Chowdhury 1990). BRAC activities have been extended to include literacy programs and other development activities (BRAC 1989; Abed 1990).

Although BRAC has not been active in family planning services, its scheme for managing health and development operations is widely recognized as a model for other agencies to emulate. In keeping with this perspective, BRAC has launched a management training program for family planning workers that is based on its successful outreach program. Some 5,000 government family planning field workers receive training under this program (see Abed 1990).

GRAMEEN BANK. The Grameen Bank was organized as a rural development agency in 1976 and commenced operations in 1978. The Grameen Bank organizes rural impoverished households into self-help groups and provides credit to individual members at the same rate of interest as other commercial banks. It supervises the utilization of loans and guides borrowers (members) in their use of loan resources. Although its target group is the rural poor, destitute rural women account for about three-fourths of the borrowers. The Grameen Bank was the first agency in Bangladesh to extend credit to women who have no collateral. With the expansion of this program, the landless poor have gradually gained access to commercial credit.

Although demographic research on the impact of the Grameen Bank has yet to be completed, anecdotal accounts suggest that successful loan schemes and women's empowerment have contributed to acceptance of contraception (Mabud, Ali, and Rahman 1990). By December 1990, Grameen Bank had established 781 branches throughout the country and provided loans to nearly a million rural women.

SWANIRVAR BANGLADESH. Swanirvar Bangladesh is a countrywide movement for self-reliance. Launched in 1975, Swanivar Bangladesh has attempted to establish "Village Government" in each of the 68,000 villages in Bangladesh. A family planning project was incorporated in the Swanivar Bangladesh strategy in 1979 and currently operates in 138 out of 464 subdistricts in Bangladesh.

An evaluation conducted in 1989 revealed that contraceptive prevalence was 52.9 percent in Swanivar Bangladesh areas in contrast to 36.4 percent in nonprogram areas (Population Development and Evaluation Unit 1988).

EXPANDED PROGRAM OF IMMUNIZATION (EPI). The EPI has been operating in Bangladesh since 1979 with the aim of reducing morbidity, mortality, and disability caused by vaccine-preventable diseases. By 1990, the national EPI program had covered over half of the mothers and children in target age groups.

A controversial aspect of EPI has been the policy, adopted in 1987, of utilizing Family Welfare Assistants. FWAs had previously worked solely on family planning and were instructed to devote one day in five to EPI. They were assigned the tasks of immunizing mothers and children and were instructed to work with male health worker counterparts in the EPI effort. Controversy stemmed from the fact that FWA work areas were dispersed, and it seemed unlikely that incremental activities could be sustained unless the number of FWAs deployed by the health ministry was increased.

Research on the impact of EPI activities on FWA family planning performance indicates that FWA involvement in EPI enhanced their credibility as family planning workers. Results of a 1987 study on utilization of workers' time showed that in EPI areas contraceptive acceptance and prevalence was higher, coverage of home visits by FWAs was greater, and eligible women appeared to be relatively more satisfied with the FWAs than in contiguous non-EPI areas. Higher prevalence arose from the tendency of FWAs to distribute contraceptives during EPI sessions. With the expansion of EPI to the entire country and the expansion of the FWA workforce, it is possible that the family planning activities of FWA will be more effective nationally (Khan and others 1988).

Components of the Bank-supported "Multi-Sectoral Program"

MINISTRY OF INFORMATION AND BROADCASTING. Recent surveys indicate that knowledge of contraception in Bangladesh is nearly universal and that most women know of a place where services are available. This represents a substantial change from similar survey findings recorded in the pre-Bangladesh era. This change is widely believed to be due to communication activities involving a variety of sources, media, approaches, and themes. To coordinate this activity, a Population Planning Cell was created in 1979 in each of the radio and television broadcasting centers. A training program was launched to instruct mass media professionals, including newspaper reporters and editors, about basic population issues and family planning. Radio and television programs were designed to inform, educate, and motivate listeners and viewers about family planning, general health, maternal and child health, and population issues. Local and international experts were engaged to develop appropriate messages and advertisements to be broadcast. Multimedia activities sponsored by this program provide uninterrupted information about population issues. For the past decade, nearly every adult Bangladeshi has encountered population communication from one or more of the sources sponsored by the communications program. Face-to-face discussions with outreach workers, village meetings, signboards, posters, radio and television programs, news articles, political speeches, and rallies have saturated the country with information about population issues.

A variety of studies have been conducted to assess the impact of this campaign. Research has revealed that these mass media messages were socially acceptable (Khanam 1978), that radio was an effective medium for mass communication in rural Bangladesh, that most Bangladeshis have access to a radio, and that the vast majority of the radio listeners had listened to programs on family planning (Ministry of Information and Broadcasting 1979). Awareness of mass media messages on family planning was found to be high, and messages were understandable to most listeners (Mitra and Kamal 1983, 1985). Attempts have been made to assess the fertility impact of media exposure. Although the design of impact research was flawed, the fact that such studies were commissioned at all is indicative of the level of government commitment to this program and the seriousness of interest in improving its role and impact (Population Development and Evaluation Unit 1988).

MINISTRY OF EDUCATION AND CULTURAL AFFAIRS. In 1976, a district population education team was created in each of the 21 districts of Bangladesh, and headmasters of most primary and secondary schools were given an orientation on population issues and family planning. Principals, in turn, were expected to arrange orientations for the teachers in their schools.

Reports from this project suggest that approximately 9,000 secondary and 44,000 primary schools have been reached by the population education program and that about 102,000 secondary school teachers and 189,000 primary school teachers have received an orientation. The direct effect of this program is likely to be highly variable, and its impact is unknown, but the role of population education in establishing the credibility of the population program may have been substantial. Teachers are respected informal opinion leaders in the community, and orientation of school teachers not only fosters discussion of family planning in the classroom but also engenders support for family planning in the community (Haider 1989).

MINISTRY OF AGRICULTURE AND LIVESTOCK. The Agricultural Extension Program has employees in all 4,500 Unions in Bangladesh² who inform farmers about agricultural innovations and maintain close contact with them on agricultural development matters. Agricultural extension workers were trained to educate farmers about the adverse effects of population growth on the availability of resources, per capita production, and standards of living. Extension workers were also trained to communicate with men about family planning and encouraged to promote family planning use among farmers. This strategy assumes that promotion of family planning by agricultural workers carries more influence among farmers than similar efforts by family planning workers.

MINISTRY OF LABOR AND MANPOWER. Under the auspices of the International Labor Organization (ILO) a special project on family planning was undertaken in all manufacturing industries. Clinics were established in most major industrial units, and clinic-based motivators were engaged to educate and motivate industrial laborers to practice family planning. Although this program has not been systematically evaluated, it is possible that urban industrial workers may serve as catalysts for family planning, disseminating messages from urban to rural areas.

MINISTRY OF SOCIAL WELFARE AND WOMEN'S AFFAIRS. A number of women's organizations have been encouraged and funded to include population education and family planning services in their activities. Most women's NGOs now have family planning activities, establishing reproductive health and family planning as a major theme of the women's movement in Bangladesh. The major organizations involved are the Jatiya Mahila Sangstha, Mahila Samity, Women's Voluntary Association, and the Women's Rehabilitation and Welfare Foundation.

The public sector also has women's programs addressed to population issues. A Women's Vocational Training Program for Family Planning Education was established in 1972 to assist women affected by the War of Independence. A vocational training program was launched in late 1974 to improve rural women's

socioeconomic conditions through vocational training and to establish training centers as nuclei for disseminating information on income-generating activities and family planning. Fifty-six vocational training centers were established by this program, and a total of about 52,000 participants have been trained. A 1979 evaluation showed that 31 percent of the trainees were currently using contraceptives, compared to 12 percent of the program village women and 10 percent of the nonprogram village women (Mabud, Ali, and Rahman 1990). A study conducted in 1984 revealed that 47 percent of the trained women were currently using contraceptives, compared to 21 percent of matched untrained women. Research also suggests that women trained by this program have been important disseminators of family planning information to other women (Ali and Islam 1985).

In 1975, the Rural Mothers' Clubs project was launched by the Directorate of Social Welfare in 19 districts to provide vocational education and family planning services to rural women. By June 1978, 764 Mothers' Clubs with 26,328 participants and 9,567 family planning acceptors had been formed. An evaluation revealed that the contraceptive prevalence rate among members was 37 percent as compared to 19 percent estimated for the overall national rate (Rahman and others 1990). This suggests that combining family planning with other types of social or educational services can be a successful mechanism for introducing family planning (Siddiqui and others 1982).

MINISTRY OF LOCAL GOVERNMENT AND RURAL DEVELOPMENT. In 1975, the Integrated Rural Development Program (IRDP) established a pilot project for incorporating population education and family planning services in a large-scale women's cooperative program. The pilot phase of this project involved 28 subdistricts, and led to the creation of 656 Women's Cooperative Societies with 22,700 members. The major objectives of the project were to foster independent economic roles for women and provide information about family planning. An evaluation study conducted in April 1980 revealed that the CPR was 34 percent for the members of the Women's Co-operative Societies compared to 23 percent for nonmembers in matched villages (Muhuri and Rahman 1982).

UTILIZATION OF PARAMILITARY UNITS. Efforts to improve law and order in Bangladesh have involved community organized volunteer units. Owing to their size and political importance, these groups have been an important focus of population activities.

The Village Defense Police (VDP), formed during the War of Independence as a paramilitary organization, was retained in the post-war period as a volunteer village security corps. Some 120,000 villagers participate in this program, of whom 40 percent are women. Starting in 1978, the VDP members were given an orientation on population issues and were encouraged to promote family planning.

In a program that closely parallels the VDP initiative, the government recruited about 65,000 para-police called Ansars, of whom 20 percent are females, from the rural areas of the country. Their services are used intermittently, sometimes on voluntary basis and sometimes on a short-term paid basis. Since 1977, the Ansars

have been given an orientation on family planning during their annual routine training.

MINISTRY OF YOUTH AND SPORTS. A national youth forum, known as the Jatiya Tarun Sangha (JTS), with 30,000 members in clubs throughout the country, have been trained in population and family planning activities and encouraged to launch a "late marriage movement." In addition to providing family planning education, the JTS distributes contraceptives and promotes reproductive planning among young married couples.

MINISTRY OF RELIGIOUS AFFAIRS. In recognition of the potential for misunderstanding of the goals and purposes of the population program among religious leaders, particular care has been taken to inform religious leaders about population issues and to seek their advice on major policy themes. Conferences were conducted with religious groups, such as the Bangladesh Muslim Marriage Registrars and Quazi Association, the Madrasha Teachers Association, the Mosque Mission, and the like to prepare statements of support for the family planning program within the dictates of the Holy Quran and Sunnah.

Training programs, workshops, and seminars were organized to educate religious leaders on family planning. Two of most important activities were the Imam Training Program (ITP), organized by the Islamic Foundation, and the Ulema Training Program (UTP), organized by the Information, Education, and Motivation Unit. In November 1979, five centers dispersed in the major regions of Bangladesh launched a training program for Imams of the 200,000 mosques in 68,000 villages of Bangladesh. As of December 1990, the program had trained 25,943 Imams. Although no formal evaluation has been undertaken, most observers concur that this program is vital to creating understanding between the population program and religious leaders (IEM Unit 1983 and 1985). Studies conducted in highly conservative areas have revealed that religious opposition to family planning is not as strong as in the past (Mosleuddin and Kabir 1989).³

Notes

1. See USAID 1991. The net impact of services may be somewhat less owing to the tendency of couples to use a variety of sources and the tendency for dispensation of supplies to be overreported due to substitution and duplication effects. Nonetheless, the sheer volume of the supply effort suggests that a very substantial NGO program has been developed with USAID and ODA support.

2. The "union" is the primary unit of government in Bangladesh, corresponding to a population cluster of about 25,000 people and approximately 20 villages.

3. Religious opposition to family planning in the Pakistan era has not been well documented, but anecdotal accounts suggest that it was extensive. Articles in the daily newspapers frequently reported instances of refusal to perform religious rituals for burial of IUD and sterilization acceptors, assaults on female family planning field workers in rural areas, anti-family-planning discussions at religious meetings, and other instances of organized opposition instigated by religious groups. These incidents now occur rarely.

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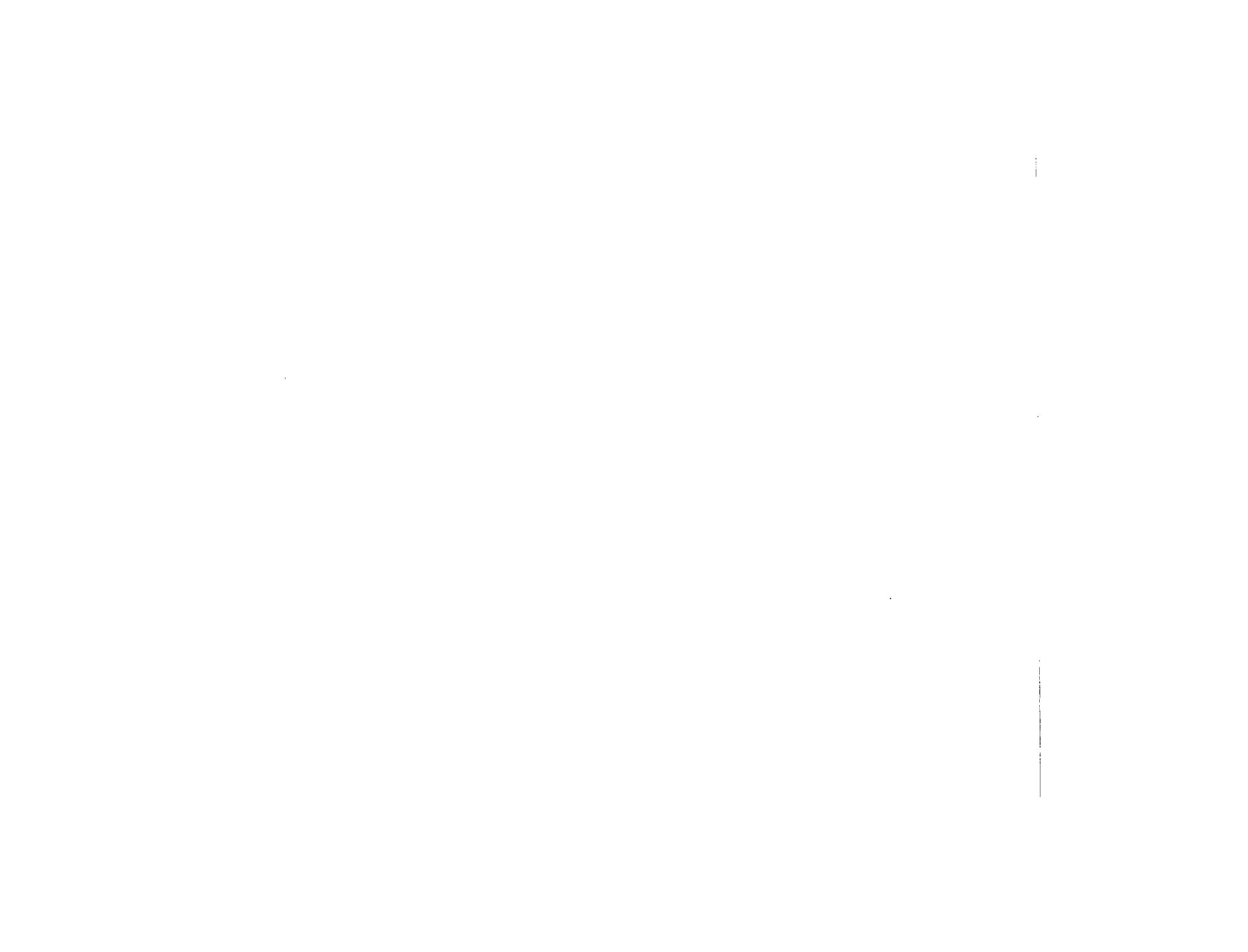
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