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Parttha Dasgupta

Population growth elicits widely different responses from various observers. Some believe it to be among the causes of the most urgent problems facing humankind today (e.g., Ehrlich and Ehrlich 1990), while others permute the elements of this causal chain, arguing, for example, that contemporary poverty and illiteracy in poor countries are the causes, rather than the consequences, of rapid population growth. Still others claim that even in the poorest countries population growth can be expected to provide a spur to economic progress. Among the many who remain, there is a wide spectrum of views, both on the determinants of population growth and on the effects of that growth on the natural-resource base and human welfare. It would seem not only that our attitudes toward population size and its growth differ, but that there is no settled view on how the matter should be studied. As with religion and politics, many people have opinions on population that they cling to with tenacity.

In this article I bring together theoretical and empirical findings to argue that such divergence of opinion is unwarranted. In the first two sections I offer the conjecture that differences persist because the interface of population, resources, and welfare at a spatially localized level has been a relatively neglected subject. Neglect by experts is probably also the reason why the nexus has attracted much popular discourse, which, while often illuminating, is frequently descriptive rather than analytical.

It is not uncommon among those who write about population, resources, and welfare to adopt a global, future-oriented view: the emphasis frequently is on the deleterious effects a large and increasingly affluent population would have on Earth in the future. This slant has been instructive, but it has drawn attention away from the economic misery and ecological degradation endemic in large parts of the world today. Disaster is not something for which the poorest have to wait; it is a frequent occurrence. Moreover, among the rural poor in developing countries, decisions on fertility,
on allocations concerning education, food, work, health care, and on the use of the local natural-resource base are in large measure reached and implemented within households that are unencumbered by compulsory schooling and visits from social workers, that do not have access to credit and insurance in formal markets, that cannot invest in well-functioning capital markets, and that do not enjoy the benefits of social security and old-age pension schemes. These features of rural life direct me, in the third section, to study the interface of population growth, poverty, and environmental stress from a myriad of household, and ultimately individual, viewpoints.

Women’s education and reproductive health have come to be seen as the most effective channels for influencing fertility. In subsequent sections I provide an outline of the theoretical and empirical reasons why they are so seen. An interesting analytical feature of both education and reproductive health is that they can be studied within a framework where households make decisions in isolation from other households. Thus, the theory of demand for education and reproductive health can be treated as a branch of the “new household economics,” which has been much engaged in the study of the isolated household. But theoretical considerations suggest that a number of factors arising from interhousehold linkages could also influence fertility decisions. In this article I am much interested in exploring such linkages. Appropriately, they include those in which women’s education and reproductive health play a role. The findings I report are consistent with the contemporary emphasis on women’s education and reproductive health. These matters are explored in the final two sections and the Appendix. I conclude that there is substance to what has been called the population problem. I also argue that in the Indian subcontinent and in sub-Saharan Africa, the problem has for a long while been an expression of human suffering, and that the problem could well persist even if all regions of the world were to make the transition to low fertility rates.

Framing links between population, resources, and welfare

It is appropriate first to identify some of the ways social scientists have framed the links between population growth, resources, and human welfare. I review them in this section. This outline will enable us to compare and contrast the way the links have generally been framed with the way I frame them here.

There are three sets of examples to discuss here. They concern the way modern theories of economic growth view fertility and natural resources, the way population growth and economic stress in poor countries are studied by environmental and resource economists, and the way development economists accommodate environmental stress in their analysis of contemporary poverty. The examples are discussed in the next three sections. If I grumble, there is cause. Judging by level of analysis, most of those who
have been investigating economic growth, poverty, environmental stress, and fertility behavior have not read widely beyond their particular fields of interest. One cannot but think that this has impeded progress in our understanding of some of the most complex issues in the social sciences.

Population and resources in modern theories of growth

For the most part, modern theories of economic growth assume population change to be a determining factor of human welfare. A central tenet of the dominant theory is that although population growth does not affect the long-run rate of change in living standards, it adversely affects the long-run standard of living (Solow 1956).

Recent models of economic growth have been more assertive. They lay stress on new ideas as a source of progress, supposing that the growth of ideas is capable of circumventing any constraint the natural-resource base may impose on the ability of economies to grow indefinitely. Such models note too that certain forms of investment (e.g., research and development) enjoy cumulative returns because the benefits are durable and can be shared collectively. The models also assume that growth in population leads to an increase in the demand for goods and services. An expansion in the demand for and supply of ideas implies that, in the long run, equilibrium output per head can be expected to grow at a rate that is itself an increasing function of the rate of growth of population. (It is only when population growth is nil that the long run rate of growth of output per head is nil.) The models regard indefinite growth in population to be beneficial.5

Contemporary growth theory does not explicitly model the nature of new products. One can only conjecture that it assumes future innovations to be of such a character that indefinite growth in output would make no more than a finite additional demand on the natural-resource base. The assumption is questionable (Daily 1997; Dasgupta 2001). In any event, we should be skeptical of a theory that places such enormous burden on an economic regime not much more than 200 years old (Fogel 1994; Johnson 2000). Extrapolation into the past is a sobering exercise: over the long haul of history (some 5,000 years), economic growth even in the currently rich countries was for most of the time not much above zero. The study of possible feedback loops between poverty, demographic behavior, and the character and performance of both human institutions and the natural-resource base is not yet on the research agenda of modern growth theorists.

Demography and economic stress in environmental and resource economics

In its turn, the environmental and resource economics that has been developed in the United States has not shown much interest in economic stress
and population growth in poor countries. In their survey of the economics of environmental resources, Kneese and Sweeney (1985, 1993) and Cropper and Oates (1992) bypassed the subject matter of this article. They were right to do so, for the prevailing literature regards the environmental-resource base as an “amenity.” Indeed, it is today a commonplace that “[economic] growth is good for the environment because countries need to put poverty behind them in order to care” (Independent, 4 December 1998), or that “trade improves the environment, because it raises incomes, and the richer people are, the more willing they are to devote resources to cleaning up their living space” (The Economist, 4 December 1999: 17).

I quote these views to suggest that natural resources are widely seen as luxuries. This view is hard to justify when one recalls that our natural environment maintains a genetic library, sustains the processes that preserve and regenerate soil, recycles nutrients, controls floods, filters pollutants, assimilates waste, pollinates crops, operates the hydrological cycle, and maintains the gaseous composition of the atmosphere. Producing as it does a multitude of ecosystem services, the natural-resource base is in large part a necessity. A wide gulf separates the perspective of environmental and resource economists in the North (I use the term in its current geopolitical sense) from what would appear to be the direct experience of the poor in the South.

Population and resource stress in development economics

Nor is the population–poverty–resource nexus a focus of attention among development economists. Even in studies on the semi-arid regions of sub-Saharan Africa and the Indian subcontinent (poverty-ridden land masses, inhabited by some 2 billion people and experiencing the largest additions ever known to their population; see Tables 1 and 2), the nexus is largely absent. For example, the authoritative surveys by Birdsall (1988), Kelley (1988), and Schultz (1988) on population growth in poor countries fail to touch on environmental matters. Mainstream demography also makes light of environmental stress facing poor communities in sub-Saharan Africa and the Indian subcontinent. Nor does the dominant literature on poverty (e.g., Stern 1989; Drèze and Sen 1990; Bardhan 1996) take population growth and ecological constraints to be prime factors in development possibilities. This situation is puzzling. Much of the rationale for development economics is the notion that poor countries suffer particularly from institutional failures. But institutional failures in great measure manifest themselves as externalities. To ignore population growth and ecological constraints in the study of poor countries would be to suppose that demographic decisions and resource use there give rise to no externalities of significance, and that externalities arising from institutional failure have a negligible effect
TABLE 1  Crude birth and death rates per 1,000 people

<table>
<thead>
<tr>
<th></th>
<th>Births</th>
<th></th>
<th>Deaths</th>
<th></th>
<th>Births minus deaths</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>18</td>
<td>16</td>
<td>6</td>
<td>8</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>44</td>
<td>28</td>
<td>18</td>
<td>10</td>
<td>26</td>
<td>18</td>
</tr>
<tr>
<td>India</td>
<td>34</td>
<td>27</td>
<td>13</td>
<td>9</td>
<td>21</td>
<td>18</td>
</tr>
<tr>
<td>Pakistan</td>
<td>47</td>
<td>35</td>
<td>15</td>
<td>8</td>
<td>32</td>
<td>27</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>47</td>
<td>40</td>
<td>18</td>
<td>15</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>(Nigeria)</td>
<td>50</td>
<td>40</td>
<td>18</td>
<td>12</td>
<td>32</td>
<td>28</td>
</tr>
<tr>
<td>World</td>
<td>27</td>
<td>22</td>
<td>10</td>
<td>9</td>
<td>17</td>
<td>13</td>
</tr>
</tbody>
</table>

SOURCE: World Bank (2000: Table 2.2).

TABLE 2  Magnitude of poverty in extremely poor and poor regions, 1985

<table>
<thead>
<tr>
<th>Region</th>
<th>Extremely poor</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number (million)</td>
<td>Headcount index (%)</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>120</td>
<td>30</td>
</tr>
<tr>
<td>East Asia</td>
<td>120</td>
<td>9</td>
</tr>
<tr>
<td>China (80)</td>
<td>(80)</td>
<td>8</td>
</tr>
<tr>
<td>South Asia</td>
<td>300</td>
<td>29</td>
</tr>
<tr>
<td>India (250)</td>
<td>(250)</td>
<td>33</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>40</td>
<td>21</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>50</td>
<td>12</td>
</tr>
<tr>
<td>All developing countries</td>
<td>630</td>
<td>18</td>
</tr>
</tbody>
</table>

NOTES: The poverty line in 1985 purchasing-power-parity dollars is US$275 per capita per year for the extremely poor and US$370 per capita per year for the poor. Headcount index is the percent of the population below the poverty line. Poverty gap is the minimum amount of additional income, expressed as a percent of GNP, which, if it is distributed among the poor, can eliminate poverty. SOURCE: World Bank (1990: Table 2.1).

on resource use and demographic behavior. I know of no body of empirical work that justifies such presumptions.

Population, food, and resources: Why global statistics can mislead

How is one to account for these neglects? It seems to me there are four reasons, one internal to the development of the “new household economics,” the others arising from limitations in global statistics.
The first has to do with the preoccupation of those who developed the new household economics. For reasons of tractability they studied choices made by isolated, optimizing households. Such predictions of the theory as that increases in women’s labor productivity reduce the household demand for children are borne out in cross-country evidence (Schultz 1997). Nevertheless, the study of isolated households is not a propitious means by which to explore the possibilities of collective failure among households. For example, there have been few attempts to estimate externalities resulting from reproductive choices. One reason is that the theory of demographic interactions in nonmarket environments is still underdeveloped; and without theory it is hard for the empiricist to know what to look for. I later point to scattered evidence, drawn from anthropology, demography, economics, and sociology, of externalities resulting from pronatalist attitudes among rural households in poor countries. I also try to develop some of the analytical techniques that would be required for identifying such externalities. The directional predictions of the resulting theory are not at odds with those of the new household economics (e.g., that an increase in women’s labor productivity lowers the demand for children); but their predictions differ on the magnitude of household responses.

The second reason for the neglect of the population–poverty–resource nexus is the outcome of an inquiry made more than a decade ago into the economic consequences of population growth (National Research Council 1986). Drawing on national time-series and cross-regional data, the investigators observed that population size and its growth can have both positive and negative effects. For the purposes of interpreting the data, population growth was regarded as a causal factor in the study. The investigators concluded that there was no reason for concern over the high rates of growth being experienced in poor countries.

But regression results depend on what is being regressed on what. So, for example, one can set against the National Research Council report more recent cross-country studies by Mauro (1995) and Eastwood and Lipton (1999), who have found a negative correlation between population growth and economic growth and a positive correlation between population growth and the magnitude of absolute poverty. In short, cross-country regressions in which population growth is a determining factor have given us mixed messages. Later in this article I show that even though we may have learned something from cross-country regressions, they have frequently misdirected us into asking wrong questions on demographic matters.

The third reason stems from a different set of empirical findings. With the exception of sub-Saharan Africa over the past 30 years or so, gross income per head has grown in nearly all poor regions since the end of World War II. In addition, growth in world food production since 1960 has exceeded the world’s population growth by an annual rate of approximately
0.6 percent. This has been accompanied by improvements in a number of indicators of human welfare, such as the infant survival rate, life expectancy at birth, and literacy. In poor regions each of the latter improvements has occurred in a regime of population growth rates substantially higher than in the past: excepting East Asia and parts of South and Southeast Asia, modern-day declines in mortality rates have not been matched by reductions in fertility.

Table 3 presents total fertility rates (TFR), gross national product (GNP) per head, and growth in GNP per head in several countries and groups of countries. Between 1980 and 1998 the TFR declined everywhere, but very unevenly. Sub-Saharan Africa has displayed the most acute symptoms of poverty: continued high fertility rates allied to declining GNP per head in a very poor continent. Nevertheless, as Table 3 confirms, the oft-expressed fear that rapid population growth will accompany deteriorations in living standards has not been borne out by experience when judged from the vantage of the world as a whole. It is then tempting to infer from this, as does Johnson (2000) most recently, that in recent decades population growth has not been a serious hindrance to improvements in the circumstances of living.

The fourth reason stems from economic theory and cross-country data on the link between household income and fertility. Imagine that parents regard children as an end in themselves; that is, assume children to be a “consumption good.” If, in particular, children are a “normal” consumption good, an increase in unearned income would lead to an increase in the demand for children, other things being equal. This is the “income effect.” In his well-known work Becker (1981) argued, however, that if the increase

<table>
<thead>
<tr>
<th>Region</th>
<th>TFR 1980</th>
<th>TFR 1998</th>
<th>GNP per heada 1998</th>
<th>Average annual percent growth of GNP per headb 1965-98</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>2.5</td>
<td>1.9</td>
<td>3,051</td>
<td>6.8</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>6.1</td>
<td>3.1</td>
<td>1,407</td>
<td>1.4</td>
</tr>
<tr>
<td>India</td>
<td>5.0</td>
<td>3.2</td>
<td>2,060</td>
<td>2.7</td>
</tr>
<tr>
<td>Pakistan</td>
<td>7.0</td>
<td>4.9</td>
<td>1,652</td>
<td>2.7</td>
</tr>
<tr>
<td>Sub-Saharan Africa (Nigeria)</td>
<td>6.6</td>
<td>5.4</td>
<td>1,440</td>
<td>-0.3</td>
</tr>
<tr>
<td>United States</td>
<td>1.8</td>
<td>2.0</td>
<td>29,240</td>
<td>1.6</td>
</tr>
<tr>
<td>World</td>
<td>3.7</td>
<td>2.7</td>
<td>6,300</td>
<td>1.4</td>
</tr>
</tbody>
</table>

a Dollars at purchasing power parity.

b GNP growth calculated from constant price GNP in national currency units.

in household income were the result of an increase in wage rates (i.e., an
increase in labor productivity), then the cost of children would increase,
because time is involved in producing and rearing them. But other things
being equal, this would lead to a decrease in the demand for children (this
is the “substitution effect”). It follows that a rise in income owing to an
increase in labor productivity would lead to a decline in fertility if the sub-
stitution effect were to dominate the income effect, a likely possibility.

Figure 1, taken from Birdsall (1988), shows that, among developing
countries that in the early 1980s had incomes above US$1,000 per capita,
those that were richer experienced lower fertility rates. A regional break-
down of even the Chinese experience displays the general pattern: fertility
is lower in higher-income regions (Birdsall and Jamison 1983). These are
only simple correlations and, so, potentially misleading. Moreover, they do
not imply causality. But they suggest that growth in income can be relied
upon to reduce population growth.

There are three weaknesses with the reasoning just outlined. First, con-
ventional indexes of the standard of living pertain to commodity produc-
tion, not to the natural-resource base on which production depends. Statistics on past movements of world or regional income and agricultural
production say nothing about this base. They do not indicate whether or
not increases in GNP per head in a country are being realized by means of a
depletion of natural capital (e.g., ecosystem functioning). It could be, for

**FIGURE 1  Fertility in relation to income in developing countries, 1982**

example, that increases in agricultural production are in part accomplished by “mining” soil and water. In relying on GNP and other current-welfare measures, such as life expectancy at birth, infant survival, and literacy, we run the danger of ignoring the concerns ecologists have voiced about pathways linking population growth, economic activity, and the state of the natural-resource base.14

It can be shown that the correct measure of a community’s welfare over the long run is its wealth, where wealth is the social worth of the entire bundle of its assets, including manufactured, human, and natural capital (Dasgupta and Mäler 2000). A community’s welfare over the long run would increase only if net investment per head in its capital base were positive. In other words, genuine investment is required if a community’s well-being is to be sustainable. Since it is possible for a country’s GNP to increase over an extended period even while its wealth is declining, time series of GNP per head could mislead.15

Hamilton and Clemens (1999) have provided estimates of genuine saving in a number of countries.16 Among the resources that make up natural capital, only forests, oil and minerals, and pollution were included (not included were such vital resources as soil quality and water). So there is an undercount. Moreover, the accounting prices used to value natural capital were crudely estimated. Nevertheless, one has to start somewhere.

The first column in Table 4 contains estimates of genuine investment as a proportion of GNP in Bangladesh, India, Nepal, Pakistan, China, and sub-Saharan Africa over the period 1970–93. Notice that Bangladesh, Nepal, and sub-Saharan Africa have disinvested: their productive base has shrunk during the period in question. In contrast, genuine investment was positive in China, India, and Pakistan. This could suggest that the latter count-

<table>
<thead>
<tr>
<th></th>
<th>I/Y</th>
<th>g(L)</th>
<th>g(W/L)</th>
<th>g(Y/L)</th>
<th>g(HDI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>-0.013</td>
<td>2.3</td>
<td>-2.60</td>
<td>1.0</td>
<td>3.3</td>
</tr>
<tr>
<td>India</td>
<td>0.080</td>
<td>2.1</td>
<td>-0.10</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Nepal</td>
<td>-0.024</td>
<td>2.4</td>
<td>-3.00</td>
<td>1.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Pakistan</td>
<td>0.040</td>
<td>2.9</td>
<td>-1.90</td>
<td>2.7</td>
<td>1.8</td>
</tr>
<tr>
<td>China</td>
<td>0.100</td>
<td>1.7</td>
<td>0.80</td>
<td>6.7</td>
<td>-0.2</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>-0.028</td>
<td>2.7</td>
<td>-3.40</td>
<td>-0.2</td>
<td>0.9</td>
</tr>
</tbody>
</table>

a I/Y: genuine investment as proportion of GNP. Source: Hamilton and Clemens (1999: Table 3).
c g(W/L): average annual percentage rate of change in per capita wealth. Assumed output–wealth ratio: 0.25.
tries were wealthier at the end of the period than at the beginning. But when population growth is taken into account, the picture changes.

The second column in Table 4 contains the annual percentage rates of growth of population over the period 1965–96. All but China have experienced rates of growth in excess of 2 percent per year. Next I estimate the average annual change in wealth per capita during 1970–93. To do this, I multiply genuine investment as a proportion of GNP by the average output–wealth ratio of an economy to arrive at the (genuine) investment–wealth ratio, and then compare changes in the latter ratio to changes in population size. Because a wide variety of natural assets (human capital and various forms of natural capital) are unaccounted for in national accounts, there is an upward bias in published estimates of output–wealth ratios, which traditionally have been taken to be something on the order of 0.30. In Table 4 I have used 0.25 as a check against the upward bias in traditional estimates. This is almost certainly still a conservatively high figure.

The third column in Table 4 contains my estimates of the annual percentage rate of change in per capita wealth. The striking message is that all but China have decumulated their productive base during the past 30 years. Notice how misleading would be an assessment of long-term economic development in the Indian subcontinent if it were based on growth rates in GNP per head (column 4) or time series of UNDP’s Human Development Index (HDI, column 5). Pakistan, for example, would be seen as a country where per capita GNP grew at a healthy 2.7 percent per year, implying that the index doubled in value between 1965 and 1996. Pakistan’s HDI also improved over the past decade. Unhappily, though, the average Pakistani became poorer (in terms of wealth) by a factor of nearly two during the past quarter-century.

The second weakness with reasonings based on Figure 1 is that among poor countries the relationship between per capita income and fertility is not strong. In Figure 1 countries with GNP per head under $1,000 display nearly the entire range of fertility rates prevailing in the early 1980s: from 2 to 8 births per woman. Notice that countries lying above the fitted curve are in sub-Saharan Africa, those below are in Asia. I will seek an explanation for this. Admittedly, Figure 1 displays a bivariate distribution, which could be misleading for a problem requiring multivariate analysis. The figure nonetheless reflects the possibility that among poor households in rural communities the aforementioned substitution effect is not large and cancels the income effect. This could be because responsibility for childrearing is frequently diffused over the extended family.17

The third weakness with global statistics is that they are overly aggregative. They gloss over spatial variations and disguise the fact that even though the world economy as a whole has enjoyed economic growth over the past 50 years or so, large masses of people in particular regions have remained
in poverty (Tables 2–3). Economic growth has not “trickled down” consistently to the poorest, nor have the poorest been inevitably “pulled up” by it.

Population, poverty, and natural resources: Local interactions

In view of the aggregative nature of global statistics, a few investigators have studied the interface of population, poverty, and the natural-resource base at the local level. The ingredients of their work have been around for some time; what is perhaps new is the way they have been assembled. Several models have been constructed to develop the new perspective. We are still far from having an overarching model of the kind economists are used to in the theory of general competitive equilibrium. Some models have as their ingredients large inequalities in land ownership in poor countries and the non-convexities that prevail at the level of the individual person in transforming nutrition intake into nutritional status and, thereby, labor productivity (Dasgupta and Ray 1986, 1987; Dasgupta 1993, 1997b). Other models are based on the fragility of interpersonal relationships in the face of an expanding labor market and underdeveloped credit and insurance markets (Dasgupta 1993, 1998a, 1999). Yet others are built on possible links between fertility behavior and free-riding on local common-property resources (Dasgupta and Mäler 1991, 1995; Nerlove 1991; Cleaver and Schreiber 1994; Brander and Taylor 1998). Although the models differ in their ingredients, they have in common a structure that is becoming increasingly familiar from the theory of locally interacting systems. To put it in contemporary terminology, the new perspective on population, poverty, and natural resources sees the social world as self-organizing into an inhomogeneous whole, so that, even while parts grow, chunks get left behind; some even shrink. To put it colloquially, these models account for locally confined “vicious circles.”

Later in this article I present an outline of this work when seen through a particular lens, namely reproductive and environmental externalities, and I emphasize the arguments that have shaped it and the policy recommendations that have emerged from it. The framework I develop focuses on the vast numbers of small, rural communities in the poorest regions of the world and identifies circumstances in which population growth, poverty, and resource degradation can be expected to interact with one another, cumulatively, over time. What bears stressing is that my account does not regard any of the three to be the prior cause of the other two: over time each of them influences, and is in turn influenced by, the other two. In short, they are all endogenous variables.

The models under discussion assume that people, when subjected to such “forces” of positive feedback, seek mechanisms to cope with the cir-
cumstances they face. The models also identify conditions in which this is not enough to lift communities out of the mire. Turner and Ali (1996), for example, have shown that in the face of population pressure in Bangladesh small landholders have periodically adopted new ways of doing things so as to intensify agricultural production. However, the authors have shown too that this has resulted in an imperceptible improvement in the standard of living and a worsening of the terms of land ownership, the latter probably owing to the prevalence of distress sales of land. Moreover, as Table 4 suggests, Bangladesh has decumulated its assets. These are the kind of findings that the new perspective anticipated and was designed to meet.

Economic demographers have given scant attention to reproductive externalities. An important exception was an attempt by Lee and Miller (1991) at quantifying the magnitude of reproductive externalities in a few developing countries. The magnitude was found to be small. The authors searched for potential sources of externalities in public expenditures on health, education, and pensions, financed by proportional taxation. But such taxes are known to be very limited in scale in poor countries. Moreover, the benefits from public expenditure are frequently captured by a small proportion of the population. So perhaps it should not be surprising that the reproductive externalities consequent upon public finance are small in poor countries. The externalities I study here are of a different sort altogether.

As we would expect from experience with models of complex systems, general results are hard to come by. The models that have been studied analytically are only bits and pieces. But they offer strong intuitions. They suggest also that we are unlikely to avoid having to engage in simulation exercises if we are to study models less specialized than the ones that have been explored so far. This should have been expected. It would seem that for any theoretical inference, no matter how innocuous, there is some set of data from some part of the world over some period that is not consonant with it. More than 40 years of demographic research have uncovered that the factors underlying fertility behavior include not only the techniques that are available to households for controlling their size, but also the household demand for children. The latter in particular is influenced by a number of factors (e.g., child mortality rates, level of education of the parents, rules of inheritance) whose relative strengths would be expected to differ across cultures, and over time within a given culture, responsive as they are to changes in income and wealth and the structure of relative prices. Thus, the factors that would influence the drop in the total fertility rate in a society from, say, 7 to 5 should be expected to differ from those that would influence the drop from 5 to 3 in the same society.

Across societies the matter is still more thorny. The springs of human behavior in an activity at once so personal and social as procreation are complex and interconnected, and empirical testing of ideas is fraught with
difficulty. Data often come without appropriate controls. So, what may appear to be a counter-example to a thesis is not necessarily so. Intuition is often not a good guide. For example, one can reasonably imagine that since religion is a strong driving force in cultural values, it must be a factor in fertility behavior. Certainly, in some multivariate analyses (e.g., Drèze and Murthi 2000, in their work on district-level data from India), religion has been found to matter (Muslims are more pronatalist than Hindus and Christians). But in others (e.g., Iyer 2000, in her work on household-level data from a group of villages in the state of Karnataka, India), it has not been found to matter. Of course, the difference in their findings could result from the fact that the unit of analysis in one case is the district, while in the other it is the household. But such a possibility is itself a reminder that complicated forms of externalities (e.g., externalities arising from conformist behavior) may be at work in fertility decisions.

Education and fertility control

Education and reproductive health programs together are a means for protecting and promoting women's interests. They were the focal points of the 1994 United Nations Conference on Population and Development in Cairo and are today the two pillars upon which public discussion on population is based. Later in this article I show that the “population problem” involves a number of additional features. Here I review what is known about the influence of education and reproductive health programs on fertility.

Women's education and fertility behavior

In two classic publications, Cochrane (1979, 1983) studied possible connections between women’s education and fertility behavior. She observed that lower levels of education are generally associated with higher fertility. Table 5, based on the Demographic and Health Surveys undertaken in Africa in the late 1980s, displays this relationship for Botswana, Ghana, Uganda, and Zimbabwe. The finding has proved to be intuitively so reasonable that social scientists have attributed causality—from education to reduced fertility.

What are the likely pathways of the causal chain? Here are some:

Education helps mothers to process information more effectively and so enables them to use the various social and community services that may be on offer more intensively. The acquisition of education delays the age at marriage and so lowers fertility. In populations with generally low levels of education and contraceptive prevalence, literacy and receptiveness to new ideas complement the efforts of reproductive health programs, leading to longer birth spacing. This in turn reduces infant mortality, which in turn leads to a decline in fertility.
Turning to a different set of links, higher education increases women’s opportunities for paid employment and raises the opportunity cost of their time (the cost of childrearing is higher for educated mothers). Additionally, educated mothers would be expected to value education for their children more highly. They would be more likely to make a conscious tradeoff between the “quality” of their children and their numbers (Becker 1981).

Yet Cochrane herself was reluctant to attribute causality to her findings, as have been investigators studying more recent data (Cohen 1993; Jolly and Gribble 1993), for the reason that it is extremely difficult to establish causality. Women’s education may well reduce fertility. On the other hand, the initiation of childbearing may be a factor in the termination of education. Even when education is made available by the state, households frequently choose not to take up the opportunity: the ability (or willingness) of governments in poor countries to enforce school attendance or make available good educational facilities is frequently greatly limited. Economic costs and benefits and the mores of the community to which people belong influence their decisions. It could be that the very characteristics of a community (e.g., an absence of associational activities among women, or a lack of communication with the outside world) that are reflected in low educa-

### Table 5: Women’s education and fertility rates: Selected countries where lower education is associated with higher fertility

<table>
<thead>
<tr>
<th>Country</th>
<th>Education level (years)</th>
<th>TFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>none</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>1-4</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>5-7</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>8+</td>
<td>3.4</td>
</tr>
<tr>
<td>Ghana</td>
<td>none</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>1-4</td>
<td>6.6</td>
</tr>
<tr>
<td></td>
<td>5-7</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>8+</td>
<td>5.5</td>
</tr>
<tr>
<td>Uganda</td>
<td>none</td>
<td>7.9</td>
</tr>
<tr>
<td></td>
<td>1-4</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>5-7</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>8+</td>
<td>5.7</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>none</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td>1-4</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>5-7</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>8+</td>
<td>3.7</td>
</tr>
</tbody>
</table>

SOURCE: Jolly and Gribble (1993: Table 3.6).
tional attainment for women are also those giving rise to high fertility. Demographic theories striving for generality would regard both women’s education and their fertility to be endogenous variables. The negative relationship between education and fertility in such theories would be an association, not a causal relationship. The two variables would be interpreted as “moving together” in samples, nothing more. In a later section I explore a theoretical framework that offers this interpretation.26

However, the links between women’s education and fertility are not as monotonic as I have reported so far. Set against the positive forces outlined above is a possible effect that runs the other way: taboos against postpartum female sexual activity, where they exist, can be weakened through the spread of education. In sub-Saharan Africa, where polygyny is widely practiced, postpartum female sexual abstinence can last up to three years after childbirth. It is also not uncommon for women to practice total abstinence once they have become grandmothers. The evidence, such as it exists, conforms to theory: in Latin America and Asia, primary education, when compared to no education, has been found to be associated with lower fertility, but in several parts of sub-Saharan Africa (e.g., Burundi, Kenya, and Nigeria) the relationship has been found to be the opposite. Table 6 displays the latter.27 The conventional wisdom that women’s education is a powerful force against pronatalism needs to be qualified: the level of education can matter.

### TABLE 6 Women’s education and fertility rates: Selected countries where primary education is associated with higher fertility

<table>
<thead>
<tr>
<th>Country</th>
<th>Education level (years)</th>
<th>TFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burundi</td>
<td>none</td>
<td>6.9</td>
</tr>
<tr>
<td></td>
<td>1–4</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>5–7</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>8+</td>
<td>5.8</td>
</tr>
<tr>
<td>Kenya</td>
<td>none</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td>1–4</td>
<td>7.7</td>
</tr>
<tr>
<td></td>
<td>5–7</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td>8+</td>
<td>5.0</td>
</tr>
<tr>
<td>Nigeria</td>
<td>none</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>1–4</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>5–7</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>8+</td>
<td>4.5</td>
</tr>
</tbody>
</table>

SOURCE: Jolly and Gribble (1993: Table 3.6) and Cohen (1993: Table 2.4).
Family planning

Except under conditions of extreme nutritional stress, nutritional status does not appear to affect fecundity (Bongaarts 1980). During the 1974 famine in Bangladesh, deaths in excess of those that would have occurred under previous nutritional conditions numbered around 1.5 million. The stock was replenished within a year (Bongaarts and Cain 1981). Of course, undernourishment can still have an effect on sexual reproduction, through its implications for the frequency of stillbirths, maternal and infant mortality, and a possible reduction in the frequency of sexual intercourse.

An obvious determinant of fertility is the available technology for birth control. Cross-country regressions (e.g., Pritchett 1994) confirm that the fraction of women of reproductive age who use modern contraceptives is strongly and negatively correlated with total fertility rates. So it should not be surprising that family planning programs are often seen as a prerequisite for an effective population policy. But these regression results mean only that contraception is a proximate determinant of fertility, not a causal determinant. The results could mean, for example, that differences in fertility rates across countries reflect differences in fertility goals, and thus differences in contraceptive use. Of course, the causal route could go the other way. The very existence of family planning programs might influence the demand for children, as women come to realize that it is reasonable to want a small family (Bongaarts 1997).

People in all societies practice some form of birth control: fertility everywhere is below the maximum possible. Extended breastfeeding and postpartum female sexual abstinence have been common practices in Africa. Even in poor countries, fertility is not unresponsive to the relative costs of goods and services. In a study on !Kung San foragers in the Kalahari region, Lee (1972) observed that the nomadic, bush-dwelling women had an average birth spacing of nearly four years, while those settled at cattle posts gave birth to children at much shorter intervals. From the viewpoint of the individual nomadic !Kung San woman, the social custom is for mothers to nurse their children on demand and to carry them during their day-long trips in search of wild food through the children’s fourth year of life. Anything less than a four-year birth interval would increase mothers’ carrying loads enormously, threaten their own capacity to survive, and reduce their children’s prospects of survival. In contrast to bush dwellers, cattle-post women are sedentary and are able to wean their children earlier.

Traditional methods of birth control include abortion, abstinence or rhythm, coitus interruptus, and prolonged breastfeeding. These options are often inhumane and unreliable; modern contraceptives are in many respects superior. Nevertheless, successful family planning programs have proved more difficult to institute than could have been thought possible at first (Cochrane and Farid 1989). Excepting a few countries, fertility rates in
sub-Saharan Africa have not shown significant decline, despite reductions in infant mortality rates over the past few decades.

In a notable article, Pritchett (1994) analyzed data from household surveys conducted by the World Fertility Survey and the Demographic and Health Survey programs, which included women’s responses to questions regarding both their preferences and their behavior related to fertility. Demographers had earlier derived indicators of the demand for children from these data. One such indicator, the “wanted total fertility rate” (Bongaarts 1990), can be compared to the actual total fertility rate for the purpose of classifying births or current pregnancies in a country or region as “wanted” or “unwanted.” Regressing actual fertility on fertility desires in a sample of 43 countries in Asia, Africa, and Latin America, Pritchett found that about 90 percent of cross-country differences in fertility rates are associated with differences in desired fertility. Moreover, excess fertility was found not to be systematically related to the actual fertility rate, nor to be an important determinant of the rate. The figure of 90 percent may prove to be an overestimate, but it is unlikely to prove to be greatly so. Even in poor households the use of modern contraceptives would involve only a small fraction (1 percent or thereabouts) of income.

Pritchett’s finding is significant, if only because it directs us to ask why the household demand for children differs so widely across communities. We turn to this matter next.

The household and gender relations

The concept of the household is not without its difficulties. It is often taken to mean a unit of housekeeping or consumption. The household in this sense is the eating of meals together by members, or the sharing of meals derived from a common stock of food (Hajnal 1982). This definition has the merit of being in accordance with most modern censuses, but one problem with it is that in rural communities it does not yield exclusive units (Goody 1996). A household shares a “table” and may, for example, include live-in servants who do not cook for themselves. In many cases some meals are had in common, while others are not; and often raw and cooked food is passed to parents in adjacent cottages, apartments, or rooms. The boundaries vary with context, especially where food is not consumed together round a table (as in Europe) but in bowls in distinct groups (as in sub-Saharan Africa). In none of these cases is the housekeeping unit the same as the consumption unit, nor is the consumption unit necessarily clearly defined.

Economists have taken the household to be a well-defined concept, but have debated whether it is best to continue to model it as a unitary entity, in the sense that its choices reflect a unitary view among its members of what constitutes their welfare (the utility maximizing model) or
whether instead the household ought to be modeled as a collective entity, where differences in power (e.g., between men and women) manifest themselves in the allocation of food, work, education, and health care.

Of course, one cannot conclude that households are not unitary from the mere observation that intrahousehold allocations are unequal. Poor households would choose to practice some patterns of inequality even if they were unitary. For example, since children differ in their potential, parents in poor households would help develop the most promising of their children even if that meant the remaining ones are neglected. This is confirmed by both theory and evidence (Becker and Tomes 1976; Bledsoe 1994). Daughters are a net drain on parental resources in patrilineal and patrilocal communities, such as those in northern India (dowries can be bankrupting). This fact goes some way toward explaining the preference parents show for sons there (Sopher 1980a, 1980b; Dyson and Moore 1983; Cain 1984) and why girls of higher birth order are treated worse than girls of lower birth order (Das Gupta 1987). In northern parts of India the sex ratio is biased in favor of men.

Nevertheless, the magnitude of the inequalities frequently observed is at odds with what would be expected in unitary households. The indirect evidence also suggests that the household is a collective entity, not a unitary one (Alderman et al. 1995). For example, if a household were unitary, its choices would be independent of which member actually does the choosing. But recent findings have revealed, for example, that income in the hands of the mother has a bigger effect on her family’s health (e.g., nutritional status of children) than income under the control of the father (Kennedy and Oniang’o 1990).

Because gender inequities prevail in work, education, and allocation of food and health care, it should not surprise us that they prevail in fertility choices as well. Here also, women bear the greater cost. To grasp how great the burden can be, consider that in sub-Saharan Africa the total fertility rate has for long been between 6 and 8 (Figure 1). Successful procreation involves at least a year and a half of pregnancy and breastfeeding. So in societies where female life expectancy at birth is 50 years and the total fertility rate is 7, women at birth can expect to spend about half their adult lives in pregnancy or nursing. And we have not allowed for unsuccessful pregnancies.

In view of this difference in the costs of bearing children, we would expect men to desire more children than women do. Birth rates are expected to be lower in societies where women are more “empowered.” Data from the 1980s on the status of women from 79 so-called Southern countries (see Table 7) confirm this and display an unmistakable pattern: high fertility, high rates of female illiteracy, low women’s share of paid employment, and a high percentage of women working at home for no pay all go hand in hand. From the data alone it is difficult to discern which measures
are causing high fertility and which are merely correlated with it. But the findings are consistent with the possibility that a lack of paid employment and education limits women’s ability to make decisions—a condition that promotes high fertility.

Household decisions would assume strong normative significance if the household were unitary, less so if it were not. The evidence is that the unitary household is especially uncommon when the family is impoverished and the stresses and strains of hunger and illness make themselves felt. Despite these caveats, I adopt a unitary view of the household in what follows. Because I am concerned here with reproductive and environmental externalities, doing so helps to simplify the exposition without losing anything essential.

Motives for procreation

One motive for procreation, common to humankind, relates to children as ends in themselves. We are genetically endowed to want and to value them. It has also been said that children are the clearest avenue open to “self-transcendence” (Heyd 1992). Viewing children as ends ranges from the desire to have offspring because they are playful and enjoyable, to a desire to obey the dictates of tradition and religion. One such injunction emanates from the cult of the ancestor, which, taking religion to be the act of reproducing the lineage, requires women to bear many children. The latter motivation has been emphasized by Caldwell and Caldwell (1990) to explain why sub-Saharan African societies have proved so resistant to fertility reduction.

The problem with this explanation is that, although it does well to account for high fertility rates in sub-Saharan Africa, it does not adequately explain why the rates have not responded to declines in infant mortality. The cult of the ancestor may prescribe reproduction of the lineage, but it does not stipulate an invariant fertility rate. Since even in sub-Saharan Africa fertility rates have been below the maximum possible, they should be

<table>
<thead>
<tr>
<th>TFR</th>
<th>No. of countries</th>
<th>Women’s share of paid employment (%)</th>
<th>Women in unpaid family work (%)</th>
<th>Women’s illiteracy rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;7.0</td>
<td>(9)</td>
<td>10.6</td>
<td>46.9</td>
<td>65.7</td>
</tr>
<tr>
<td>6.1–7.0</td>
<td>(35)</td>
<td>16.5</td>
<td>31.7</td>
<td>76.9</td>
</tr>
<tr>
<td>5.1–6.0</td>
<td>(10)</td>
<td>24.5</td>
<td>27.1</td>
<td>46.0</td>
</tr>
<tr>
<td>&lt;5.0</td>
<td>(25)</td>
<td>30.3</td>
<td>18.1</td>
<td>22.6</td>
</tr>
</tbody>
</table>

SOURCE: IIED/WRI (1987: Table 2.3).
expected to respond to declines in infant mortality. This is a matter I return to below, where I offer one possible explanation for the resistance that the semi-arid regions of sub-Saharan Africa have shown to fertility reduction.32

But for parents, children are not only an end; they can also be a means to economic betterment. In the extreme, they can be a means to survival. Children offer two such means. First, in the absence of capital markets and social security, children can be a source of private security in old age. There is evidence that in poor countries children do offer such security (Cain 1981, 1983; Cox and Jimenez 1992). This fact leads to a preference for male offspring if males inherit the bulk of their parents’ property and are expected to look after them in their old age.

Second, in agriculture-based rural economies children are valuable in household production. Evidence of this is extensive, although such evidence is, of course, no proof that parents have children in order to obtain additional labor. For example, people could have large numbers of offspring by mistake and put them to work only because they cannot afford to do otherwise. Or large families might be desired as an end in itself, and putting children to work at an early age may be the only avenue open for financing that end. However, these conjectures are hard to substantiate directly. The former is in any case difficult to believe, since it suggests an inability to learn on the part of parents in a world where they are known to learn in other spheres of activity, such as cultivation. But because the latter is not at variance with any evidence I know, I explore it in a later section.

Caldwell (1981, 1982) put forward the interesting hypothesis that the intergenerational transfer of resources flows from children to their parents in societies experiencing high fertility and high mortality rates, but that it flows from parents to their children when fertility and mortality rates are low. Assuming this to be true, the relationship should be interpreted merely as an association. The direction of intergenerational resource transfers would be endogenous in any general theory of demographic behavior; thus it would not be a causal factor in fertility transitions.

The historical change in the North in parents’ attitudes toward their children (from regarding children as a “means” to economic ends, to regarding them simply as an “end”) can seem to pose a puzzle, as can differences between the attitudes of parents in the North and South today. Some demographers have remarked that a fundamental shift in adults’ “world view” must have been involved in such changes in attitudes, a shift that Cleland and Wilson (1987) have called an “ideational change.”

These observers may be right. On the other hand, not only is the explanation something of a deus ex machina, it is also difficult to test. A different sort of explanation, one that is testable, is that children cease being regarded as productive assets when they cease being productive assets. When schooling is enforced, children are not as readily available for household and farm chores.
If the growth of urban centers makes rural children less reliable as old-age security (because children are now able to leave home and not send remittances), children cease being a sound investment for parents' old age. In short, if children were to become relatively unproductive in each of their roles as an economic asset, their only remaining value would be as an end. No change in world view would necessarily be involved in this transformation.

The above argument does not rely on economic growth. It involves a comparison between the productivity of different forms of capital assets. Children could cease being a sound economic investment even if the economy remained poor.

Reproductive and environmental externalities

What causes the private and the social costs and benefits of reproduction to differ? One likely source of the distinction has to do with the finiteness of space (World Bank 1984; Harford 1998). Increased population size implies greater crowding, and households acting on their own would not be expected to “internalize” crowding externalities. The human epidemiological environment becomes more and more precarious as population densities rise. Crowded centers of population provide a fertile ground for the spread of pathogens, and there are always new strains in the making. Conversely, the spread of infections, such as HIV, would be expected to affect demographic behavior, although in ways that are not yet obvious (Ezzell 2000).

Large-scale migrations of populations occasioned by crop failure, war, or other disturbances are an obvious form of externality. But by their very nature they are not of the persistent variety. Of those that are persistent, at least four types come to mind. In the remainder of this section I look into them.

Cost-sharing

Fertility behavior is influenced by the structure of property rights, for instance rules of inheritance. In his influential analysis of fertility differences between preindustrial seventeenth- and eighteenth-century Northwest Europe, on the one hand, and Asiatic preindustrial societies, on the other, Hajnal (1982) distinguished between “nuclear” and “joint” household systems. He observed that in Northwest Europe marriage normally meant establishing a new household, which implied that the couple had to have, by saving or transfer, sufficient resources to establish and equip the new residence. This requirement in turn led to late ages at marriage. It also meant that parents bore the cost of rearing their children. Indeed, fertility rates in England were a low 4 in 1650–1710, long before modern family planning methods became available and long before women became widely literate (Coale 1969; Wrigley and Schofield 1981). Hajnal contrasted this situation
with the Asiatic pattern of household formation, which he saw as joint units consisting of more than one couple and their children.

Parental costs of procreation are also lower when the cost of rearing the child is shared within the kinship. In sub-Saharan Africa fosterage within the kinship is a commonplace: children are not reared solely by their parents; the responsibility is more diffuse within the kinship group (Goody 1976; Bledsoe 1990; Caldwell and Caldwell 1990). Fosterage in the African context is not adoption. It is not intended to, nor does it in fact, break ties between parents and children. The institution affords a form of mutual insurance protection in semi-arid regions. It is possible that, because opportunities for saving are few in the low-productivity agricultural regions of sub-Saharan Africa, fosterage also enables households to smooth their pattern of consumption across time (Serra 1996). In parts of West Africa up to half the children have been found to be living with kin other than their parents at any given time. Nephews and nieces have the same rights of accommodation and support as do biological offspring. There is a sense in which children are seen as a common responsibility. However, the arrangement creates a free-rider problem if the parents' share of the benefits from having children exceeds their share of the costs. From the point of view of parents, taken as a collective, too many children would be produced in these circumstances.

In sub-Saharan Africa, communal land tenure within the lineage social structure has in the past offered further inducement for men to procreate. Moreover, conjugal bonds are frequently weak, so fathers often do not bear the costs of siring children. Anthropologists have observed that the unit of African society is a woman and her children, rather than parents and their children. Frequently there is no common household budget for the man and woman. Descent in sub-Saharan Africa is for the most part patrilineal and residence is patrilocal. Patrilineality, weak conjugal bonds, communal land tenure, and a strong kinship support system of children, taken together, have been a broad characteristic of the region (Caldwell and Caldwell 1990; Caldwell 1991; Bledsoe and Pison 1994). They are a source of reproductive externalities that stimulate fertility. Admittedly, patrilineality and patrilocality are features of the northern parts of the Indian subcontinent also, but conjugal bonds are substantially greater there. Moreover, because agricultural land is not communally held in India, large family size leads to fragmentation of landholdings. In contrast, large families in sub-Saharan Africa are (or at least were, until recently) rewarded by a greater share of land belonging to the lineage or clan.

Conformity and “contagion”

That children are seen as an end in themselves provides another mechanism by which reasoned fertility decisions at the level of every household
can lead to an unsatisfactory outcome from the perspectives of all households. The mechanism arises from the possibility that traditional practice is perpetuated by conformity. Procreation in closely knit communities is not only a private matter, it is also a social activity, influenced by both family experiences and the cultural milieu. Formally speaking, behavior is conformist if, other things being equal, every household’s most desired family size is the greater, the larger is the average family size in the community (Dasgupta 1993: ch. 12). This is a “reduced form” of the concept, and the source of a desire to conform could lie in reasons other than an intrinsic desire to be like others. For example, similar choices made by households might generate mutual positive externalities, say, because people care about their status; and a household’s choice of actions signals its predispositions (e.g., their willingness to belong) and so affects its status (Bernheim 1994; Bongaarts and Watkins 1996). In a world where people conform, the desire for children is endogenous.

Whatever the basis of conformism, there would be practices encouraging high fertility rates that no household would unilaterally desire to break. Such practice could well have had a rationale in the past, when mortality rates were high, rural population densities were low, the threat of extermination from outside attack was large, and mobility was restricted. But practices can survive even when their original purposes have disappeared. Thus, as long as all others follow the practice and aim at large family size, no household on its own may wish to deviate from the practice; however, if all other households were to restrict their fertility rates, each would desire to restrict its fertility rate as well. In short, conformism can be a reason for the existence of multiple reproductive equilibria (Dasgupta 1993: ch. 12). These multiple equilibria might even be Pareto rankable, in which case a community could get stuck at an equilibrium mode of behavior even though another equilibrium mode of behavior would be better for all.

Figure 2 depicts fertility choices in a stylized community where households are identical and are conformists and where the government has no population policy in place. The horizontal axis denotes $\bar{n}$, which is the average number of children born per household. It represents the TFR in the community. The vertical axis denotes $n^*$, which is the number of children desired by the representative household. Since households are identical, every household is representative. Because $n^*$ is a function of $\bar{n}$, we write it as $n^*(\bar{n})$. It is drawn as an increasing function, the distinctive feature of conformism. In Figure 2 it is drawn so that it intersects the 45° line at three points, $n_{1}$, $n_{2}$, and $n_{3}$. Each is an equilibrium. To confirm this, imagine for example that each household expects all other households to have $n_{3}$ children. Then $n_{3}$ will be each household’s choice, thus confirming the expectations. And so on for $n_{1}$ and $n_{2}$. Notice as well that $n_{1}$, $n_{2}$, and $n_{3}$ are the only equilibria. Let us assume now that out-of-equilibrium households expect the TFR in each period to be the previous period’s TFR (this is a special
form of so-called adaptive expectations). It is then easy to check that $n_1$ and $n_3$ are (locally) stable, while $n_2$ is unstable. So our interest here lies in $n_1$ and $n_3$.

I have not offered a micro-foundation for $n^*(n)$. The model is of a reduced form. But all households may be better off at $n_1$ than at $n_3$. However, in view of the externality, neither equilibrium is a socially optimal state of affairs. The optimal TFR may lie somewhere between $n_1$ and $n_3$ (say, at $\bar{n}$). If this were so, then from the social point of view TFR would be too low at $n_1$ and too high at $n_3$. In either situation there would be a need for government policy (e.g., a tax subsidy) of a kind that would sustain equilibrium TFR at $\bar{n}$. In Figure 2 the broken curve is the representative household’s desired number of children as a function of the community’s TFR when the optimum policy is in place. It intersects the 45° line at $\bar{n}$.

These are theoretical possibilities. Analytical reasoning tells us that a society could in principle get stuck at a self-sustaining mode of behavior characterized by high fertility (and low educational attainment), even when there is another, potentially self-sustaining mode of behavior characterized by low fertility (and high educational attainment).
This does not mean that the hypothetical society would be stuck with high fertility rates forever. External events could lead households to “coordinate” at $\bar{n}_1$, even though they had earlier “coordinated” at $\bar{n}_3$. The external events could, for example, take the form of public exhortations aimed at altering household expectations about one another’s behavior (e.g., family planning campaigns run by women). This is a case where the community “tips” from one mode of behavior to another, even though there has been no underlying change in household attitudes ($n^*(\bar{n})$ has not changed) to trigger the change in behavior.

In their aforementioned article Cleland and Wilson (1987: 9) argued that the only plausible way to explain the recent onset of fertility transitions among countries at widely different levels of economic development was an ideational change, “a psychological shift from, inter alia, fatalism to a sense of control of destiny, from passivity to the pursuit of achievement, from a religious, tradition-bound, and parochial view of the world to a more secular, rational, and cosmopolitan one.” The authors may be right that societies have undergone ideational changes, but they are wrong in thinking that ideational change must be invoked to explain recent fertility transitions. The tipping behavior I have just discussed is not a response to ideational changes. This said, I know of no evidence that is able to discriminate between the two types of explanation.

In addition to being a response to external events, the tipping phenomenon can occur because of changes in the peer group on whose behavior households base their own behavior. This amounts to the function $n^*(\bar{n})$ shifting slowly. Such shifts also may fall short of an ideational change. As I indicate below, however, the process can precipitate a demographic transition.

One pathway by which $n^*(\bar{n})$ can shift arises from the fact that people differ in their absorption of traditional practice. Inevitably there are those who experiment, take risks, and refrain from joining the crowd. They subsequently influence others. They are the tradition-breakers, often leading the way. It has been observed that educated women are among the first to make the move toward smaller families (see Farooq, Ekanem, and Ojelade 1987, for a commentary on West Africa). Members of the middle classes can also be the trigger, becoming role models for others.

Possibly an even clearer pathway is the influence that newspapers, radio, television, and now the Internet exert in transmitting information about other lifestyles (Freedman 1995; Bongaarts and Watkins 1996; Iyer 2000). The analytical point here is that the media may be a vehicle through which a new form of conformism increasingly becomes based on the behavior of a population wider than the local community: the peer group widens.

Such pathways can give rise to demographic transitions, in that fertility rates display little or no trend over extended periods, only to cascade downward over a relatively short interval, giving rise to the classic logistic curve of...
diffusion processes. To illustrate this, consider Figure 3, which is based on Figure 2. Begin with an isolated community. The curve ABCDE is the representative household’s demand for children as a function of the community’s total fertility rate, \( n^*(\bar{n}) \). As with Figure 2, there are three equilibria, \( \bar{n}_1 \), \( \bar{n}_2 \), and \( \bar{n}_3 \), of which \( \bar{n}_1 \) and \( \bar{n}_3 \) are locally stable, and \( \bar{n}_2 \) is unstable. We are to imagine that households have equilibrated at D, where the total fertility rate is \( \bar{n}_3 \). Imagine now that the community begins to have exposure to the outside world. To grasp the point in the simplest possible way, assume that the rate at which the community is exposed to outside influence (as measured, say, by the rate of increase in the number of television sets in the community) is small and steady. It is natural to assume next that, as outside influence increases, \( n^*(\bar{n}) \) shifts downward slowly. This means that the equilibrium TFR declines slowly. In Figure 3 the curve A' B' C' D' E' represents one such transitional demand schedule. The corresponding equilibrium TFR is associated with D'. Since D' is locally stable,

**FIGURE 3** A model of demographic transition
the assumption that the community equilibrates to D’ is correct. The underly-
ing hypothesis is that outside influence is a slow-moving variable and that the
community equilibrates quickly to changes in the extent of outside influence.

What would statistical demographers make of the process thus far? They would record that the community’s TFR had declined in response to increasing exposure to the outside world. But they would record that the decline was slow. As time passes, the demand schedule in Figure 3 continues to shift downward slowly and the TFR declines slowly, until eventually the schedule attains the position where there are only two equilibria: \( \bar{n}_1^* \) and \( \bar{n}_2^* \). (The intermediate equilibrium point has vanished at this critical juncture.) This stage is represented by the curve A*B*D*E*. Since the community will have equilibrated at D*, statistical demographers would observe that there had so far been no dramatic decline in fertility.

But what happens when the curve shifts down slightly further, say to become the curve A"B"E" in Figure 3? Now the schedule intersects the 45° line only once, at the stable equilibrium B" (at a TFR of \( \bar{n}_2^{**} \)). But because TFR had only recently been substantially above \( \bar{n}_1^{**} \), households will display disequilibrium behavior for a while, as they “seek” \( \bar{n}_1^{**} \). Demographers would record a substantial decline in TFR to \( \bar{n}_2^{**} \). Subsequent declines in TFR (one such decline is depicted in the lowest curve in Figure 3) again would be observed to be slow. Statisticians would record the period in which TFR declined sharply as a “demographic transition.” In our model the transition would be an extended period of disequilibrium behavior. It is worth noting that, in showing how fertility cascades can occur, I have assumed household responses to changes in outside exposure to be nonlinear: the shape of \( n^*(n-) \) has the nonlinearity built into it.\(^{40}\)

In a pioneering article Adelman and Morris (1965) found “openness” of a society to outside ideas to be a powerful stimulus to economic growth. It is possible that the recent fertility reductions experienced in India and Bangladesh (Table 3) were the result of the wider influence people have been subjected to via the media or of attitudinal differences arising from improvements in family planning programs. To be sure, fertility reductions have differed widely across the Indian subcontinent (not much reduction in Pakistan so far), but we should not seek a single explanation for so complex a phenomenon as fertility transition.\(^{41}\)

Demographers have made few attempts to discover evidence of behavior that is guided in part by an attention to others. Two exceptions are Easterlin, Pollak, and Wachter (1980) and Watkins (1990). The former studied intergenerational influence in a sample of families in the United States. They reported a positive link between the number of children with whom someone had been raised and the number of children they themselves had.

In her study of demographic change in Western Europe over the period 1870–1960, Watkins (1990) showed that regional differences in fertil-
ity and nuptiality within each country declined. In 1870, before the large-scale declines in marital fertility had begun in most areas of Western Europe, demographic behavior differed greatly within countries: provinces (e.g., counties and cantons) differed considerably, even while differences within provinces were low. There were thus spatial clumps within each country, suggesting the importance of the influence of local communities on behavior. By 1960 differences within each country were less than they had been in 1870. Watkins explained this convergence in behavior in terms of increases in the geographical reach national governments enjoyed over the 90 years in question. The growth of national languages could have been the medium through which reproductive behavior spread.

One recent finding could also point to contagious behavior. Starting in 1977 (when the TFR in Bangladesh exceeded 6), 70 “treatment” villages were served by a massive program of birth control in Matlab Thana, Bangladesh, while 79 “control” villages were offered no such special service. The prevalence of contraceptive use in the treatment villages increased from 7 percent to 33 percent within 18 months, and then rose more gradually to a level of 45 percent by 1985. The prevalence also increased in the control villages, but only to 16 percent in 1985. Fertility rates in both sets of villages declined, but at different speeds, with the difference in fertility rates reaching 1.5 births per woman, even though there had been no difference to begin with (Hill 1992). If we assume that, although influence travels, geographical proximity matters, we could explain why the control villages followed the example of villages “under treatment,” but did not follow them all the way. Contagion did not spread completely.42

Interactions among institutions

Externalities are prevalent when market and nonmarket institutions coexist. How and why might such externalities affect fertility behavior? A number of pathways suggest themselves (see also Dasgupta 1993, 1999).

Long-term relationships in rural communities of poor countries are frequently sustained by social norms—for example, norms of reciprocity. Social norms can be reliably observed only among people who expect to encounter one another in recurring situations.43 Consider a community of “far-sighted” people who know one another and expect to interact with one another for a long time. By far-sighted, I mean someone who applies a low rate to discount future costs and benefits of alternative courses of action. Assume that the parties in question are not individually mobile (although they could be collectively mobile, as in the case of nomadic societies); otherwise the chance of future encounters with one another would be low, and people would discount heavily the future benefits of the current costs they incur for the purposes of cooperation.
Simply stated, if people are far-sighted and are not individually mobile, a credible threat by all that they would impose stiff sanctions on anyone who broke the agreement would deter everyone from breaking it. But the threat of sanctions would cease to have bite if opportunistic behavior became personally more profitable. The latter would happen if formal markets develop nearby. As opportunities outside the village improve, people with lesser ties (e.g., young men) are more likely to take advantage of them and make a break with those customary obligations that are enshrined in prevailing social norms. People with greater attachments would perceive this and infer that the expected benefits from complying with agreements are now lower. Norms of reciprocity would break down, making certain groups of people (e.g., women, the old, and the very young) worse off. This is a case where improved institutional performance elsewhere (e.g., growth of markets in the economy at large) has an adverse effect on the functioning of a local, nonmarket institution: it is a reflection of an externality.

When established long-term relationships break down, people build new ones to further their economic opportunities. Those who face particularly stressful circumstances resort to draconian measures to build new economic channels. Guyer (1994) has observed that in the face of deteriorating economic circumstances, some women in a Yoruba area of Nigeria have borne children by several men so as to create immediate lateral links with them. Polyandrous motherhood enables women to have access to more than one resource network.

In his well-known work Cain (1981, 1983) showed that where capital markets are nonexistent and public or community support for the elderly is weak, children provide security in old age. The converse is that if community-based support systems decline, children become more valuable. But we have just noted that community-based support systems in rural areas may degrade with the growth of markets in cities and towns. So there is a curious causal chain here: growth of markets in towns and cities can lead to an increase in fertility in poor villages, other things being the same. Earlier we deduced an influence running in the opposite direction. There we noted that growth of markets in towns and cities, by making children less reliable as an investment for old age, can lead to a reduction in fertility. Only formal modeling of the process would enable us to determine which influence dominates under what conditions.

Household labor needs and the local commons

The poorest countries are in great part agriculture-based subsistence economies. Much labor is needed even for simple tasks. Moreover, many households lack access to the sources of domestic energy available to households in advanced industrial countries. Nor do they have water on tap. In semi-
arid and arid regions water supply is often not even close at hand, nor is fuelwood nearby when the forests recede. This means that the relative prices of alternative sources of energy and water faced by poor rural households are quite different from those faced by households elsewhere. In addition to cultivating crops, caring for livestock, cooking food, and producing simple marketable products, household members may have to spend several hours a day fetching water and collecting fodder and wood. These complementary activities have to be undertaken on a daily basis if households are to survive. Labor productivity is low because both capital and environmental resources are scarce. From an early age, children in poor households in the poorest countries mind their siblings and domestic animals, fetch water, and collect fuelwood, dung (in the Indian subcontinent), and fodder. Mostly, they do not go to school. Not only are educational facilities in the typical rural school woefully inadequate, but parents need their children's labor. Children between ages 10 and 15 years have been routinely observed to work at least as many hours as adult males (see, for example, Bledsoe 1994; Cleaver and Schreiber 1994; Filmer and Pritchett 1996).

The need for many hands can lead to a destructive situation when parents do not have to pay the full price of rearing their children, but instead share such costs with their community. In recent years, social norms that once regulated local resources have changed. Since time immemorial, rural assets such as village ponds and water holes, threshing grounds, grazing fields, swidden fallows, and local forests and woodlands have been owned communally. As a proportion of total assets, the presence of such assets ranges widely across ecological zones. In India the local commons are most prominent in arid regions, mountain regions, and unirrigated areas; they are least prominent in humid regions and river valleys (Agarwal and Narain 1989). There is a rationale for this, based on the human desire to reduce risks. Community ownership and control enabled households in semi-arid regions to pool their risks. An almost immediate empirical corollary is that income inequalities are less where common-property resources are more prominent. Aggregate income is a different matter, though, and the arid and mountain regions and unirrigated areas are the poorest. As would be expected, dependence on common-property resources even within dry regions declines with increasing wealth across households.

Jodha (1986, 1995), studying evidence from more than 80 villages in 21 dry districts in India, concluded that, among poor families, the proportion of income based directly on their local commons is for the most part in the range of 15–25 percent. A number of resources (such as fuelwood and water, berries and nuts, medicinal herbs, resin and gum) are the responsibility of women and children. In a study of 29 villages in southeastern Zimbabwe, Cavendish (1998, 1999) arrived at even larger estimates: the proportion of income based directly on the local commons is 35 percent, with
the figure for the poorest quintile reaching 40 percent. Such evidence does
not of course prove that the local commons are well managed, but it sugges-
ts that rural households have strong incentives to devise arrangements
thereby they would be well managed.

A number of investigators—among them Howe (1986); Wade (1988);
Chopra, Kadekodi, and Murty (1990); Ostrom (1990, 1992); and Baland
and Platteau (1995)—have shown that many communities have tradition-
ally protected their local commons from overexploitation by relying on so-
cial norms, by imposing fines for deviant behavior, and by other means. I
argued earlier that the very process of economic development, as exempli-
fied by urbanization and mobility, can erode traditional methods of control.
Social norms are endangered also by civil strife and by the usurpation of
resources by landowners or the state. For example, resource-allocation rules
practiced at the local level have frequently been overturned by central fiat.
A number of states in the Sahel imposed rules that in effect destroyed com-
munity management practices in the forests. Villages ceased to have au-
thority to enforce sanctions against those who violated locally instituted
rules of use. State authority turned the local commons into free-access re-
sources.46 As social norms degrade, whatever the cause, parents pass some
of the costs of their children onto the community by overexploiting the
commons. This is another instance of a demographic free-rider problem.

The perception of an increase in the net benefits of having children
induces households to have too many. This is predicted by the standard
type of the imperfectly managed commons (see the Appendix). It is also
true that when households are further impoverished owing to the erosion
of the commons, the net cost of children increases (of course, household
size continues to remain above the optimum from the collective point of
view). Loughran and Pritchett (1998), for example, have found in Nepal
that increasing environmental scarcity lowered the demand for children,
implying that the households in question perceived resource scarcity as rais-
ing the cost of children. Apparently, increasing firewood and water scarcity
in the villages in the sample did not have a strong enough effect on the
relative productivity of child labor to induce higher demand for children.
Environmental scarcity there acted as a check on population growth.

On the other hand, theoretical considerations suggest that, in certain cir-
cumstances, increased resource scarcity induces further population growth: as
the community’s natural resources are depleted, households find themselves
needing more “hands.” No doubt additional hands could be obtained if the
adults worked even harder, but in many cultures it would not do for the
to gather fuelwood and fetch water for household use.47 No doubt,
to, additional hands could be obtained if children at school were with-
drawn and put to work. But, as we have seen, mostly the children do not
go to school anyway. In short, when all other sources of additional labor
become too costly, more children are produced, thus further damaging the local resource base and, in turn, providing the household with an incentive to enlarge yet more. This does not necessarily mean that the fertility rate will increase. If the infant mortality rate were to decline, there would be no need for more births in order for a household to acquire more hands. However, along this pathway poverty, household size, and environmental degradation would reinforce one another in an escalating spiral. By the time some countervailing set of factors diminished the benefits of having further children and, thereby, stopped the spiral, many lives could have suffered by a worsening of poverty. In the Appendix I provide a simple model to illustrate such possibilities.

Cleaver and Schreiber (1994) have provided rough, aggregative evidence of a positive link between population increase and environmental degradation in the context of rural sub-Saharan Africa; Batliwala and Reddy (1994) for villages in Karnataka, India; and Heyser (1996) for Malaysia. In a statistical analysis of data from villages in the Sindh region in Pakistan, Filmer and Pritchett (1996) tentatively reported a positive link between fertility and deterioration of the local natural-resource base. The macroeconomic statistics in Table 4 are not at variance with this possibility either.

None of these investigations quite captures what the theory I am sketching here tells us to study, namely, the link between desired household size and the state of the local natural-resource base. But they come close enough; limitations in existing data prevent investigators from getting closer to the theory. In any event, these studies cannot reveal causal connections, but, excepting the study by Loughran and Pritchett (1998), they are consistent with the idea of a positive-feedback mechanism such as I have described. Over time, the spiral would be expected to have political effects, as manifested by battles for scarce resources, for example among competing ethnic groups (Durham 1979; Homer-Dixon, Boutwell, and Rathjens 1993; Homer-Dixon 1994). This last connection deserves greater investigation than it has elicited so far.

To be sure, families with greater access to resources would be in a position to limit their size and propel themselves into still higher income levels. Admittedly, too, people from the poorest backgrounds have been known to improve their circumstances. Nevertheless, there are forces at work that pull households away from one another in terms of their living standards. Such forces enable extreme poverty to persist despite the growth in wellbeing for the rest of society.

Institutional reforms and policies

If in earlier days social scientists looked for policies to shape social outcomes for the better, their focus today is more on the character of institutions within
which people make decisions. But if policies that read well often come to naught in dysfunctional institutions, the study of institutions on their own is not sufficient: good policies cannot be plucked from air. There is mutual influence here, and the task of the social scientist is to study it.

Demographers, like economists, seek good news. There is a danger that the recent onset of demographic transitions in parts of the Indian subcontinent and signs of an onset in some of the urban regions of sub-Saharan Africa will make demographers complacent. A distinguished student of demography remarked to me recently that, in view of the many signs of demographic transitions everywhere, the “population problem” is now over.

But it is not over. The ultimate size of the world’s population once the transitions have occurred will matter greatly. There is likely to be a world of difference between a global population of 11 billion and one of 5 billion, even if we ignored differences in their spatial distributions that would inevitably be implied (Cohen 1995). In this connection, it is worth stressing that some of the externalities I have identified in this article operate mainly in time, while others operate mainly through time (economists refer to them, respectively, as “static” and “dynamic” externalities). So even if world population were to stabilize, there would remain externalities whose presence calls for public policies.

In this article I have identified a number of institutional failures that are allied to pronatalist reproductive externalities. I have done this by trying to connect demographic and environmental perspectives. The perspective that emerges tells us that the most potent avenue for reducing the population problem in various parts of the world involves the simultaneous deployment of a number of policies, not a single panacea, and that the relative importance of the several prongs depends on the community in question. Thus, while family planning services (especially when allied to public health services) and measures that empower women (through both education and improved employment opportunities) are certainly desirable, other policies also commend themselves, such as the provision of infrastructural goods (e.g., cheap sources of household fuel and potable water), changes to property rights (e.g., the rules of inheritance), means of communication with the outside world (e.g., roads, telephones, radios, television, newspapers, and the Internet), and measures that directly increase the economic security of the poor. A number of these policies might well not have come to mind had we studied demographic problems in isolation.

In any event, the aim should not be to force people to change their reproductive behavior. Rather, it should be to identify policies and encourage such institutional changes as would “internalize” the externalities I have uncovered here. Recent declines in fertility rates in the Indian subcontinent and in parts of sub-Saharan Africa suggest that outside influence, via the media, may have been powerful. Observing lifestyles elsewhere can no
doubt be unsettling to many, but it can also give people ideas that are salutary. To the extent that reproductive behavior is based on conformism, modern communication channels, by linking the village to the outside world, have a powerful effect. But the media are likely to be hampered in arbitrary ways except in politically open societies. I have shown elsewhere (Dasgupta 1990; Dasgupta and Weale 1992) that in poor countries political and civil liberties are congruent with improvements in other aspects of life, such as income per head, life expectancy at birth, and infant survival. Subsequently, Przeworski and Limongi (1995) have shown that these liberties are negatively correlated with fertility rates. We therefore have several reasons for thinking that political and civil liberties have instrumental value, even in poor countries; they are not merely desirable ends. But each of the prescriptions offered by the new perspective presented here is desirable in itself and commends itself even when we do not have fertility rates of poor countries in mind. To me this is a most agreeable fact.

Admittedly, in all this I have looked at matters wholly from the perspective of parents. This is limiting. But developing the welfare economics of population policies has proved to be extremely difficult. Our ethical intuition at best extends to actual and future people; we do not yet possess a good moral vocabulary for including potential people in the calculus. I have tried to argue in this article that there is much we can establish even if we left aside such conceptual difficulties. Population policy involves a good deal more than making family planning services available to the rural poor. It also involves more than a recognition that poverty is the root cause of high fertility rates. The problem is deeper, but as I have tried to show, it is possible to subject it to analysis.

Appendix: The village commons and household size

The observation that increases in population size bring in their wake additional pressures on the local natural-resource base is, no doubt, a banality. So, in what follows I study the reverse influence: the effect of a deterioration of the local natural-resource base on desired household size.

I argued above that villagers' free-riding on the commons can impoverish households in such a way as to create an additional need for household labor. Such a need would translate itself into a demand for more surviving children if having more surviving children were the cheapest means of obtaining that additional labor. Of course, this is only one possibility; another is that the receding commons impoverishes households in such a way that, at the margin, children become too costly, with the result that the number of surviving children declines. In this Appendix I offer a formal account of both possibilities. The model outlined enables us to identify parametric conditions under which the various outcomes would be expected to occur. I then compare the noncooperative village to a cooperative one.
The model is timeless. Adjustments over time can then be analyzed in terms of comparative statics.

The single household

I consider an agriculture-based village economy consisting of \( N \) identical households. \( N \) is taken to be sufficiently large that the representative household’s size does not affect the economy. The model is deterministic. Household size is assumed to be a continuous variable, which is a way of acknowledging that realized household size is not a deterministic function of the size the household sets for itself as a target.

Let \( n \) be the size of a household. Members contribute to production, but they also consume from household earnings. I aggregate inputs and outputs and assume that household production possibilities are such that net income per household member, \( y(n) \), has the quadratic form,

\[
y(n) = -\alpha + \beta n - \gamma n^2,
\]

where \( \alpha, \beta, \gamma > 0 \), and \( \beta^2 > 4\alpha\gamma \). (1)

The quadratic form enables us to capture certain crucial features of a subsistence economy in a simple way, thereby permitting us to draw conclusions easily. For example, equation (1) presumes fixed costs in running a household, which is altogether realistic: in order to survive, a household must complete so many chores on a daily basis (cleaning, farming, animal care, fetching water and collecting fuel-wood, cooking raw ingredients, and so forth) that single-member households are not feasible. Equation (1) also presumes that when the household is large, the costs of adding new members begin to overtake the additional income that is generated. This too is clearly correct.\(^{52} \)

It follows from equation (1) that \( y(n) = 0 \) at

\[
n = \left[ \beta - \sqrt{\beta^2 - 4\alpha\gamma} \right] / 2\gamma
\]

and

\[
n = \left[ \beta + \sqrt{\beta^2 - 4\alpha\gamma} \right] / 2\gamma.
\]

\( n \) is the “fixed cost” of maintaining a household, while \( \bar{n} \) could be interpreted to be the environment’s “carrying capacity.” I assume that the household “chooses” its size so as to maximize net income per head. Let \( n^* \) denote the value of \( n \) at which \( y(n) \) attains its maximum and let \( y^* \) denote the maximum. Then

\[
n^* = \beta / 2\gamma
\]

and

\[
y^* = -\alpha + \beta^2 / 4\gamma.
\]

\( y(n) \) is depicted as the curve ABC in Figure A-1, where B is the point \((\beta / 2\gamma, -\alpha + \beta^2 / 4\gamma)\).
Imagine now that the household faces an increase in resource scarcity. We are to interpret this in terms of receding forests and vanishing water holes. The index of resource scarcity could then be the average distance from the village to the resource base. So, an increase in resource scarcity would mean, among other things, an increase in $n$. But it would typically mean more. For example, equations (2a,b) tell us that the household would face an increase in resource scarcity if $\alpha, \gamma,$ and $\alpha/\gamma$ were to increase and $\beta$ were to decline in such a way that $\bar{n}$ declines. Note too that in this case, both $n^*$ and $y^*$ would decline (equations (3a,b)). The resulting $y(n)$ is depicted as the curve $A'B'C'$ in Figure A-1. In short, the increase in resource scarcity shifts the curve ABC to $A'B'C'$.

Consider instead the case where each of $\alpha, \beta,$ and $\gamma$ increases, but in such ways that $\bar{n}$ and $n^*$ increase, while $\bar{n}$ and $y^*$ decline. This is the kind of situation in which a household finds that its best strategy against local resource degradation is to increase its size even while finding itself poorer. The resulting $y(n)$ is depicted as the curve $A''B''C''$ in Figure A-1. In short, the increase in resource scarcity shifts the curve ABC to $A''B''C''$. This sort of case was noted originally in Dasgupta and Mäler (1991) and Nerlove (1991).

Social equilibrium

I now construct an equilibrium of the village economy. The state of the local natural-resource base is taken to be a function of the village population, which I write...
as \( M \). So I assume that \( \alpha, \beta, \) and \( \gamma \) in equation (1) are functions of \( M \). Write \( \alpha = \alpha(M), \beta = \beta(M), \) and \( \gamma = \gamma(M) \). A symmetrical equilibrium of the village economy is characterized by \( M^* = \text{Nn}^* \). That is, \( n^* \) and \( y^* \) are the solutions of

\[
\frac{n^*}{\text{Nn}^*} = \alpha(M), \beta(M), \gamma(M).
\]

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\[
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\]

I assume that a solution exists and that \( n^* > 1 \).

The optimum village

Consider next an optimizing village community. It chooses \( n \) so as to maximize

\[
y(n) = -\alpha(Nn) + \beta(Nn)n - \gamma(Nn)n^2.
\]

Let \( \hat{n} \) be the optimum household size. Then \( \hat{n} \) is the solution of

\[
Nn n Nn N Nn n Nn n Nn \left[ \beta(Nn) - 2n\gamma(Nn) \right] - N\alpha(Nn) - n\beta'(Nn) + n^2\gamma'(Nn) = 0.
\]

A comparison of equations (4a) and (6) tells us that \( \hat{n} < n^* \) if

\[
-\alpha'(Nn^*) + n^*[\beta'(Nn^*) - n^*\gamma'(Nn^*)] < 0.
\]

That is, if equation (7) holds, the village is overpopulated in social equilibrium. An alternative way of thinking about the matter is to say that an institutional reform which reduces the “freedom of access” to the commons would lower fertility.

Now equation (7) certainly holds if

\[
\alpha', \gamma' > 0 \text{ and } \beta' < 0 \text{ at } n = n^*.
\]

But it holds also if

\[
\alpha', \beta', \gamma' > 0,
\]

and

\[
\left[ -\alpha + (\beta\beta'/2\gamma) - \beta^2\gamma'/4\gamma^2 \right] < 0 \text{ at } n = n^*.
\]

The effect of increased resource scarcity

Let us study the implications for equilibrium household size and the standard of living consequent upon small exogenous shifts in the functions \( \alpha(M), \beta(M), \) and \( \gamma(M) \). We assume that, prior to these shifts, the inequality depicted in equation (7) holds. The perturbations are taken to be sufficiently small so that equation (7) continues to hold in the new equilibrium.
Consider first the case where the perturbation consists of small upward shifts in $\alpha(M)$ and $\gamma(M)$ and a small downward shift in $\beta(M)$. Notice that if equation (8) holds, both $n^*$ and $y^*$ would be marginally smaller as a consequence of the perturbation. This is the case we would expect intuitively: a small increase in resource scarcity results in poorer but smaller households.

Now consider the case where equation (9) holds. Suppose the perturbation consists of small upward shifts in each of the functions $\alpha(M)$, $\beta(M)$, and $\gamma(M)$. We can set the relative magnitudes of the shifts such that the small increase in resource scarcity results in poorer but larger households—that is, $y^*$ declines marginally but $n^*$ increases marginally. This is the timeless counterpart of the positive feedback mechanism between population size, poverty, and degradation of the natural-resource base that was discussed in the text. Such a feedback, while by no means an inevitable fact of rural life, is a possibility. In this article I have argued that evidence of the experiences of sub-Saharan Africa and the northern Indian subcontinent in recent decades is not inconsistent with it.

Notes

This article synthesizes a class of ideas I have developed in Dasgupta (1992, 1993, 1995, 2000). While preparing the article I benefited greatly from discussions with Kenneth Arrow, Robert Cassen, Sriya Iyer, and Karl-Göran Mäler.


2 See, for example, Boserup (1981), Simon (1989), and Bauer (2000).

3 The $I=\text{PAT}$ equation of Ehrlich and Holdren (1971), in which Impact on the environment is a function of Population, Affluence, and Technology, is used by many to express this concern.

4 The modern classic is Becker (1981).


6 Daily (1997) is a collection of essays on the character of ecosystem services. See also Arrow et al. (1995) and Dasgupta, Levin, and Lubchenco (2000), both of which discuss the implications of the fact that destruction of ecosystems is frequently irreversible.


8 One of the rare exceptions is Bardhan and Udry (1999).


10 Surveying the field, Schultz (1988: 417–418) wrote: “Consequences of individual fertility decisions that bear on persons outside of the family have proved difficult to quantify, as in many cases where social external diseconomies are thought to be important…. The next step is to apply…microeconomic models [of household behavior] to understand aggregate developments in a general equilibrium framework. But progress in this field has been slow.”

11 Kelley (1988) contains a review of the findings. See also the survey of empirical growth economics by Temple (1999), who adopts a skeptical view regarding the deleterious consequences of population growth in poor countries.

12 The total fertility rate (TFR) is the number of live births a woman would expect to
have if she were to live through her childbearing years and to bear children at each age in accordance with the prevailing age-specific fertility rates. If the TFR were 2.1 or thereabouts, population in the long run would stabilize.

13 Schultz (1997) confirms this effect for a pooled set of cross-country data.

14 For a fuller discussion see Daily et al. (1998).

15 Wealth per head is the correct index only if production processes are subject to constant returns to scale. If they are not, the statement in the text needs to be modified (see Dasgupta and Mäler 2000). I am ignoring such refinements here. For many years environmental and resource economists argued that GNP should be replaced by net national product (NNP) as a measure of social well-being so as to accommodate environmental concerns. This argument was wrong: NNP is not an adequate welfare measure; wealth is.


17 Drèze and Murthi (2000) have found no effect of income on fertility in a pooled set of district-level data from India.

18 In this respect, the literature I am alluding to resembles much contemporary economic theory.

19 Brock and Durlauf (1999) and Levin (1999) offer useful accounts of that structure in a technical and nontechnical manner, respectively.

20 Myrdal (1944) called such forms of feedback “cumulative causation.”

21 Lutz and Scherbov (1990) offer a thoughtful review of why and how.

22 See Cleland (1996) for a demonstration of this.

23 To illustrate, with a random but representative example, I quote from a letter to the Guardian newspaper written by Anthony Young of Norwich, UK, on 24 April 2000. Tracing the prevailing famine in Ethiopia to overpopulation relative to Ethiopia’s resource base, he writes: “There is an ethically acceptable set of measures for reducing rates of population growth: improvement in the education and status of women, coupled with making family planning services available to all.”

24 Above low levels of education and contraceptive use, however, women’s education and family planning outreach activities appear to be substitutes.

25 Subsequent to Cochrane’s work, studies have found a positive association between maternal education and the wellbeing of children, the latter measured in terms of such indicators as household consumption of nutrients, birth spacing, the use of contraceptives, infant and child survival rates, and children’s height (see Dasgupta 1993: ch. 12, for references). As an indication of orders of magnitude, the infant mortality rate in households in Thailand where the mother had no education was found to be 122 per 1,000 live births, compared with rates of 39 and 19 per 1,000, respectively, for women with primary and secondary education; see World Bank (1991). However, a common weakness of many such empirical studies is their “bivariate” nature.

In pooled cross-section data for poor countries in the 1970s and 1980s, Schultz (1997) has found that the total fertility rate is negatively related to women’s and men’s education (the latter’s effect being smaller), as well as to urbanization and agricultural employment; and positively related to unearned income and child mortality. This is what the new household economics would lead one to expect.

26 In their careful analysis of district-level data in India from the 1981 and 1991 censuses, Drèze and Murthi (2000) have come the closest to claiming that a causal link exists between women’s education and fertility. But their study was not designed to test the kind of theoretical reasoning I am pursuing here.

27 Hess (1988) has conducted time-series analysis that attests to a positive association between primary education and fertility in parts of sub-Saharan Africa.

28 Anthropologists have argued, however, that in parts of western sub-Saharan Africa prolonged breastfeeding is not a birth control measure, but a means of reducing infant mortality: traditionally, animal milk has been scarce in the region.

29 I am grateful to John Bongaarts for helpful conversations on this matter.

30 Chen, Huq, and D’Souza (1981) is a pioneering quantitative study on the behavioral antecedents of higher female than male
mortality from infancy through the childbearing ages in rural Bangladesh. See Dasgupta (1993) for further references. It should be noted that stopping rules governing fertility behavior based on sex preference provide a different type of information regarding such preference than do sex ratios within a population. To see this, suppose that in a society where sons are preferred, parents continue to have children until a son is born, at which point they cease having children. Assume that at each try there is a 50 percent chance of a son being conceived. Now imagine a large population of parents, all starting from scratch. In the first round 50 percent of the parents will have sons and 50 percent will have daughters. The first group will now stop and the second group will try again. Of this second group, 50 percent will have sons and 50 percent will have daughters. The first subgroup will now stop and the second will have another try. But at each round the number of boys born equals the number of girls. The sex ratio is 1.

The argument also implies that population remains constant. To confirm this, note that because each couple has exactly one son, couples on average have one son. But because the sex ratio is 1, couples on average have one daughter also. Therefore, the average couple has two children. This means that in equilibrium the size of the population is constant.

31 Writing about West Africa, Fortes (1978: 125–126) says “a person does not feel he has fulfilled his destiny until he or she not only becomes a parent but has grandchildren. . . . [Parenthood] is also a fulfillment of fundamental kinship, religious and political obligations, and represents a commitment by parents to transmit the cultural heritage of the community. . . . Ancestry, as juridically rather than biologically defined, is the primary criterion . . . for the allocation of economic, political, and religious status.” See also Goody (1976). Cochrane and Farid (1989) remark that both the urban and rural and the educated and uneducated in sub-Saharan Africa have more, and want more, children than do their counterparts in other regions. Thus, even younger women there expressed a desire for an average of 2.6 more children than women in the Middle East, 2.8 more than women in North Africa, and 3.6 to 3.7 more than women in Latin America and Asia.

32 Between 1965 and 1987 the infant mortality rate in a number of the poorest countries in sub-Saharan Africa declined from about 200 per 1,000 live births to somewhere on the order of 150 per 1,000 live births (World Bank 1989).

33 Sundstrom and David (1988) apply this reasoning to parents in the United States prior to its Civil War.

34 This hypothesis could be tested by comparing the age structure of households that foster out with those that foster in.

35 To see that there is no distortion if the share of benefits and costs was the same, suppose c is the cost of rearing a child and N is the number of couples within a kinship. For simplicity, assume that each child makes available y units of output to the entire kinship, which is then shared equally among all couples. Suppose also that the cost of rearing each child is shared equally by all couples. Let n* be the number of children each couple other than the one under study chooses to have. (I presently endogenize this.) If n were the number of children this couple produces, it would incur the resource cost C=n(c+(N−1)n∗c)/N, and eventually the couple would receive an income from the next generation equaling Y=(ny+(N−1)n∗y)/N. Denote the couple’s aggregate utility function by the form U(Y−K(C), where both U(.) and K(.) are increasing and strictly concave functions. Letting n be a continuous variable for simplicity, it is easy to confirm that the couple in question will choose the value of n at which yU′(Y)=cK′(C). The choice sustains a social equilibrium when n=n*. It is easy to check that this is also the condition that is met in a society where there is no reproductive free-riding. It is a simple matter to confirm that free-riding occurs if the couple’s share of the benefits from having children exceeds their share of the costs.

36 Among the prominent Nayyars of the southern state of Kerala, descent is matrilineal. Kerala is noteworthy today for being among the poorer Indian states even while attaining a TFR below 2.

37 n* is taken to be a continuous variable as a way of acknowledging that realized household size is not a deterministic function of the size the household sets as a target for itself.
38 Because households are identical in this stylized model, by a socially optimal state I mean a Pareto optimum.

39 In game theory Figure 2 is called a coordination game.

40 Formally, the above is a model of demographic transitions viewed as “relaxation phenomena.” The mathematical structure I have invoked is similar to one that has recently been used by oceanographers and ecologists in their exploration of tipping phenomena in ocean circulation and lake turbidity, respectively. See Rahmstorf (1995) and Scheffer (1997).

41 In this connection, the Indian state of Andhra Pradesh offers an interesting example. Female illiteracy there is a high 55 percent, but some 75 percent of the population has access to radio or television. The fertility rate is now 2.3.

42 I am grateful to Lincoln Chen for a helpful 1996 correspondence on this point.

43 This is the setting studied in the theory of repeated games. See Fudenberg and Tirole (1991).

44 I am thinking of countries in sub-Saharan Africa and the Indian subcontinent. In those countries the agricultural labor force as a proportion of the total labor force is on the order of 60–70 percent, and the share of agricultural-value added in GNP is on the order of 25–30 percent.

45 In his work on south Indian villages, Seabright (1997) has shown that producers' cooperatives, unconnected with the management of local commons, are also more prevalent in the drier districts.


47 Filmer and Pritchett (1996) summarize empirical findings on children's time allocation to household activities in rural areas of poor countries.

48 However, Deon Filmer has informed me that his colleagues at the World Bank have found in a sample of Nepalese villages a positive relationship between (primary) school attendance and the availability of local natural resources.

49 Crook (1996) questions the poverty-population link. But because he treats population density and land productivity as exogenous variables, his is not quite a test of the thesis.

50 Enke (1966) is a notable exploration of the value of prevented births when the worth of additional lives is judged to be based entirely on their effect on the current generation. As a simplification, Enke took the value of a prevented birth to be the discounted sum of the differences between an additional person's consumption and output over the person’s lifetime.

51 I have addressed some of the difficulties elsewhere (Dasgupta 1998b).

52 The analysis that follows can be developed more generally, without recourse to the quadratic function.

53 I avoid rigor here and assume (without justification) that the optimum is symmetric in households.

References


Unmet Need for Family Planning in Developing Countries and Implications for Population Policy

John B. Casterline
Steven W. Sinding

“Unmet need for family planning,” which refers to the condition of wanting to avoid or postpone childbearing but not using any method of contraception, has been a core concept in the international population field for more than three decades. Under the label “KAP-gap,” for knowledge, attitudes, and practice regarding family planning, the concept had its origins in the first fertility and family planning surveys carried out during the 1960s. From the outset the KAP-gap was recognized as a preeminent rationale for investments in family planning programs because of its causal link to unwanted childbearing. Its central role as a justification for programmatic effort and, more fundamentally, as an organizing concept in international population had if anything solidified during the 1990s. As unmet need has come to occupy a central position, not surprisingly it has been subjected to careful scrutiny. Skepticism and criticism of the concept—its validity and its utility as a guide for policy formulation and program design—were cogently articulated and gained wide currency in the 1990s (Dixon-Mueller and Germain 1992; Pritchett 1994; Jain 1999). During the same period, a substantial body of new empirical research on unmet need for family planning was completed, and we sense that the broad significance of this research has not yet been widely recognized.

Our purpose here is to reexamine the utility of unmet need for family planning as an organizing concept for population policies and for reproductive health and family planning programs. Throughout the article our concern is the unmet need of reproductive-age women, although later in the article we briefly consider unmet need for family planning of men and, add-
ing further complexity, of couples. After reviewing the development of the concept and the debate surrounding it from the 1960s to the present, we address several questions that have been raised about the concept: (1) Is the concept valid, that is, are contradictions between fertility preferences and contraceptive behavior real? (2) Does unmet need have any bearing on the larger process of fertility transition? (3) What is the correspondence between unmet need, the demand for contraception, and the demand for family planning services? (4) Has the concept been too narrowly formulated? (5) Is unmet need amenable to programmatic action? (6) What is the role of unmet need in justifying population policies and informing the development of programs?

The first four questions address the meaning of the concept of unmet need, whereas the last two are questions about its utility. In considering these questions, we rely heavily on two sets of empirical studies conducted during the past five years. One consists of cross-national analyses of Demographic and Health Surveys (DHS) data, and the other consists of more-localized in-depth studies that have focused on unmet need for family planning and related issues. In most of the studies in this second set, survey interviews were complemented by semistructured qualitative interviews in which women and men were asked about their fertility preferences, their success in implementing them, their attitudes toward contraception, and the like. It is curious that, while unmet need for family planning and equivalent concepts (e.g., KAP-gap) are now at least three decades old, rigorous investigation of the factors that account for discrepancies between fertility preferences and contraceptive use is a relatively recent development.

Background

One of the central questions in population policy has been the extent of unintended fertility and, correspondingly, the amount of unsatisfied demand for fertility regulation. The extent of demand for fertility regulation is crucial to determining strategies to reduce high fertility. The assumption, often unstated, has been that prevention of unintended pregnancies through contraception is preferred to prevention of unintended births through induced abortion, although the impact on aggregate fertility rates is for all intents and purposes the same. From the 1960s onward, most economists (e.g., Kelley 1988) and many demographers (e.g., Davis 1967; Hauser 1969) questioned whether there was sufficient unsatisfied demand for fertility control in high-fertility countries to warrant a family planning services—or “supply-side”—approach.

To deal with this skepticism and to determine the extent of demand for fertility regulation, surveys on knowledge, attitudes, and practices regarding family planning were mounted in various parts of the developing
world in the 1960s. These so-called KAP surveys (Bogue 1974) showed that in nearly all societies a discrepancy existed between some women’s reproductive preferences and their contraceptive behavior, that is, there was a KAP-gap (Mauldin 1965; Berelson 1969). In most of these societies, there was no reason to believe that this gap could be readily closed through induced abortion. The identification of the KAP-gap was an important milestone in the development of population policies and programs through the 1960s, particularly in Asia. The documented existence of a significant group of women who expressed a desire to limit their fertility and who ostensibly would use family planning services if they were available inspired many governments to initiate ambitious family planning programs.

Nonetheless, much skepticism remained about the actual demand for family planning services. On the basis of analysis of women’s responses to three KAP surveys in Taiwan, Ronald Freedman and colleagues (Freedman, Coombs, and Chang 1972) first identified a subset of women who they argued would be especially receptive to contraception, even without changing the number of children they wanted, because they indicated a desire to terminate childbearing but reported no use of contraception. Two years later, Freedman and Coombs (1974) used survey data from several countries to generate estimates of the size of this group. Drawing on the social psychology literature, in which the discrepancy between attitudes and behavior is firmly established (e.g., Ajzen 1993), they called the gap between the “need” for family planning services and their use “discrepant behavior.”

The successor to the KAP surveys of the 1960s was the World Fertility Survey (WFS) program, which began in 1972 and ran through 1984, yielding surveys in 41 developing countries. In view of the crucial role of KAP-gap estimates in justifying support for population programs in their formative years, the limited effort of the WFS to broaden or deepen our understanding of this phenomenon is surprising. The WFS collected the pertinent information, but generating KAP-gap estimates was viewed as secondary to the goal of providing sound estimates of vital rates (fertility and mortality), the proximate determinants of fertility, and even fertility preferences. None of the 40 “comparative studies” produced by the WFS examines the relationship between fertility preferences and contraceptive use.2 (The WFS did, however, devote systematic effort to the estimation of unwanted fertility; see Lightbourne 1985.) Greater attention was given to the relationship between preferences and contraceptive use in analyses of data from surveys conducted under the Contraceptive Prevalence Surveys (CPS) project, which ran from 1978 to 1984 (Anderson and Morris 1981; Morris et al. 1981).

When the first set of WFS surveys from Asia became available, Westoff (1978) produced a five-country study of “unmet need for family planning,” the phrase he substituted for “KAP-gap” as an indication of his determination to develop more-refined measures of the discrepancy between
fertility preferences and contraceptive use. This was the first of several studies by Westoff and colleagues. In the first analyses, Westoff excluded pregnant and amenorrheic women on the grounds that they had no immediate need for contraception. This was one of a number of definitional issues that soon came to the fore. Subsequently, Westoff and Pebley (1981) showed that different definitions of unmet need (they specified 12 alternative definitions) produced estimates of the prevalence of unmet need that varied substantially (see also El-Zeini forthcoming). They also recommended that the unmet need concept be enlarged to cover the desire to space births as well as to limit childbearing (Westoff and Pebley 1981). The CPS surveys, unlike the WFS, included questions about interest in postponing or spacing births, so that it became possible to calculate the unmet need for spacing as well as for limiting births. A further broadening of the definition was advocated by Nortman, who argued that some pregnant, breastfeeding, and amenorrheic women should be included in the definition of unmet need because many would require contraception as soon as their current nonsusceptible status ended (Nortman 1982; Nortman and Lewis 1984).

The Demographic and Health Surveys became the vehicle for consolidating these refinements in the measure of unmet need. In the DHS, women who want more children are asked how soon they want to have the next birth. The DHS also asks pregnant and postpartum amenorrheic women whether their current or most recent pregnancy was intentional, mistimed, or unwanted (and also whether they were using contraception at the time of conception). With this information, Westoff and his collaborators developed an algorithm that is more complicated than the conventional KAP-gap measures of the 1960s and 1970s and more complicated than the unmet need indicators generated from the WFS, chiefly because it allows for unmet need for the spacing of births and because of the assessment of pregnant and amenorrheic women, who are included among the women with unmet need if their current or most recent pregnancy was unwanted or mistimed (Westoff 1988). This algorithm, in various formulations that differ only slightly, has been applied to several rounds of DHS surveys in the country reports and in comparative studies (Westoff and Ochoa 1991; Westoff and Bankole 1995). The DHS investment in measuring unmet need for contraception—the care taken in developing intricate algorithms and their application in numerous country and comparative reports—is indicative of the increasing importance the field has attached to unmet need and related concepts. The contraceptive prevalence rate (CPR) remains the contraception parameter of first interest in most quarters, but as time has gone by the prevalence of unmet need has assumed almost equal stature. Because unmet need joins together contraceptive behavior and fertility preferences, the concept represents a marked shift in emphasis, although it is not always recognized as such. An increasing emphasis on unmet need unavoidably
brings with it greater attention to the demand for children, a point we return to below.

By the early 1990s, unmet need for contraception was firmly established as a core concept in the family planning and population policy literature. While the concept was not without its critics—we devote much of the remainder of this article to reviewing the criticisms leveled at the concept—it appeared to demonstrate widespread demand for family planning services in many countries and a desire in nearly all societies to restrict fertility below prevailing levels. To be sure, this desire might also be attained through induced abortion, but the same survey data also contained women’s admissions that substantial fractions of their recent births were unwanted (Lightbourne 1985). This remains so, to varying degrees, in most contemporary societies (Adetunji 1998), despite the large number of pregnancies that are terminated by induced abortion, both safe and unsafe, legal and illegal (Alan Guttmacher Institute 1999). Survey-based estimates of the prevalence of unmet need helped to overcome the skepticism of many scholars and policymakers about the existence and extent of demand by individuals for the information and means needed to control their fertility. Throughout the 1970s and 1980s, the concept helped to accelerate the expansion of family planning services, both as freestanding programs and as integrated components of expanded primary health care services.

As preparations began for the 1994 International Conference on Population and Development (ICPD), advocacy groups for women’s health and rights, which had grown in size and determination over the previous two decades, set about using the ICPD as a means to shift the focus of population programs from demographic goals and targets to women’s lives, including but not limited to their reproductive health (Sen, Germain, and Chen 1994; McIntosh and Finkle 1995). The manifesto of this women’s movement became the 1994 “Women’s Declaration on Population Policies,” one of whose main planks was the elimination of demographic targets, quotas, and goals (International Women’s Health Coalition 1993). These demographically derived targets, it was argued, led to programs that frequently directed women to obtain unwanted sterilizations and inappropriate methods of family planning, and, in their worst manifestations, resulted in coercing women to undergo sterilization or abortion (Garcia-Moreno and Claro 1994). In the event, the concerted effort to redefine the principles underlying international population policies and programs was largely successful, as plainly reflected in the ICPD Programme of Action agreed to by more than 180 governments in Cairo in 1994 (McIntosh and Finkle 1995).

In retrospect, the preparations for the Cairo conference and the conference itself marked a historic redirection of the field. It is ironic that, in the highly charged political context of the early 1990s, the concept of unmet need for family planning—which had its origin in the mainstream family
planning movement of the 1960s and 1970s—assumed a new function as a bridge between the demographic and reproductive health points of view. From the standpoint of women's reproductive health rights, unmet need was taken as one indicator of the violation of such rights and one of several basic rationales for women's empowerment (McCauley et al. 1994; Germain 1997). From the demographic standpoint, an analysis published in 1994 (Sinding, Ross, and Rosenfield 1994) showed that, in nearly all countries that had specified demographic targets, fully satisfying the unmet need for contraception would result in contraceptive prevalence rates higher than the established targets. The interpretation placed on this finding was that public policies designed to satisfy existing demand for fertility regulation would obviate the need for targets that might be used as justification for activities that violated human rights. This conclusion reassured many governments, particularly European governments, that it was possible to achieve demographic goals without pursuing numbers-driven population policies. Rather surprisingly, empirical analysis seemed to have dissolved the assumed tension between individual and collective interests that had troubled the field for decades (Demeny 1986). In the ICPD Programme of Action, unmet need for family planning receives explicit mention as a core rationale for population programs, and the document goes on to say: “Governmental goals for family planning should be defined in terms of unmet needs for information and services.... All countries should, over the next several years, assess the extent of national unmet need for good-quality family-planning services...” (United Nations 1994: paragraphs 7.12 and 7.16). Reducing unmet need became a target in itself, rather than a means for achieving demographic goals (Sai 1997).

In hindsight, the period surrounding the Cairo conference may have been a high-water mark for unmet need as an organizing concept in the international population field. Some decline in enthusiasm for the concept follows inevitably from the lesser emphasis on family planning, as compared to other reproductive health issues, in the post-ICPD period. Below we consider whether unmet need for contraception has been too narrowly defined. Clearly there is scope for enlarging the concept, but it remains intrinsically a family planning concept, and thus it seems unavoidable that unmet need will become less compelling as family planning is seen as a less urgent priority and as an increasing portion of the need for family planning is satisfied.

As the term has gained wider currency, there have also been unfortunate misunderstandings of what it signifies. For many the term is not self-evident; and it is even offensive to some, especially nonspecialists. Even among specialists, many economists appear to be offended by the notion that any real need goes unmet. We consider this dispute at greater length in the next section. For others, resistance may reflect not so much a confu-
sion about the concept of unmet need for family planning as a legitimate difference in social policy priorities in the face of finite resources. For example, in research conducted in 1996, officials from selected European development agencies—nearly all of them nonspecialists—most commonly reacted to the term with the comment that there are many unmet needs in the development field, among which family planning services is just one (Market and Opinion Research International 1997). The ranking of more-effective fertility control (whether to serve individual or collective interests) as against other health and societal needs is a paramount public policy question that is, however, outside the bounds of this discussion.

More-focused misgivings about the concept have been articulated in the research literature, and it is to these that we devote the remainder of this article. Some of these echo skepticism about unmet need first expressed in the 1960s (with reference to the KAP-gap and repeated frequently up to the present), others are of more recent origin. In what follows, we lean heavily on recent empirical research.

Validity of the concept

Perhaps the most fundamental challenge to the concept of unmet need is the assertion that it does not refer to a valid behavioral phenomenon. This argument takes several forms, all of which share the premise that the discrepancy to which unmet need refers is illusory: it is an artifact of survey measurement and/or the algorithms that analysts apply to survey data; or, even if it accurately captures an apparent inconsistency between preferences and behavior, this contradiction exists only in the eyes of the data analyst, not in the experience of women and men, who perceive no contradiction between their fertility preferences and their reproductive behavior.

A rudimentary version of this argument dismisses survey-based measures of fertility preferences. This view was prominent in the early days of fertility surveys (Hauser 1967), but has essentially been refuted by the cumulative weight of empirical research over the past three decades showing that survey data on fertility desires possess substantial validity, as assessed either at the aggregate or the individual level (Westoff and Ryder 1977; Hermalin et al. 1979; Westoff 1990; De Silva 1991; Tan and Tey 1994; Bankole and Westoff 1998). Hence the major participants in the more recent debate about unmet need have not questioned the overall validity of preference data.6

Instead, the discussion has shifted to the question of whether unmet need has any correspondence with the expressed experiences of individuals or, instead, is a construct imposed on women in quantitative analysis conducted in research centers far removed from the communities where the survey interviews were carried out. Note that in the DHS and similar
surveys, women are not asked directly whether they perceive an inconsistency between their fertility preferences and contraceptive practice; rather the discrepancy is identified by the analyst through the comparison of responses to items in separate blocks of the questionnaire. In this sense unmet need is an inference on the part of the researcher, not a condition reported by the respondents themselves. The inference is twofold: that women who state a desire to postpone or terminate childbearing would like to take actions to avoid births, and that this should take the form of contraception rather than induced abortion (or any other actions women assume prevent births).

The most direct evidence that unmet need is real is the high incidence of pregnancies that are reported as unintended and—proof that induced abortion does not explain away unmet need—the large number of births that are reported as unwanted. With all the attention given to unmet need during the past decade, it is easy to forget that it is the desirability of preventing unintended pregnancies that justifies the focus on unmet need (Yinger 1998). Roughly one-fifth to one-quarter of births in the developing world are unwanted, as measured by women’s direct responses in surveys to a question about the wantedness of their most recent pregnancy (Bongaarts 1997b). In all likelihood this is an underestimate of unwanted births, because longitudinal survey data reveal women’s tendency for ex post revision of their preferences in favor of the wantedness of existing children (Bankole and Westoff 1998). Furthermore, because a substantial fraction of pregnancies are terminated through induced abortion (Alan Guttmacher Institute 1999), the fraction of pregnancies that are unwanted must be even higher than the fraction of births that are unwanted. A further fraction of recent births are reported as having occurred sooner than desired. Women’s willingness to report that large numbers of recent births were unwanted or mistimed is difficult to reconcile with the argument that unmet need occurs only in the minds of researchers and policymakers.

This debate does not answer the question of whether the existence of unmet need has any immediate salience for women and men. Several recent empirical studies have been revealing on this point. As some have surmised (e.g., Pritchett 1994), a substantial minority of women classified as having unmet need perceive themselves to be at low risk of conceiving. Current practice is to exclude infecund women—that is, women who are thought to be unable to bear any (more) children—from the category of unmet need. Many women who are classified as fecund, however, may regard themselves as being at sharply diminished risk of pregnancy, either because they infrequently engage in sexual intercourse or because they feel (correctly or incorrectly) that their fecundability is low. In a comparative analysis of DHS data, Westoff and Bankole (1995) show that low perceived risk of conceiving accounts for a substantial fraction of unmet need in many
countries. In more-localized in-depth studies of unmet need, the same finding emerges in the Philippines (Casterline, Perez, and Biddlecom 1997), Guatemala (Asturias de Barrios et al. 1998), Egypt (El-Zanaty et al. 1999), and Nepal (Stash 1999) but appears to be of less importance in Pakistan (Casterline, Sathar, and Haque forthcoming). In sub-Saharan Africa, a large fraction of women classified as having unmet need for birth spacing report that they are in postpartum abstinence (Westoff and Bankole 1995). It should not be surprising that women who, correctly or incorrectly, perceive themselves at low risk of conceiving see little reason for coping with the various costs and inconveniences of using contraception. Judging from these empirical studies, perception of a low risk of conceiving typically accounts for something on the order of 10–25 percent of the estimated unmet need for family planning. This is a nontrivial percentage, but hardly enough to invalidate the concept.

Equally revealing are the qualitative interviews conducted as part of the same set of in-depth studies. One line of questioning common to these studies was to ask women and men about their fertility preferences and their success in implementing them, in effect probing into their self-perception of unmet need for more effective fertility regulation. In all settings, it is clear that many women and men feel frustrated by their inability to adopt behaviors that would effectively prevent unintended pregnancies. Some individuals articulate the obstacles (deficiencies in the service environment, social barriers, and so forth) to implementing their preferences in fertility-regulation behavior, while others express only vague frustration that easily slips into resignation. Whether or not obstacles are identified, the transcripts from these qualitative interviews leave the reader with a sense of individuals' dissatisfaction with their ability to regulate their fertility.7 Furthermore, a willingness to rely on induced abortion, instead of contraception, as a means of preventing unintended births is not expressed commonly in any of these settings. It is not possible from these studies to determine what fraction of women classified as having unmet need for contraception perceive themselves to be in that condition, but the cumulative impression is that it is a majority, not a minority, of such women. The argument that unmet need is entirely a fiction devised by the survey analyst is effectively refuted by this qualitative research.

It is important to establish the fundamental validity of unmet need, and in so doing respond to two sets of criticism. The first criticism, common among economists, is that the concept is illogical: if individuals truly wish to regulate their fertility, they will find a means to do so. Under conventional economic theory, unmet need (which economists understandably confuse with unmet demand) can be viewed as a temporary disequilibrium that market forces would correct in short order. By this reasoning, nonuse of contraception simply demonstrates a lack of sufficient motivation (Demeny
1975; Pritchett 1994). The second criticism is that the concept of unmet need is patronizing (Pritchett 1994).

Both criticisms originate in misunderstandings of unmet need that can be attributed to the simplistic theorizing, and in many cases sheer absence of a sound behavioral model, in much of the mainstream research on unmet need. The key concept that has not been routinely articulated in this literature is preferences operating under constraints or, alternatively, competing preferences. Social scientists who have studied the relationship between attitudes, motivation, and behavior have long recognized that strongly held preferences will often not have direct behavioral counterparts because of obstacles to the implementation of those preferences or because other preferences overrule them (e.g., see reviews in Ajzen 1993; Eagly and Chaiken 1998; Dawes 1998; and Pittman 1998). By no means does this diminish the reality of the contradiction between preferences and behavior; rather, it explains how it can come about. The in-depth empirical studies of unmet need carried out during the past five years provide concrete verification, in the case of contraception, of the validity of the decisionmaking models proposed in the social psychology literature. In diverse settings, preferences to avoid pregnancy are stymied by various constraints and obstacles, most notably fear of health side effects and social opposition (e.g., from one’s spouse); hence, it is not surprising that a substantial fraction of pregnancies are reported as unintended. Stash (1999) describes the deliberate weighing of costs and benefits of using contraception in Nepal, with the frequent result that women and men do not use a method despite a clear desire to avoid pregnancy. In short, unmet need is not illogical, nor does it presume irrational decisionmaking.

Unmet need and fertility transition

A different line of argument questions the aggregate-level validity of the concept of unmet need. At issue is whether unmet need, as currently defined and measured, has any observable association with trends over time in contraceptive prevalence and fertility. If, the reasoning goes, unmet need correctly depicts a state of contradiction between fertility preferences and contraceptive practice, then adoption of contraception should be one of the common resolutions (induced abortion would be another). These individual-level decisions, in turn, when aggregated should result in an increase in contraceptive prevalence and a decrease in fertility (because of reduced rates of unintended pregnancies). If, however, changes in contraceptive prevalence and fertility rates are attributable mainly to changes in fertility desires, then unmet need would be an insignificant concept from the standpoint of explaining observed variation of fertility over time and space and, hence, of limited utility as an organizing concept for population policy.
This point of attack is adopted by Pritchett (1994) in an influential article. Citing the strong cross-sectional and over-time correlation between desired and actual fertility at the country level since 1970, Pritchett concludes that fertility decline is due almost entirely to changes in fertility desires, hence there is limited scope for affecting fertility through the reductions in unwanted fertility that would follow from satisfying unmet need. Pritchett’s argument is persuasive, and in fact few scholars would dispute his assertion that the fundamental force underlying fertility decline is a reduction in the number of births desired, itself a response to factors such as improvements in child survival, changes in the structure of the economy, and so forth. In building his argument Pritchett draws on evidence from a diverse set of empirical studies, using the various pieces of evidence to complement and reinforce each other. The linchpin in his case, however, is the fact that trends in actual fertility closely track trends in desired fertility. Or, equivalently, over the course of fertility transition the level of unwanted fertility is relatively stable.

From this Pritchett draws the inference that reductions in unwanted fertility must contribute very little to fertility decline. In drawing this inference he is mistaken, as Bongaarts (1997a, 1997b) shows through a simple model of reproductive behavior. Bongaarts’s model distinguishes between the unwanted fertility rate calculated with all women of reproductive age serving as the denominator and the fertility rate among the smaller group of women who want to terminate childbearing (by definition the only source of unwanted births). Absent reductions in the fertility rate among this latter group of women, unwanted fertility calculated for all women will increase in the early and middle stages of fertility transition, primarily because declines in desired family size place a larger fraction of women at risk of an unwanted birth. Put otherwise, if unwanted fertility rates are relatively unchanging over time among all women of reproductive age, a reduction in unwanted fertility can only occur if fertility rates fall among the growing subset of women who want to stop childbearing. Pritchett draws the wrong conclusion from his empirical evidence: rather than demonstrating that fertility decline is almost entirely a result of reductions in the demand for children, his evidence is more consistent with a historical process in which a reduction in fertility among those at risk of unwanted births makes a disproportionate contribution to the overall fertility decline. This avoidance of unwanted births, in turn, was achieved largely through the adoption of contraception, as is plainly demonstrated through a substantial body of survey data.

A recent article provides direct empirical evidence of the decisive contribution to contemporary fertility declines of satisfaction of unmet need. Feyisetan and Casterline (2000) examine changes in contraceptive prevalence in 26 countries in Asia, Africa, and Latin America between the late 1970s and the late 1990s. Using individual-level survey data on fertility pref-
ferences and contraceptive use, the authors determine what fraction of the observed change in contraceptive prevalence can be accounted for by changes in fertility preferences (i.e., demand-driven change) and what fraction is accounted for by increasing rates of use within preference categories (i.e., change due to satisfying unmet need, or, equivalently, due to increased implementation of fertility preferences). In all 26 countries, increasing rates of contraceptive use within preference categories account for a majority of the increase in prevalence (ranging from 61 percent in Ghana to 96 percent in Colombia). Changes in fertility preferences, by contrast, account for only about 20 percent of the increase in prevalence on average, and in none of the 26 countries do they explain more than 40 percent of the increase. The clear conclusion is that substantial increases in contraceptive prevalence (and, by this means, substantial declines in fertility) can be achieved in the absence of changes in the demand for children, through the satisfaction of already-existing demand for fertility regulation.\(^{11}\)

This research lends validity to the concept of unmet need and represents the aggregate-level counterpart to the individual-level phenomenon, evident in the qualitative research cited above, of a contradiction between fertility preferences and contraceptive behavior that individuals recognize and seek to resolve.

**Unmet need and the demand for family planning**

Beginning with the first efforts to devise survey-based estimates of unmet need, one of the most compelling incentives has been that these might serve as estimates of latent, or unsatisfied, demand for family planning (or, going a step further, demand for family planning services). Trustworthy estimates of latent demand would clearly have considerable practical utility for a number of disparate purposes (ranging from demographic projection to the allocation of program resources). Up to the present, it has been common to equate unmet need and latent demand for family planning. As one example, the penultimate DHS comparative analysis of unmet need is entitled *Unmet Need and the Demand for Family Planning* (Westoff and Ochoa 1991), and even the most recent DHS comparative analysis makes frequent use of the notion of “total demand for family planning,” which is defined as the sum of contraceptive prevalence and unmet need (Westoff and Bankole 1995). Analyses such as that of Sinding, Ross, and Rosenfield (1994), which shows that satisfaction of existing unmet need through contraception would, in itself, result in the attainment of established targets for contraceptive prevalence and fertility in most countries, implicitly assume that unmet need represents latent demand for family planning.

Several criticisms that can be leveled at the conclusions of Sinding et al. and similar exercises derive from skepticism that unmet need is equiva-
lent to latent demand for contraception. One criticism is that satisfaction of all unmet need is unattainable in the short term, rendering the hypothetical calculations in Sinding et al. of little practical value. A second criticism is that unmet need is a poor proxy for the near-term demand for family planning (and, more specifically, family planning services), as compared to other available indicators. We consider the two arguments in turn.

Beginning with the first criticism, undoubtedly many women with unmet need are unlikely to adopt contraception any time soon, not so much because of their lack of access to services but rather because of their extreme reluctance to use contraceptives, either because of their perception of a low risk of conceiving or because of social, cultural, and health concerns (Pritchett 1994). This point is buttressed by empirical research, reviewed below, on reasons for unmet need. Even if it were correct from an analytical standpoint to regard women with unmet need as having latent demand for contraception, as a practical matter the reasons many women have for not using contraceptives are so firmly established that contraceptive practice any time soon, or ever, is extremely unlikely. By this line of reasoning, the calculations in Sinding et al. exaggerate the potential demographic impact of any determined effort to satisfy unmet need. But from this does it follow that estimates of unmet need can be dismissed as simply uninformative about latent demand for family planning? A more balanced view is that some fraction of the estimated unmet need does indeed represent latent demand for family planning that is susceptible to conversion into contraceptive use.

This last view governs the DHS analysis by Westoff and Bankole (1996), who consider several scenarios in which only a subset of women with unmet need adopt contraception. In particular, if one assumes that only those women with unmet need who state an intention to use contraception in the future are prepared to adopt—arguably a conservative assumption—this still implies an increase in contraceptive prevalence of 60 percent on average (nearly 100 percent in countries in sub-Saharan Africa, where prevalence starts from low levels, and around 20 percent elsewhere), and an average decline in the total fertility rate (TFR) of 15 percent. Although this may seem a modest reduction in the TFR, in the majority of countries it represents 20 percent to 50 percent of the distance to replacement-level fertility. The primary conclusion to be drawn from Westoff and Bankole's analysis is that substantial demographic impact would follow from satisfying a fraction of existing unmet need. Under plausible (if ambitious) scenarios, a compelling demographic rationale for a focus on unmet need remains, and the key conclusions of Sinding et al. are confirmed.

The approach taken by Westoff and Bankole is ultimately unsatisfying, because the choice of the fraction of unmet need that represents a conscious demand for family planning is arbitrary. This shortcoming is a major motivation for conducting experimental studies, such as the highly influ-
ential Matlab project in Bangladesh,\textsuperscript{12} that ascertain how women and men with unmet need respond to specific modifications of their environment. For now, we must settle for an imperfect understanding of the relationship between unmet need and the demand for family planning. Only if it were feasible to make contraceptive practice cost-free (with costs broadly defined to include cultural, social, and health costs as well as financial and time costs) would it be correct to regard all women and men with unmet need as having a latent demand for family planning that could readily become manifest. Short of that ideal and unrealizable condition, the category “unmet need” is composed of women who vary considerably in their demand for family planning. Some of these women desire to practice contraception under present circumstances or a change of circumstances that is within reach, while others would be prepared to use contraception only if significant features of their present circumstances could be modified. Some may prefer to rely on induced abortion, although there is considerable evidence that in most societies most women prefer contraception to abortion as a means of preventing births. How easily unmet need can be converted into use of contraception is a function of the nature and strength of the obstacles preventing implementation of preferences, and these will vary from setting to setting. Once this is recognized, clearly it is a mistake to link the validity of the concept of unmet need to its success in capturing demand for family planning.\textsuperscript{13}

This leads to the second criticism of using unmet need as a proxy for demand for contraception, namely that better indicators are available. To ascertain the fraction of women and men with conscious demand, the most direct measure provided by surveys is the intention to use contraception in the future, typically an item asking the respondent whether she or he intends to use any time in the future or, more usefully, within the next 12 months. Prospective studies have demonstrated a strong correspondence between the intention to use and subsequent contraceptive behavior (e.g., Adler et al. 1990; Bhatia 1982; Curtis and Westoff 1996). Of particular relevance to our argument, recent analyses of DHS data by Ross and Heaton (1997) and Ross, Stover, and Willard (1999) show that a substantial fraction of nonusers who intend to use are not captured by conventional definitions of unmet need. If the aim is to estimate short-term demand for family planning, then the sum of contraceptive prevalence (with some allowance for discontinuation) and those intending to use is a more valid indicator than the sum of contraceptive prevalence and the prevalence of unmet need, even allowing for some failure to use among those stating an intention to use, because of the types of obstacles we have alluded to earlier.\textsuperscript{14} Note that this constitutes a departure from the logic of the algorithms developed by Westoff and colleagues. Those algorithms are assiduously cross-sectional in their frame of reference; their aim is to estimate unsatisfied need for pregnancy avoidance as of the date of the survey interview, not in the succeed-
ing months or years. When assessing the short-term demand for family planning services, in contrast, one must include sexually inactive women who might soon become active: for example, adolescents and women practicing postpartum abstinence. This concern has motivated the development of algorithms for estimating future demand that take into account reproductive dynamics (e.g., Nortman and Lewis 1984).

Broadening the definition

One criticism leveled with increasing frequency at the concept of unmet need for family planning is that the concept is too narrow. Many advocates for women’s health and rights argue that unmet need is a misleading term because, as presently defined, it neglects reproductive health needs other than preventing births and neglects potential clients other than married women (Dixon-Mueller and Germain 1992; Dixon-Mueller 1993). In the sharpest versions of this criticism, unmet need is seen as a device that demographers have used to justify the expansion of family planning services for the purpose of reducing fertility—a Trojan horse for implementing demographic policies. According to these critics, reference to unmet need sustains a focus on numbers that has led to an expansion of services which do little to improve the reproductive health of women. By emphasizing demographic rather than health outcomes, proponents of unmet need perpetuate programs that serve women’s health needs poorly and at worst are coercive (Hartmann 1987). Less radical versions of this criticism contend that the standard measure of unmet need fails to take into account the degree to which women are dissatisfied with their present method of contraception and with the quality of services through which methods are provided. These critics argue that unmet need should include qualitative as well as quantitative dimensions (Bruce 1990). Contraceptive users may still have family planning needs, and high contraceptive prevalence rates can coexist with the persistence of significant unmet family planning needs.

Some of these arguments, when examined more closely, do not identify shortcomings in the concept of unmet need for family planning per se, nor deficiencies in the way the concept has been applied, but rather constitute a rejection of the priority placed on family planning compared with other reproductive health behaviors and services. This is a legitimate stance to take, but is outside the scope of this discussion. We assume that prevention of unintended pregnancies is a widespread goal of women and men, that contraceptive practice is a principal mechanism for pregnancy prevention, and that it is appropriate for public policies and programs to be developed that facilitate individuals’ avoiding unintended pregnancies. How this goal ranks against other reproductive health goals—for individuals, for larger collectivities—is a separate matter. We see nothing intrinsic to the concept
of unmet need for family planning that requires contraception for the purpose of pregnancy prevention to be regarded as of higher or lower priority than other health needs. Concepts analogous to “unmet need for family planning” that refer to other types of reproductive health needs can certainly be proposed, accompanied by the development of appropriate techniques for measuring their prevalence empirically (Omran et al. 1992; Short 1994). Moreover, in many settings a necessary ingredient in the improvement in the quality of family planning services is enhanced sensitivity to women’s broader reproductive health needs. Reproductive morbidity often discourages women from adopting or continuing to use contraception. In this sense, family planning and broader reproductive health agendas are not at odds with each other, indeed can be highly synergistic. A priority on reducing unmet need for family planning is by no means hostile to giving similar priority to meeting other reproductive health needs.

Beyond these larger issues of philosophy and purpose, we see considerable practical value in retaining a concept that focuses on family planning for the purpose of pregnancy prevention. In the same vein, we also favor retaining individual fertility preferences as the criterion for ascertaining the existence of unmet need for contraception. Some have proposed alternative definitions that use various health-risk criteria—for example, the woman’s age and parity, regardless of her desire to postpone or terminate childbearing (DeGraff and de Silva 1996)—but we view these as fundamentally different, albeit legitimate, bases for determining unmet need. The emphasis on individual reproductive aspirations is a hallmark of the concept of unmet need for family planning that emerged several decades ago.

Even given our adherence to this concept of unmet need, however, we recognize significant deficiencies in the empirical research to date. The underlying rationale for the concept is that unintended pregnancies are an undesirable outcome (Yinger 1998; Jain 1999). Obviously, married women are not the only persons at risk of unintended pregnancies: unmarried women and men (whether married or unmarried) are also at risk. Despite the calls of Dixon-Mueller and Germain (1992) and others to enlarge the definitions of unmet need to encompass these other groups, progress in this direction has been disappointing. The most recent DHS comparative analysis of unmet need contains estimates for unmarried women in most countries, but, as the authors concede, the estimates rest on a number of debatable assumptions (Westoff and Bankole 1995). The challenge in studying unmet need for family planning among unmarried women is, first, measuring sexual exposure (which is assumed for married women, although clearly this is not always the case) and, second, measuring fertility preferences. Both pieces of information are less easily obtained from unmarried individuals in most settings. Another practical obstacle is that ordinarily the data-collection instruments for the unmarried must be substantially differ-
ent from the instruments for the married, because questions about fertility
desires, pregnancy and childbearing experience, contraceptive knowledge
and practice, and so forth must be tailored to their different life situation.

The concept of unmet need for family planning is as straightforward
when applied to men as to women: like women, men may wish to post-
pone or terminate their reproduction. Obviously, the consequences of preg-
nancy are different for men than for women, but this does not modify the
basic concept of unmet need. The major complication with men is that they
can father children with more than one woman, hence in theory their un-
met need is woman-specific. This means that in empirical research infor-
mation must be obtained about men’s fertility preferences and contracep-
tive practice partner-by-partner. As with unmarried women, there has been
limited empirical research on men’s unmet need for family planning (for
examples, see Dodoo, Luo, and Panayotova 1997; Ngom 1997).

A related topic of research is “couple unmet need” (Bankole and Ezeh
1997; Becker 1999). Given that fertility preferences are a property of indi-
viduals rather than couples, couple unmet need does not seem a useful con-
cept, unless its formulation explicitly recognizes the possibility of spousal
discordance in fertility preferences. The comparison between preferences
and behavior that lies at the heart of unmet need makes no sense for dyads
in which one partner can have preferences that differ from the other
partner’s. This is another instance of the irresolvable nature of what de-
mographers usually term the “two-sex problem.” There are many relevant
topics to investigate without resorting to the concept of “couple unmet need”: sex differences in levels of unmet need, the extent to which the attainment
of one partner’s preferences is incompatible with the attainment of the other
partner’s preferences, and the influence of each partner on the contracep-
tive attitudes and behaviors of the other (e.g., Ezeh 1993).

A final respect in which the conventional approach to unmet need
has been criticized as being too narrow is the neglect of contraceptive users
who are dissatisfied with their method or by some other criteria are using
an inappropriate method (Dixon-Mueller and Germain 1992; Foreit and
Mostajo 1993). One simple rule is to exclude less efficacious contraceptive
methods—certain of the so-called traditional methods, for example—from
the definition of contraceptive use, rendering women using these methods
eligible for inclusion in the unmet need category. In Vietnam, applying this
rule to recent survey data results in an increase in the percentage of cur-
rently married women with unmet need from 14 percent to 36 percent (Phai
et al. 1996). In considering whether such refinements of the definition of
unmet need are desirable, we return to the overarching goal that motivates
the concept, namely the avoidance of unintended pregnancies (Yinger 1998).
Contraception that provides inadequate protection from pregnancy—either
because of features intrinsic to the method or because users are dissatisfied
and therefore use the method incorrectly—does not meet this goal, and by leaving users at risk of an unintended pregnancy does not completely remove them from the state of unmet need for family planning. In our view, therefore, classifying some users as having unmet need is in principle consistent with the basic concept of unmet need as it has been understood over the years. Conceptual issues remain to be resolved, particularly whether unmet need should be viewed not as a dichotomy but as a continuum, with some individuals having a greater degree of unmet need (or, better, a greater risk of an unwanted pregnancy) than others (El-Zeini forthcoming). There are also measurement challenges: for example, how can use-effectiveness and method dissatisfaction be ascertained in a DHS-type survey?

Unmet need and programmatic action

From the 1960s to the present, survey estimates of widespread prevalence of unmet need (or its predecessor “KAP-gap”) have been used to justify public and private investment in programs to provide family planning services to women and men, presuming that unmet need can be successfully addressed through programmatic interventions. Whether or not it can depends, first, on the nature and strength of the obstacles to the implementation of fertility preferences and, second, on the degree to which those obstacles can be weakened or even eliminated through programmatic interventions. Hence, in considering the role of unmet need in justifying and informing the design of programs, we begin with a review of evidence on the causes of unmet need.

We can point to nine in-depth studies conducted in the 1990s that entailed primary data collection (mixing qualitative and quantitative approaches), complemented by several DHS analyses that in effect examine the same problem (Bongaarts and Bruce 1995; Westoff and Bankole 1995). This surge in research on the causes of unmet need can be attributed to an awareness of a significant void in the empirical literature, combined with a renewed commitment by donors (including the Rockefeller Foundation, the US Agency for International Development, and the Hewlett Foundation) to advancing scientific knowledge on this problem. This research investment is indicative of a recognition on the part of these donors that a better understanding of individuals’ reproductive aspirations and the barriers to realizing those aspirations is a prerequisite if policies and programs are to be refashioned in a manner that is responsive to the Cairo agenda.

For the purpose of informing the design of programmatic interventions to reduce unmet need, the basic question is to what extent nonuse can be attributed to the properties of contraceptive methods or of family planning services, as against entrenched social and cultural barriers. If, for example, the primary reason that women do not act on their desire to limit fertility is the
opposition of husbands, other kin, and/or influential members of the community, then programs must develop strategies for reducing these social barriers. Or perhaps the sensible conclusion is that there is little that family planning programs can do to overcome such barriers, in which case the rationale for investment in such programs is seriously undermined. If, on the other hand, the primary reason for nonuse is a fear of side effects or other issues related to the service delivery environment, presumably informational and organizational reforms can be undertaken in response.

The usual conclusion that emerges from recent empirical research is that inadequate access to services is not one of the predominant causes of unmet need. This finding is consistent with evidence in DHS surveys (Bongaarts and Bruce 1995; Westoff and Bankole 1995). It would be a mistake to infer from this finding that problems related to access have been eliminated. Women and men in rural Pakistan, for example, identify the remoteness of family planning services as one of the main barriers to contraceptive use (Population Council/Islamabad 1997). But in general, inadequate access to services is less often cited as a reason for unmet need than other costs of contraceptive use, most notably social opposition and health concerns, as discussed below.

In evaluating this finding, two points must be kept in mind. First, by design none of the in-depth studies of reasons for unmet need reviewed here permits a rigorous assessment of the contribution of the accessibility of services, as might be achieved, for example, through a quasi-experimental design (pre-test, intervention, post-test) or even a sample design stratified on access to services. While women rarely cite lack of access as a primary reason for not using contraceptives, a properly designed comparison of women with adequate and inadequate access might reveal substantial differences in the prevalence of unmet need. Well-designed quasi-experimental studies in several settings demonstrate that improved access can have large effects on contraceptive prevalence (for Bangladesh, see Koenig et al. 1992 and Cleland et al. 1994; for northern Ghana, see Debpuur et al. forthcoming). A second and more fundamental point about the role of the family planning service environment is that many of the nonaccess barriers to use identified below can be attacked through appropriately designed programmatic initiatives (Bongaarts and Bruce 1995).

Of the causes of unmet need other than those related to access to services, three emerge from the in-depth studies as especially salient: lack of necessary knowledge about contraceptive methods, social opposition to their use, and health concerns about possible side effects.

On the matter of knowledge, there are many potential informational barriers to contraceptive use. Women must be aware of contraceptive methods, they must know where supplies of these methods can be obtained and how much they cost (with the exception of methods such as withdrawal and rhythm), and they must know how to properly use the method they
select. There are few settings in which most women possess all the necessary information. Indeed, in sub-Saharan Africa substantial fractions of women are simply not aware of any modern methods of contraception (Westoff and Bankole 1995). Elsewhere, many are aware of only one or two rather than the full range of available methods. Incomplete or erroneous information about where to obtain methods and how to use them may be even more prevalent (Robey, Ross, and Bhusan 1996). These types of information problems related to contraception are strongly associated with unmet need in cross-national analyses (Bongaarts and Bruce 1995) and in more-localized studies in Pakistan (Population Council/Islamabad 1997) and northern India (Viswanathan, Godfrey, and Yinger 1998; Mishra et al. 1999).

The second and third causes—social opposition and health concerns—are but the two most salient “costs of contraception,” to use the terminology of the Easterlin synthesis framework (Easterlin 1975; Hermalin 1983). Contraceptive costs are broadly defined to include social, cultural, psychic, and economic costs of adopting and continuing to use a method. While these costs have been recognized for some time (Bogue 1983; Nag 1984), only during the 1990s was their nature and strength investigated in a variety of settings.

The recent in-depth studies have focused on unmet need among women, and, not surprisingly, opposition on the part of the husband—real or perceived—has drawn the most attention. The woman’s husband is one of many socially significant actors who might discourage or oppose a woman who wishes to use contraception, but clearly in most settings the husband is by far the most dominant influence. The husband’s opposition is identified as a major reason for nonuse in studies conducted in the Philippines (Casterline, Perez, and Biddlecom 1997), Guatemala (Asturias de Barrios et al. 1998), India (Viswanathan, Godfrey, and Yinger 1998; Mishra et al. 1999), Egypt (El-Zanaty et al. 1999), Nepal (Stash 1999), and Pakistan (Casterline, Sathar, and Haque forthcoming). Other persons who are often portrayed as hindrances to contraceptive use are parents-in-law (especially mothers-in-law) and other in-laws, neighbors, and local community leaders (political or religious).

A conclusion that emerges from these and other studies is that unmet need is as much a reflection of primary social relations as it is of individual attitudes and experiences. This “social component” takes different forms depending upon the setting. In Pakistan, most women are convinced that their husbands oppose most methods of family planning, and contraceptive practice without the husband’s approval is unthinkable. Their husbands, in turn, are concerned about the social acceptability of contraception in their social circle of extended kin and community members (Population Council/Islamabad 1997). In this sense, the husband becomes the conduit through which other actors influence women’s contraceptive decisions. In northern Ghana, most women with unmet need and their husbands are unsure about
whether their spouses, relatives, and friends approve of contraceptive use, and this uncertainty makes them hesitant to adopt a radically new technology. Women's denial of the use of contraception is common (Biddlecom, Tagoe-Darko, and Adazu 1998).

Recent empirical studies have revealed the processes through which spousal relations create barriers to using contraception. According to data from several settings, wives and husbands on balance concur in their fertility preferences and in their views about contraception (e.g., Biddlecom, Casterline, and Perez 1997; Mason and Smith 2000). How is it, then, that husbands represent barriers to their wives' use of contraception? The answer is twofold. First, wives frequently misperceive their husbands' attitudes. This is of some consequence because attitudes toward contraception are undergoing change, and spouses' mutual misperceptions seem to be repositories for outdated (and often inaccurately negative) views (Population Council/Islamabad 1997). Second, while only a minority of husbands are more strongly opposed to contraception than their wives, in these instances the husband's view typically wins out. The wives of this minority of husbands appear to account for a disproportionate share of women with unmet need (Biddlecom, Casterline, and Perez 1997).

Another widespread finding is that health concerns are a major obstacle to the adoption and continued use of contraception. (See Bongaarts and Bruce 1995; Casterline, Perez, and Biddlecom 1997; Asturias de Barrios et al. 1998; Viswanathan, Godfrey, and Yinger 1998; Yinger 1998; El-Zanaty et al. 1999; Stash 1999.) Health concerns have been cited for decades by family planning fieldworkers. Recent empirical research provides more-rigorous confirmation of the powerful influence health concerns exercise over contraceptive decisionmaking. From qualitative interviews conducted in diverse settings, it is clear that health concerns are strongly felt and are not simply a convenient excuse on the part of the women. Recent qualitative research also shows that health concerns are multidimensional, a fact often overlooked by researchers and even family planning program managers. Interviews in Egypt, Nepal, Pakistan, and Zambia reveal that fear of the health side effects of contraceptives dissuades women from using a method, not only because of aversion to the expected physical discomfort (and worse) but also because of the expected time and financial costs of managing the side effects, the potential loss of labor productivity, the possibility of interference with spousal sexual relations, and a sense that the side effects signify divine disapproval. Once the multidimensional nature of this cost of contraception is recognized, it becomes clear why health concerns present an imposing barrier to use.

From the standpoint of the design of effective programs, what are we to make of these findings about the causes of unmet need? There is little solid evidence about what specific tactics programs can employ to reduce
obstacles to contraception that result from social opposition and health concerns (so-called nonaccess barriers). In certain settings increased density of services and improvements in the quality of services are followed by substantial increases in contraceptive use, and much of this increase is the result of greater use among already-motivated women, that is, satisfaction of unmet need (on Bangladesh, see Koenig et al. 1992 and Cleland et al. 1994; for northern Ghana, see Debpuur et al. forthcoming). If access to services has the same low ranking among the causes of unmet need in these settings as in the research just reviewed, then it follows that the program impact observed in these experimental studies must be due in large part to the reduction or elimination of nonaccess barriers to use. These nonaccess effects of programs have long been recognized (Cleland and Wilson 1987; Phillips and Ross 1992; Cleland 1994) but to date have not been carefully measured. We need experimental research in which both the pre-test and the post-test incorporate a rigorous assessment of the causes of unmet need, of the sort carried out in the in-depth studies cited above, from which it would be possible to determine the extent to which the intervention affected each of the causes.

It is nevertheless clear that programs can be deliberately designed to attack nonaccess barriers. Consider health concerns about contraceptive use. A number of well-recognized programmatic strategies are available for overcoming health concerns that block the adoption and continued use of contraception. These include careful counseling of women about likely side effects at the time contraceptive supplies are obtained, periodic follow-up of adopters in which special attention is given to health side effects, and local availability of a range of methods so that, when necessary, women can switch methods. Some of these strategies, in turn, depend on sound training of fieldworkers and the development of effective educational material. And, as noted above, health services that are more attentive to women’s broader reproductive needs are likely to be more responsive to women’s health concerns about contraception.

Unmet need and population policy

A persistent mistake during the past three decades has been to equate population policy with the singular aim of improving family planning services (i.e., through family planning programs) (Jain and Bruce 1994). There are of course important population issues worthy of concern other than high fertility. And fertility levels are certainly influenced by a host of social, cultural, and economic factors, as recognized at both the 1974 World Population Conference at Bucharest and the International Conference on Population at Mexico City in 1984 (United Nations 1974 and 1984). Despite this, many countries have pursued population policies virtually as if family plan-
ning were the only thing that mattered. While most countries have articulated policies that acknowledge the importance of increasing female schooling, reducing infant and child mortality, and empowering women, in most cases the population policies that were implemented consisted of little more than the mounting of family planning programs. Only in the period since the International Conference on Population and Development at Cairo in 1994 has a deeper appreciation developed of the importance of these other policy goals, both as indirect measures to reduce fertility and as desirable population policy aims in their own right (for an overview see Ashford and Makinson 1999).

It has been argued, as we said above, that a focus on the prevention of unintended pregnancies maintains the emphasis in population policy on family planning programs and that, as a result, the broader social policy reforms called for at Cairo will continue to be neglected. Some even fear that governments might reinstate unethical and coercive approaches to family planning.21 In our view, however, this line of argument ignores the distinctive features of the unmet need concept. In joining contraceptive behavior and fertility preferences, the unmet need concept also joins family planning and broader development approaches to population policy. This is so for two reasons. First, if policymakers accept the challenge of reducing unmet need, then they are forced to confront the causes of unmet need. The accumulating research, reviewed above, shows that social and cultural obstacles figure more prominently than simple access to services as causes of unmet need. By forcing policymakers and program managers to confront the question of why apparent demand is not expressed in contraceptive practice, unmet need can encourage a more-balanced assessment of the full range of obstacles, ignoring neither access to services nor the nonaccess factors (Bongaarts and Bruce 1995).

The second and more general means through which unmet need links family planning to broader development approaches is by keeping fertility preferences squarely in the picture. In so doing, it has the further virtue of retaining in the policy discourse the basic issue of individual versus collective goals (Demeny 1986). If unmet need were to be discarded as a guiding concept, the field might revert to almost exclusive reliance on the contraceptive prevalence rate and the total fertility rate as the key measures of success, irrespective of individual childbearing goals. Far better, if a broad view of population policy is to be sustained, is the fundamental distinction between the prevalence of nonuse among those who want to avoid pregnancy and the prevalence of a desire to avoid pregnancy. An equivalent distinction is central to Bongaarts’s decomposition of future population growth, in which unwanted fertility and wanted fertility are separable components of total fertility rather than being regarded as alternative sources of high fertility (Bongaarts 1994). Fertility reduction through the prevention of unintended pregnancies follows from the satisfac-
tion of individual goals, whereas any further decline deemed in the collective interest must come about either through transformation of individual childbearing aspirations or through various coercive means, the latter deemed unacceptable in most societies. There is then considerable value in maintaining these distinctions, which the concept of unmet need brings to the fore. Population policies are not in principle compelled to choose one or the other (reduction in unmet need or in fertility desires). Rather they can and should address both components.22

One further justification for retaining unmet need as a cornerstone of population policy has already been touched on but bears reemphasizing. In making the reduction of unmet need a primary goal, population policies are insisting that helping individuals achieve their personal aspirations is a primary objective of public policy. Indeed, we argue that this is the most widely accepted rationale for the establishment of public policy (Sinding, Ross, and Rosenfield 1994; United Nations 1994). This contention does not address the more difficult question of which public policies are defensible when the fulfillment of individual aspirations appears to run counter to collective interests (Demeny 1986; Lee 1990; MacKellar 1997). In considering population policies at the beginning of the twenty-first century, most developing countries have the luxury of not having to grapple head on with this question, because in nearly all of them the elimination of unmet need would produce fertility outcomes that are consistent with generally agreed definitions of the public good.

In more practical terms, unmet need results in unwanted pregnancies, which in turn more often than not lead to unwanted births, because in most societies a large proportion of unwanted pregnancies are carried to term. Unwanted fertility remains a more substantial problem than is acknowledged by political leaders in many developing countries and by donor agencies around the world. As noted above, roughly one-fifth to one-quarter of births in the developing world are unwanted, with the number of pregnancies that are unwanted even higher. The impression persists in many capitals that family planning should be placed well down the list of priorities for publicly provided services because demand for such services is low and because, in any case, investments that will stimulate demand for smaller families must come first. This impression harks back to the time, before the extensive series of surveys that began with the WFS, when many social scientists assumed that large families were desired and were skeptical about the extent of unsatisfied demand for fertility regulation. That many of these attitudes persist indicates how wide the gap can remain between new evidence and the premises that guide policymakers. Indeed, most of the current generation of senior policy officials were students two or three decades ago and maintain an outdated view of fertility in developing countries.

Beyond the question of whether and how much attention should be given to unmet need for family planning in designing population policies,
there are two concrete programmatic issues concerning unmet need. The first is, what accounts for unmet need? We argued earlier that a balanced understanding of the causes of unmet need is a prerequisite for developing effective programs to reduce it, and for this reason we advocate an institutionalization of local social science research on this topic. The temptation among program managers and policymakers is to perceive family planning programs as primarily a matter of improving access to services. In-depth research on reasons for nonuse can be a powerful antidote to this narrow-minded view of what programs can accomplish. This should not be a one-time undertaking: as fertility transition proceeds in each country, the relative dominance of the various obstacles to contraceptive use can be expected to shift. A second issue is, how feasible is it for programs to target their efforts at individuals (women and men) with unmet need? While recommending such an approach would appear to follow naturally from the arguments in this article, in fact designing programs in this fashion is not likely to prove practical or cost-efficient, for two reasons. First, individuals move rapidly in and out of the unmet need state (Ross 1994; Robey, Ross, and Bhushan 1996; Westoff and Bankole 1998; Biddlecom, Tagoe-Darko, and Adazu 1998; Jain 1999), making the unmet need subgroup a moving target (El-Zeini forthcoming). Second, it is asking a great deal of health and family planning workers to monitor individuals’ fertility preferences. Rather than attempting to pinpoint women and men with unmet need, the more-effective programmatic strategy is to be well informed about the societal-specific causes of unmet need and, accordingly, develop interventions to overcome those obstacles.

Notes

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1 Most of these in-depth studies were conducted under two multi-country projects on unmet need: one based at the Population Council, directed by John Casterline and funded primarily by the Rockefeller Foundation (studies in Ghana, Pakistan, and Zambia); and a second project based at the International Center for Research on Women, directed by Nancy Yinger and funded by USAID (studies in Guatemala, India, and Zambia). Among the more rigorous studies cited in this article that were outside the scope of those two projects are: Casterline, Perez, and Biddlecom (1997) in the Philippines; El-Zanaty et al. (1999) in Egypt; Jain (1999) in Peru; and Stash (1999) in Nepal.

2 The 1980 WFS Conference in London included in its program a paper by Palmore and Concepción on the relationship between fertility desires and contraceptive practice (Palmore and Concepción 1981). Moreover, several of the numerous analyses of WFS data were directed at this relationship, for example Ochoa (1982); Pullum, Immerwahr, and Cabigon (1984); and Johnson-Acsádi and Szykman (1984).

3 See also Brackett (1978). Apparently the term “unmet need for family planning” originates with Stokes (1977).

4 The notion that achievement of individuals’ reproductive aspirations would also
largely satisfy societal goals hardly originated with the preparations for the ICPD, although it received renewed emphasis during this period. One precursor, usually neglected in international population discussions, is the work of the US Commission on Population and the American Future; see Westoff (1973).

5 As one quantitative indicator of this judgment, El-Zeini (forthcoming) shows that the number of documents in the population literature with “unmet need” in the title or abstract surged in the two years leading up to the Cairo conference, and fell off in the succeeding years.

6 Even Pritchett (1994), one of the most outspoken critics of the concept of unmet need, acknowledges the validity of survey data on fertility desires.

7 In the studies conducted in sub-Saharan Africa (Mushingeh and Kurz 1998); Biddlecom, Tagoe-Darko, and Adazu 1998; Biddlecom and Kaona 1998), however, a far lower fraction of the women and men classified as having unmet need expressed frustration with their inability to practice contraception or other deliberate means of fertility regulation. In this region, self-perception of unmet need appears to be rarer than elsewhere, despite comparable (or higher) survey estimates of the prevalence of unmet need.

8 A few empirical studies by social psychologists have examined the consistency between fertility preferences and contraceptive behavior. See, for example, Jaccard et al. (1990).

9 These findings are reviewed at greater length below.

10 In addition to the argument described here, Pritchett questions the validity of the concept on other grounds, citing entirely different types of evidence. We consider these lines of attack in other sections of this article.

11 An equivalent exercise is carried out by Bongaarts (1993), who decomposes fertility decline during the 1980s in 12 developing countries. He calculates that increased implementation of preferences accounted for 66 percent of the observed fertility decline on average. Several other single-country studies demonstrate that changes in factors associated with the demand for children—such as school-
use contraceptives, a radical departure from the usual concept of unmet need (which, surprisingly, Becker does not justify as an effort to tie unmet need more closely to the demand for family planning). Interestingly, Westoff (forthcoming) has also proposed an alternative algorithm for unmet need that depends on the intention to use. In contrast to Becker, and more consistent with the usual concept of unmet need, Westoff classifies as having unmet need those women not intending to use contraceptives despite a desire to avoid pregnancy (other conditions must be met as well), whereas most women intending to use are excluded from his unmet need category, under the assumption (confirmed by many empirical studies) that they are likely to carry through with this intention. One of Westoff’s aims in proposing a new algorithm is to achieve a better fit between unmet need and the demand for family planning.

14 The tabulations of DHS data in Ross, Stover, and Willard (1999) demonstrate, however, that these quantities are typically nearly the same at the national level, because the number of non-intenders among those women with unmet need roughly equals the number of intenders among those without unmet need.

15 In this judgment we concur with Westoff (forthcoming). One could, at the cost of greater complexity of language, refer to “preference-based unmet need for family planning,” “health-risk-based unmet need for family planning,” and so forth.

16 Exceptions are Biddlecom and Kaona (1998) and the ICRW studies in Guatemala and Zambia (Asturias de Barrios et al. 1998; Mushingeh and Kurz 1998).

17 How to treat less effective methods is admittedly a complex question. Many couples are, in fact, highly successful in avoiding pregnancy through use of methods classified as less effective by medical criteria, because they are highly motivated to avoid becoming pregnant and are concerned about the health side effects of the more effective methods. This can be the case with withdrawal, for example. Further, where safe and reliable induced abortion is available as a backup, users of less effective methods are at greater risk of unintended pregnancies but possibly not unintended births, an important distinction that we discuss elsewhere in the article. Rarely, however, is safe abortion readily available and inexpensive, and hence it is an empirical regularity that users of less effective methods experience higher rates of both unintended pregnancy and unintended births as compared to users of modern effective methods.

18 These nine are Casterline, Perez, and Biddlecom (1997) for the Philippines; Population Council/Islamabad (1997) for Pakistan; Biddlecom, Tagoe-Darko, and Adazu (1998) for Ghana; Biddlecom and Kaona (1998) for Zambia; El Zanaty et al. (1999) for Egypt; Stash (1999) for Nepal; and three studies conducted under the ICRW project (Yinger 1998) for Guatemala, India, and Zambia.

19 This section draws on the review of empirical research presented in United Nations (1999).

20 By no means is there unanimity on this point. See, for example, Ross’s (1995) critique of Bongaarts and Bruce (1995). In the case of Pakistan, Shelton et al. (1999) have made the case, through an analysis of the impact of the expansion of family planning services in certain communities, that lack of access to services is a major reason for unmet need in that country.

21 Few of these criticisms have been published in recent years, although Hartmann and Sen contributed op-ed articles along these lines at the time of the “Cairo+5” meetings at the Hague and at the UN in New York in February and June 1999, respectively. Nonetheless, in numerous meetings and symposia in the post-Cairo years, these concerns have surfaced frequently.

22 A further strategy for fertility reduction is increased induced abortion. As has been stressed throughout this article, contraception is a means for preventing unintended pregnancies, thereby also preventing unintended births. Induced abortion is an alternative means for avoiding unintended births and must enter into policy deliberations, if for no other reason than the fact that a large fraction of pregnancies are terminated by induced abortion, both safe and unsafe, legal and illegal (Alan Guttmacher Institute 1999). In some settings where it is acceptable on legal and moral grounds, induced abortion is the primary direct means of birth control (e.g., Eastern Eu-
rope and countries of the former Soviet Union, East Asia). On medical grounds there are many reasons for preferring contraception to induced abortion, and there is considerable evidence that this medical judgment conforms with women’s own preferences. However, it is equally clear that in many circumstances women will opt for induced abortion rather than bear an unwanted child. The availability of safe abortion for unwanted pregnancies, whether the result of contraceptive failure or nonuse of contraception, remains a crucial issue in reproductive health policy.

23 But see Jain (1999) for practical suggestions along these lines. Ross (1994) and Robey, Ross, and Bhushan (1996) note that although individuals move in and out of the unmet need state, the demographic and socioeconomic characteristics of persons with unmet need may be rather stable. This provides some basis for targeting, once research has established the dominant characteristics of persons with unmet need in a particular setting.

References


Local and Foreign Models of Reproduction in Nyanza Province, Kenya

SUSAN COTTS WATKINS

The era of widespread concern about rapid population growth in developing countries began in the late 1940s when certain Western foundations and academics defined a coming population crisis. Their alarm was followed by the growth in power and reach of an international population movement: an alliance of neo-Malthusians and birth controllers who attempted to alter significantly the reproductive behavior of millions of developing-world couples. The era ended, symbolically at least, with the International Conference on Population and Development, held in Cairo in 1994, which demoted population goals below those of attaining gender equity and improving the reproductive health of women in poor countries (Hodgson and Watkins 1997).

By now most developing-world governments have adopted neo-Malthusian population policies, and they promote and distribute modern methods of family planning; many individuals in these countries say they themselves are, or would be, better off with fewer rather than more children; and many women are using modern methods of family planning to limit their family size (Bongaarts and Watkins 1996). As a consequence of small-family preferences and the use of contraception, fertility has declined, or has begun to decline, in most developing countries.

Most writers who have attempted to summarize this era have taken a comprehensive approach. This article differs in its focus on a small geographical area, in its privileging of cultural models of reproduction rather than individual behavior, and in its historical dimension. The focus is local because I view widespread transformation in cultural models of reproduction as the aggregation of a multitude of changes in local communities. I will show, however, that local communities are profoundly influenced by powerful outside actors who change local circumstances, thus provoking local networks to reevaluate cultural models. I reach back to the colonial period because fundamental changes in perceptions about the best model of reproduction occurred then.
The local area is South Nyanza District, Nyanza Province, Kenya, an area on the shores of Lake Victoria that is predominantly inhabited by Luos. During the six decades between the mid-1930s and the mid-1990s, the local consideration of alternative cultural models was driven by uncertainty about the goals of reproduction and the best strategies through which to achieve them. When representatives of the international population movement arrived in Kenya in the early 1960s with their own cultural model of reproduction, it seemed obvious to them that the country would be better off with lower fertility and that Kenyan families would be wealthier if they were smaller and thus if they used family planning to limit the number of their children. In rural Kenya, the route to riches was not so obvious.

An example illustrates the problem of uncertainty. In the 1974 television documentary Maragoli, set in an area of Western Province near South Nyanza, a chief and his wife radiate satisfaction as they tell Joseph Ssessen-yonga, the interviewer, about the education that each of their many children achieved or married into, and display the gifts of money and clothing that their well-off children sent to them. No doubt, the same stories and gifts were known to their friends, relatives, and neighbors. But which parts of the model of reproduction that the chief displayed should be followed by a poor villager—the part that showed that many children are the way to wealth or the evidence that it is costly education that matters? Although uncertainty is masked in most sources of data, our interviews, conducted between 1994 and 2000 as contraceptive use was rising rapidly, showed continued uncertainty about the best model of reproduction.

As late as the mid-1980s, Kenya appeared to some as an unlikely setting for a rapid reproductive transformation (Frank and McNicoll 1987; Mott and Mott 1980). In Nyanza, many of the practices considered by these and other analysts to be “cultural barriers” to fertility change were in place in the 1970s and the 1980s, such as polygyny, communal landholding that did not disadvantage larger families, a highly stratified gender system, and ethnic competition (e.g., Ndisi 1974; Ocholla-Ayayo 1976; Suda 1991). These institutions are still present, and ethnic competition is, if anything, greater. Nevertheless, the 1989 Kenya Demographic and Health Survey (KDHS-I) showed that fertility had declined in Nyanza as well as nationally (Cross, Obunga, and Kizito 1991; Kenya, Republic of 1994), and Warren Robinson (1992) proclaimed that Kenya had entered the fertility transition. The onset of fertility decline appeared to have been quite abrupt. It appears much less abrupt, however, if we ask about models of reproduction rather than behavior.

I show that there were three distinct but temporally overlapping cultural models of reproduction between 1930 and the present. The first model views many children as the way to wealth. This “large families are rich” model was probably well established when Kenya became a British colony in 1920. Its dominance, however, came to be undermined as Kenya was
increasingly integrated into the imperial polity and economy. The changed circumstances consequent on British rule provoked the collective formulation of a second model, “small families are progressive.” This competing model, available for consideration around the time of Independence in 1963, retained the same goal of wealth but viewed a smaller family as a better strategy for achieving the progress that development was expected to bring in the new Kenya. Strikingly, however, even those who perceived small families to be advantaged considered the deliberate control of fertility illicit. The third model augments the local “small families are progressive” model by including the deliberate control of fertility using clinic-based methods of family planning.

Both the “large families are rich” and the “small families are progressive” models were collectively formulated in response to local circumstances. The third model, however, was promoted first by the global networks of the international population movement and then by the Kenyan government itself. Initially, Kenyans perceived this new model as the model of the wazungu. Wazungu (plural) is a Kiswahili word for those who are both white and foreign and has connotations that suggest the wazungu were perceived ambivalently: a muzungu (singular) is: “1) something wonderful, strange, startling or tricky; 2) a cunning person; 3) a gentleman; 4) knowledge or skill” (The Watchman 1996). I describe below the domestication of the wazungu model of reproduction, as rural clinics began to routinely promote family planning and men and women in the villages of Nyanza started using family planning and told others of their motivations and experiences, thus creating a local Luo model.

Data

This article uses archival records, surveys in the 1960s, a systematic review of the Nairobi press in the 1970s and 1980s, secondary literature, and qualitative and quantitative interviews conducted in four sublocations in rural South Nyanza District between 1994 and 2000. The aim of the data collection in the 1990s was to examine the role of social networks in reproductive health, including family planning and AIDS. A brief description of the data collection procedures follows; a detailed description is available at www.pop.upenn.edu/networks.

The district had a population of 1,066,583 in the 1989 census (Kenya, Republic of 1996: 2), most of whom are Luos engaged in subsistence agriculture supplemented by cash crops, some wage labor and petty trade, as well as remittances from family members working in cities. The four sublocations were chosen to maximize variety in the extent of interaction with areas outside South Nyanza and according to the presence or absence of a community-based distribution program in which family planning methods were distributed by local volunteers. All interviews were conducted in
the local language, Luo. The personnel of the research team remained largely
the same over all phases of the research, and consisted of principal investiga-
tors assisted by graduate students from the University of Pennsylvania,
five Luo supervisors who were graduates of the University of Nairobi, data
entry personnel, and, for the household surveys, interviewer teams of ap-
proximately 20 local high school graduates from each sublocation.

The first set of qualitative interviews was conducted in 1994. Using a
semistructured interview guide, the supervisors interviewed 40 married
women of reproductive age and 40 men (the men were the women’s hus-
bands if the husbands were resident, although many were working else-
where) and they conducted nine focus group discussions with women of
reproductive age. The respondents for the semistructured interviews were
selected systematically to ensure an even distribution around the main lo-
cations of social interaction (e.g., the village centers). Although we attempted
to select focus group participants systematically, in the event the chiefs in-
fluenced their selection, and the participants were disproportionately women
with higher levels of primary education or some secondary education, and
disproportionately ever-users of family planning methods. The interviews
were taped and then transcribed and translated into English by the supervi-
sors; the audio quality was not sufficient to identify speakers. The supervi-
sors were all fluent in English, and were asked to retain the colloquial speech
forms of the respondents. The transcripts were typed and reviewed in the
field, which permitted clarifications. A subsample of the tapes were tran-
scribed and translated independently to check for consistency. The tran-
scripts of the interviews and focus groups were coded by the principal in-
vestigators (Watkins and Rutenberg); they were also coded independently
by two students who had not been involved in the data collection. In 1996–
97 the same supervisors conducted semistructured interviews and focus
groups with elderly women and men: seven men, eight women, and three
focus groups. The elderly respondents were not selected systematically, but
most were parents of the respondents in our household sample. Again, the
interviews were taped, transcribed, and translated. In addition, some inter-
views were done on an ad hoc basis by the supervisors and by the principal
investigators with a translator present.

The household survey was longitudinal. The first wave was conducted
in December 1994-January 1995, with re-interviews of the same respon-
dents conducted at about the same time of year in 1996-97 and again in
January-February 2000. Villages were randomly selected in each sublocation;
within each selected village, all women of reproductive age and their hus-
bands who were currently present were interviewed (for an evaluation of
sample attrition, see Alderman et al. 2000). The sample characteristics closely
match those for rural Nyanza Province interviewed in the 1993 Kenya De-
mographic and Health Survey (Reynar 2000). The questionnaires were
checked daily by the supervisors and by Watkins and graduate students, and were immediately made machine-readable, thus providing several layers of checks for data quality (for evaluations of several aspects of data quality, see Weinreb 2000; Reynar 2000; and White and Watkins forthcoming).

I follow a chronological order, discussing the models in each period and, for the first two models, how they were undermined and augmented by an alternative model. In the first section on the colonial period, I show that the justifications for small families now offered by young Luo couples are not new: they could also have justified small families in the colonial period. In the second section, I use surveys conducted in the mid-1960s to show that an indigenous small-family model was under consideration shortly after Independence, and then turn to the introduction of the wazungu model by the international population movement and its domestication among urban elites. The third section draws on surveys and semistructured interviews conducted in Nyanza in the 1990s to show how Luos are now evaluating models of reproduction in their social networks. In the last section, I discuss the relevance of this examination of a particular local area for theories of fertility transition as well as for other international efforts to alter reproductive behavior.

The relation of children to wealth in the colonial period

Perceptions that large families are rich

In semistructured interviews with elderly men and women in Nyanza, we asked why people in the past had so many children. A conversation with an elderly man, his wife, and his sister-in-law was typical of others. The patriarch explained: “If you had many children wealth could come in great numbers in your home.” Children brought social esteem—“you were someone in the community”—but he emphasized the material wealth they were expected to bring.

Children were the route to riches: “If you had all sons and worked hard you’d be wealthy.” We asked: “If you had five boys and few girls, would you still want girls to get more wealth?” “Yes,” answered his wife, “you would pray hard for girls to get wealth. If you gave birth to girls you knew you were wealthy already.” The sister-in-law added, “In the old days you got 15 or 20 cows in bride price for the girls, and that way the boys could marry. In the old days it was only through these cows that you could get wealth” (interview, 1996).

The elderly are well aware that younger married couples in their village are discussing the advisability of using modern family planning to limit the number of their children. They are also well aware that the Govern-
ment of Kenya and wazungu promote smaller families and family planning, and perceived our research team as associated with these national and international efforts. As if to counter the program's neo-Malthusian posters depicting large families as hungry and poor, the elderly insisted that material conditions were not constrained during their childhood. Land and cows were abundant, and there was much food. When their children complained about the high costs of things that must be paid for with money, the elderly responded by saying that in their youth there was no need for money. They did not go to school; they never got sick or, if they did, they were cured by traditional medicine, paid for with a chicken; they used flour to powder their babies rather than the store-bought baby powder that their daughters-in-law prefer. The elderly emphasized that in the old days people never complained about many children, that family planning is new and that it comes from outside Nyanza, as in this focus group of elderly women in one of our research sites, an island in Lake Victoria (female focus group participants, 1995):

Moderator: In the past, how many children could people have?
Response 1: You would just give birth.
Response 2: You could just give birth to as many as you could, even if they were 10.
Response 3: Even 12 or 15 or 20, those are your children.
Response 4: Yes, that's right.
Response 5: Where has this family planning come from?

Famine and land shortage

If we contrast the Arcadia described by the elderly with current conditions as they are perceived by young couples complaining about the high cost of living these days, it would appear that an idyllic past had been disturbed only recently, thus justifying the common analytic focus on recent social and economic characteristics to explain change (e.g., Brass and Jolly 1993). Yet archival records from the colonial period and secondary literature contradict the elderly's perceptions.

Food may have often been abundant in Nyanza, but famines appear to have been frequent (Anderson 1984). At a meeting of the South Kavirondo Local Native Council (LNC) on 22 May 1931, the District Commissioner reported that there was an infestation of locusts and that

The Luo-Abasuba locations have suffered very heavy damage as regards their gramineous food crops. It is not too much to say that in most of these locations they have been practically wiped out whilst as regards those that do remain there is every prospect of their being destroyed by flying swarms. The situation is most critical and as some of the Luo-Abasuba are already begin-
ning to feel a shortage of food I do not see how a famine can be avoided.
(Kenya, Colony and Protectorate 1931–37: Record 20)

Famine did arrive, and in October in nearby Kisii district, the colonial govern-
ment made famine relief arrangements (ibid.: Record 90). Michael Whisson, who conducted field research in Nyanza in 1961 and 1962, offers similar evidence of food shortages for a later period.

Elders say that the land was more fertile in the past and produced better crops, but in many seasons there must have been difficulties in feeding the family, and force is given to this by the memories of the old men who tend to divide recent history into periods between and during famines. (Whisson 1964: 53)

The 1965 annual report of the Ministry of Health reports that in Nyanza “The drought added more grief to the 1961/62 flood victims as crops in their shambas, on which they had worked so hard, dried up completely. They had to remain on famine-relief food supplies” (Kenya, Republic of n.d.: 12).

Contrary to the collective memory of the elderly and the emphasis of analysts on land shortage as a stimulus for fertility decline, land may not have been so abundant in the past. After Kenya became a colony, a stream of white settlers led the colonial government to displace many Kenyan farmers to Native Reserves, and by the 1930s the colonial government had come to perceive the Reserves as overcrowded (Leys 1975; Kenya, Colony and Protectorate 1933: 349). Land pressures increased when customary law was codified in the 1950s, such that boundaries could no longer be adjusted according to changing family sizes (Shipton 1984). The population of nearby Central Nyanza was estimated to have approximately doubled between the 1920s and the 1960s (Whisson 1964; see also Molnos 1972). 5

The past of plenty now recalled by the elderly may never have existed, and—if we can believe the accounts of colonial bureaucrats and other observ-
ers at the time—certainly did not exist when the elderly we interviewed were themselves in their childbearing years. Memory is not only faulty but can be skillfully used to justify one’s own past behavior and in arguments with one’s children. Yet the perception that children were the way to wealth appears to have been based on observational evidence. Although presumably many large families suffered from famine and inadequate land during the colonial period, it is likely that virtually all Luos who were perceived as relatively rich were observed to have many children, if for no other reason than that wealth was measured in cows, and in this polygamous society cows could be used to buy more wives who produced more children. It is local perceptions that go into the creation of local cultural models, not the perceptions of outside analysts. The “children are wealth” model was compelling enough to guide behavior, and, perhaps because of its association with respected Luo elders, it still plays a role in community conversations.
Undermining the traditional model of reproduction

During the colonial period, participation in a monetary economy became necessary and desirable. The colonial government imposed taxes in order that Kenyans would have to work for the wazungu. More significant, perhaps, is that Nyanza became integrated into a colonial economy that offered attractive consumer goods. As Marion Levy noted, there are no people who fail to distinguish between being relatively better off and relatively worse off materially (Levy 1972: 9). When we asked an old man whether he was better off now than when he was a child, he answered “Yes,” explaining that in the old days they slept on skins, but then “their eyes opened and they slept on blankets” (interview, 1996). Another elderly man said that when he was growing up, “you couldn’t buy dresses [clothing] because dresses were not there, people only wore skins.... These things could only be bought when the wazungu came” (interview, 1996). Migrants to the urban areas returned to Nyanza in European attire with money and new goods (Odinga 1997), stimulating those who had remained at home to imagine the “possible lives” that were now available and to consider how they might be achieved (Appadarai 1990; see also Pigg 1992).

Most of the paying jobs were as laborers on white settler farms or in the cities—unstable employment with no educational requirements. But the British also wanted Africans as teachers, ministers, secretaries, clerks, interpreters, messengers, nurses, orderlies, drivers, foremen, and soldiers (Chanaïwa 1994: 217). Education was a prerequisite for these desirable jobs, which offered relatively high and stable income.

Western schooling was introduced by missionaries, with particular concentration in Nyanza as well as Central Province (Ndege 1996: 67; see also Makau 1995). Although education’s most important role in this story of changing reproductive models was as a strategy to achieve goals of wealth, education was perceived to offer more than that. It was associated with what is now called “enlightenment” and “awareness,” it permitted young people to challenge the traditional elites, and it provided “a ladder to an altogether different world of increased financial reward and enhanced social status” (Lonsdale 1968: 138; Wilson 1994: 205).

The income and life style of the educated who became successful would have provided evidence to their neighbors of the returns to educating children. For example, at a meeting to discuss the annual budget of a Local Native Council in Nyanza, one of its members stated that “Education was the great factor for advance in the District, and that if the vote was reduced, the District would go back” (Kenya, Colony and Protectorate 1931–37; see also Ogot 1963). When John D. Rockefeller 3rd visited Kenya a decade later, he wrote in his diary that a group of elite Kenyans had told him, “The main problem facing the African today is how to get more education for their children. There is a demand for education among rural as well as ur-
ban Africans" (Rockefeller 1948). By the end of the colonial period, the Luos’ desire to educate their children was apparently even more desperate:

One of the most important recurrent items has been school fees, which have made increasing demands upon the workers outside the tribal area. Families reared to school age have increased and the pressure to have the children educated has likewise increased. Such expenditure does not end with fees but includes clothes; boarding fees in some cases; pocket money for the older children; prestige items (smart shoes, cosmetics for the bigger girls); transport to and from school; and books. These are big demands upon the income of the working man.... (Whisson 1964: 78)

New ideas also accompanied the British. Dow, Kekovole, and Archer (1997) speculate that during the colonial period in Kenya Africans were drawn not only into a modern economy but also into a new value constellation. In addition to the images of life in Britain displayed in schoolbooks (Rodney 1994: 210), there was informal education by advertisements in newspapers and on the radio, and by “examples from life-styles of the African and settler bourgeoisie” (Chanaiwa 1994: 220). In Nyanza, these new ideas were controversial, stimulating “a six-decade long colloquy among all sorts of people about culture, markers, boundaries, core values, ethnicities” (Cohen and Atieno Odhiambo 1989: 35).

Observation of the wazungu during the colonial period may also have influenced the formulation of a small-family model. In the 1930s, Africans came into increasing contact with the machinery of central government, much of it British (Lonsdale 1968). Wazungu today are widely perceived to be rich, and the gap in material wealth between wazungu and the few educated and employed Kenyans was no doubt even greater in the past. The wazungu were also perceived to have fewer children than the Kenyans.

An interview in 1996 with Dr. Samson Mwathi, a cofounder of the Family Planning Association of Kenya, offers a glimpse of the ways in which interaction between Kenyans and wazungu might have contributed to the formulation of small-family models. When Dr. Mwathi was practicing in Nairobi in the early 1950s, railway workers came to him to ask about fertility control. In a typescript of his memoirs he wrote:

They [the men] would ask me, “Dr. Mwathi, we know you are a clever person. Could you please advise us how we could have fewer children as we know Europeans just produce the number of children they require. What do they do to manage this?” Many people came from the Railway Lines in Nairobi; others came from some other areas in the town, others from Kabete, others from as far as Nyeri district.

Since Europeans were concentrated in the large cities and in the White Highlands of Central Province, however, their reproductive patterns were far
less visible to those in Nyanza. Luos in contact with the British may have assumed a correlation between their wealth and family size, but I doubt whether this contact was sufficient to challenge the traditional model or influence the formulation of a new one. The private family planning program of the Family Planning Association of Kenya was small, and I found no evidence that it reached South Nyanza. Thus, although European examples may have played a small role in the formulation of such patterns, the primary provocations were widespread and profound changes in Nyanza itself.

All of these changes—new goods, employment, education, ideas—undermined the model of “children are wealth” and provoked the formulation of a new model of reproduction. David Parkin’s fieldwork in the late 1960s shows the two models simultaneously at play among urban Luos. When the Luo talked politics with other Luos, they used the traditional model of reproduction; when they talked privately, they referred to an alternative, small-family model. The Luo emphasize that polygyny and large families continue to be politically and economically important under urban conditions. But this emphasis, verbally expressed in traditional terms, conflicts with an increasingly held view that monogamy and few children facilitate a heavier financial investment in their education than is possible with a larger number. The “customary” view of population expansion as the means of cultural self-perpetuation and political and economic survival is expressed in speeches at public meetings of Luos... The contrary view, that personal and family success depends on monogamy, few children and their full education, is confined to the private and informal speech of friends and confidants. (Parkin 1978: 10, 11)

Parkin’s fieldwork occurred after the end of the colonial period, but it is likely that the new model had begun to be privately articulated before Independence and was largely indigenous.8

As the “many children” strategy came to be undermined by the structural changes and new ideas that accompanied Kenya’s integration into a global economy and polity, uncertainty about the relation between children and wealth led to the formulation of a new, indigenous model of reproduction, one that saw a small family as an alternative route to progress.

The relation of children to wealth after Independence

The evidence for the formulation of a small-family model of reproduction before Independence is sparse. Shortly afterward, however, a limited but quantitative comparison of the traditional model and the new small-family model becomes possible. Because the early surveys follow the undermining of the traditional model and because they precede significant local activity by the international population movement, they shed light on the question...
whether an indigenous small-family model of the relation between children and wealth was available in rural Nyanza.

Survey data from the 1960s

In 1966, Donald Heisel conducted a survey that interviewed a sample of 744 women of reproductive age living in rural areas dominated by six of the seven largest ethnic groups, including the Luo. The most sensitive indicator of changed perceptions that Heisel’s survey provides is the proportion of women wanting no more children. If many children were perceived as the route to wealth, as claimed by the elderly, there would be no reason to want to cease childbearing. Thirty percent among the survey’s respondents said they wanted no more children. The proportion saying “want no more” rises rapidly for women with more than two children: 17 percent of those who had three children wanted no more, 28 percent of those with four children, and so on until 100 percent of those with 10+ children wanted no more (Heisel 1968: 637). These percentages suggest the onset of a profound cultural transformation.

There was clearly collective uncertainty about large versus small families: 38 percent of Heisel’s sample could find “nothing good at all” about large families, 11 percent could find “nothing bad” in large families, with the majority unsure. The largest problem perceived to accompany many children was economic strain (75 percent of the responses) (ibid.: 635).

A survey conducted by Angela Molnos in 1965–66 included 2,648 pupils of 43 primary and secondary schools in the seventh to tenth grades. The students presumably were unmarried; thus, what they said about family size must be based on observation of their married agemates’ and parents’ experiences rather than their own. In the present context Molnos’s survey has two advantages over Heisel’s: Molnos asks more questions about perceptions; and because her study was done in areas around Lake Victoria, it speaks more specifically to Luo perceptions.

Students were asked to complete sentences such as “A woman with only one child...” or “A man with many children....” Molnos herself favored fertility decline in Kenya, and thus categorizes the responses as “positive,” “ambivalent,” or “negative,” giving examples. The positive reactions express the traditional model: children bring wealth to their parents. Clearly, there was collective uncertainty about family size in the community, consistent with Heisel’s survey. About half of the students completed the sentence “A woman with many children” positively and a fifth negatively.

Male respondents perceived the burdens of children as largely economic, consistent with a household economy that gives men the responsibility of meeting needs that must be paid in cash. Nearly half of the respondents said that for fathers of many children education is difficult, there is not enough food or money, and there is too much work (Molnos 1968: 632).
The most frequent comments combined education and lack of money: he "is suffering from where to get money to educate his children with"; he "is always poor because his money goes for paying school fees"; and he "cannot be rich enough to send all his children to school" (ibid.: 140). Before Luos entered a cash economy, the primary economic burdens on men were providing enough cattle to allow their sons to marry. By the mid-1960s, their responsibilities had greatly increased.

Mothers of many children were seen to be burdened by work that has both an economic and a noneconomic component. The mother of many children "has nothing to dress them nor enough food to feed them," and she "must see that they are well fed, or else some will begin stealing other people's food" (ibid.: 135). In addition, she "is dirty because she is in great work of keeping them." She "has a hard time; they are always fighting and eating much food and don't get satisfied"; and she "has a lot of trouble even if her husband is there. Men here don't play a good part in children's care" (ibid.: 135–136). The mother of many children is described as reaching the end of her tether. She "sometimes wishes that she had not given birth"; and, even more vividly, she "wants to kill them and some to sell them as [for? like?] a fish" (ibid.).

Perceptions that small families are progressive

Molnos's survey provides evidence that as early as the mid-1960s some Luos had come to perceive not only that many children were burdensome, but, more significantly, that a small family was progressive. A couple with few children "expects many things from their future"; a man with few children "is strong because his children are educated" (Molnos 1968: 147). Urban life is clearly modern, progressive, and desirable (Williams 1973). The male respondents add that towns offer satisfaction of desires for "up-to-date information," and the female respondents "appreciate first of all the variety of amusements and human contacts" (Molnos 1968: 79).

Yet despite the perceptions that many children were burdensome and that small families offered an alternative route to wealth, Molnos's respondents objected to deliberate control of family size within marriage, distinguishing between couples who had a small family by happenstance and those who made a deliberate decision. Molnos compares responses to the sentence "A couple who has three children..." and the sentence "A young married couple who decided not to have many children...." Since both questions refer to smaller families, it is reasonable to expect that the responses would be similar. However, the means by which the goal of a small family was achieved appears to color the responses. If a small family just happened, 16 percent of respondents felt that educating them would be easy. But when a small family was achieved deliberately, only 2 percent began by saying that educating them would be easy. Similar discrepant responses are found for the categories "cares well," "happy," "food easy," and "rich." I interpret
these discrepancies as indicating that deliberate control was felt to be illicit, so that the same objective—a family smaller than “many”—was interpreted differently according to the means by which it was achieved.

Some respondents described people who deliberately limit their family size as “foolish,” “stupid,” “unwise,” or “mentally unbalanced.” Other responses have a moral tone: the couple was acting against custom, nature, or God. The moral nature of the transgression is also seen in responses that describe the punishment of those who deliberately controlled fertility. The couple who chose few children “died without having any child”; “God took back all their children”; and, interesting in light of then-President Jomo Kenyatta’s lack of support for birth control, the couple “was one day punished by the ruler of the country” (Molnos 1968: 153–154). Although a few references speak directly to “medicines,” the examples given suggest that for most it is the deliberate choice that is illicit, rather than the means.14

The small minority of respondents who explicitly approved of deliberate control described the planned family as modern, in keeping with the optimism following Independence. In his Independence Day speech in December 1965, Kenyatta celebrated the opportunities available to Kenyans after the end of British rule:

“For the man today who wants to travel or to move his produce, new roads are there. For a man who wants a farm, there is the settlement programme. For the family seeking education, there are new schools….” (quoted in Lonsdale 1997: 12)

The small family deliberately achieved is perceived as positioning its members to take advantage of the promised new opportunities. It is progressive—the couple “will be interesting in our new Kenya,” and they “are people who have a predilection for modern life”; and it is urban—the couple “went to live in a town.” There are also hints of foreign examples in the comments about the planned family: one respondent wrote “as they are educated they have copied the English manners” (Molnos 1968: 151). A 1974 survey provides evidence of continued optimism: two-thirds of both urban and rural respondents said they expected their daughters as well as their sons to attend a university (Anker and Knowles 1982: 47).

The international population movement comes to Kenya

In the late 1950s, the wazungu model of deliberate family limitation began to be actively promoted by private family planning associations in Nairobi and Mombasa, subsequently amalgamated into the Family Planning Association of Kenya and supported by the Pathfinder Fund, the International Planned Parenthood Federation, and other donors. Foreign activity increased after Independence, when a multitude of global actors arrived to offer the new sovereign state advice on how to become wealthy through develop-
ment in such areas as land distribution, education, family law, and reproduction (Watkins and Hodgson 1998; Grindle 1996; Leys 1975).

Following a visit by a mission from the Population Council in 1965, the Kenyan government adopted (in 1967) the mission’s recommendations—verbatim—as its population policy (Watkins and Hodgson 1998). This policy was neo-Malthusian: it set targets for lower fertility and urged the deliberate control of fertility through a government family planning program. Yet although President Kenyatta’s government adopted this wazungu model of reproduction, he did not support it, and for many years attempts to persuade Kenyans of the importance of using family planning to limit family size were made primarily by the Family Planning Association of Kenya and by wazungu. There were efforts to reinterpret family planning as African: for example, an Association supervisor told an audience in Kisumu (a city near South Nyanza) that “Family Planning is not a new idea in our African Society” (Oyoo 1980). Nonetheless, the public face of family planning was foreign: whites were estimated to hand out about 80 percent of clinic-based methods (Miller 1971).

Elite responses to the wazungu model

In the early 1970s David Radel conducted a survey of policymakers for the Ford Foundation.15 His comments about the sample selection indicate the sensitivity of the issue of foreign participation in Kenya’s affairs. The Kenyan collaborators on the survey refused to include Europeans or Indians in the sample, on the grounds that “to have included them would have been tantamount to admitting that nationals were not completely in control of the destiny of the country” (Radel 1973: 168, fn 6).

Among elites interviewed in Radel’s survey, the term birth control was associated with the notion of compulsory limitation of births and with foreigners. A civil servant said,

“Already they are suspicious that this is a foreign idea in order to limit the population growth of developing countries so that they do not become in the future a threat to the already developed countries.... [E]ven here in our own situation in this country you can see that the bigger the tribe, the stronger the tribe; the smaller the tribe, the weaker the tribe. Now you expand that in the world of politics and the world of power, it is identical.” (quoted in Radel 1973: 235)

The perception that birth control was foreign is also evident in Nyanza. The Family Planning Association of Kenya area officer for Nyanza wrote in the 1971 annual report:

In the years before 1971, Nyanza Province posed a discouraging opposition to the Family Planning movement. This was necessarily so because most of the educated lot were still recalling the rather dubious way in which the
colonialists introduced the movement as African Population Limitation following the 1st population census in the three territories of East Africa. A general feeling still prevailed that Family Planning was a white man’s trick aimed at curbing the black man’s population with a view to eventual subjugation. (Obuya-Deya 1971: 1)

An evaluation by the Food and Agriculture Organization’s Programme for Better Family Living interviewed local fieldworkers about their experiences promoting family planning in several towns of Kenya, including Kericho, near South Nyanza District. The fieldworkers noted many instances of opposition to their teaching. Although the authors blamed the “culture and religion” of the rural Kenyans, their report also states that the fieldworkers faced the counter-argument that family planning was a foreign idea (Krystall, Berger, and Maleche 1973).

Despite its foreign provenance, family planning slowly became domesticated among urban elites—that is, some came to perceive it as Kenyan. In another survey of elites conducted in the late 1970s, shortly after a World Bank loan had begun to make family planning available in some government clinics, one-third of the respondents agreed that family planning was a foreign idea (Ndeti and Ndeti 1980: 89). Interestingly, however, over half said the program was Kenyan because it was run by the government and because family planning was a traditional Kenya custom (ibid.: 87). One respondent answered that although family planning was introduced from outside, “now it is a Kenyan idea because the Family Planning Association of Kenya is a Kenyan organization” (ibid.: 88).

It is unlikely that the wazungu model of reproduction came to be perceived as local and Luo as early as it came to be interpreted by urban elites as Kenyan. Interpreting the new model as local and Luo could only happen, I believe, when family planning was adopted by Luo friends, relatives, and neighbors, people who could provide local examples and stories. There is no direct evidence of this process of domestication for the 1970s or 1980s. Moreover, although the Molnos survey shows that a small-family model was clearly available for consideration in Nyanza during the Kenyatta years, too few couples were practicing family planning to provide domestic stories for those considering the new model: in the 1977/78 Kenya World Fertility Survey, only 1.6 percent of women in union in Nyanza used some method of birth control other than postpartum abstinence (Brass and Jolly 1993: 95).

Rural Luos domesticate the wazungu model

Old uncertainties in a new context

In South Nyanza in the summer of 1994, we conducted semistructured interviews with men and women and focus group discussions with women
(the women were all of reproductive age). These data show current social interactions related to family planning. South Nyanza is still rural, the economy is primarily subsistence agriculture, and there are few of the symbols of modernization and progress, such as good roads and electricity. Nonetheless, the area is not isolated from global flows: for example, one man wore a T-shirt saying Bethany Beach, Delaware (a small US vacation resort), and in our research site on an island in Lake Victoria, village soccer fans with radios kept us informed of the World Cup scores.

In order to understand the role of social interaction in reproductive behavior, we asked about conversations on family size and family planning. These conversations, both as recalled and as they occurred in focus groups, reprise some of the themes of earlier decades. But change has continued to occur, and the tune is somewhat different.

Two themes that persist are the economic and noneconomic burdens of children. School fees loom large, but there are also medical fees and the costs of clothing, and the purchase of food when the harvest is insufficient. Women still complain about childbearing and rearing. Some talked about the inability to wear fashionable clothing if they were always pregnant or breastfeeding. Fashionable clothing is far more widely available now than it was when the elderly were children, in large part because of the development of a vigorous market in secondhand clothing from the West (Hansen 1994). Although fashion may appear trivial compared to the male responsibilities for school fees, it is a way of expressing a sense of self, of personal and group identity, and as such it did not appear trivial to some women. More common were the complaints about taking care of children, such as one woman’s remark that “I didn’t like the idea of this child is crying here, another one urinating there.” As in the 1960s, women said that men do not “play a good part in children’s care.”

What differs from the 1960s is that the consideration of reproductive models now takes place in a climate of pessimism, unlike the optimism of the Kenyatta years that ended in 1978, and in a setting where family planning is promoted and readily available.

Economic hardship is not new: the Local Native Council was urging more funds for education during the Depression of the 1930s, which hit Nyanza hard. But after World War II and continuing to the late 1970s, Kenya experienced a considerable increase in prosperity. Subsequently, however, economic decline set in. Particularly important at the local level were the World Bank structural adjustment programs that introduced cost-sharing in education and health, thus placing a greater burden on parents (Kelley and Nobbe 1990), and inflation.

Inflation appears to have made a particularly vivid mark, and the high prices of the present were often compared to what are recalled as the low prices of the past. Inflation averaged about 11 percent a year since the 1970s, but had been much higher in the years immediately preceding our
The high prices of today were often emphasized in informal conversations that included desperate requests for help with school fees, but they were also emphasized when we asked people to compare their lives as children with their lives today.

One morning in 1996 I sat in the kitchen of the guest house where we were staying and asked one of the cooks whether she thought her life was better now than when she was growing up (she is now about 45). She answered (in English) that it was better then, and explained: “Life now is very high. When I was young a shilling and a half bought one big fish, but now a big fish is 100 shillings. And a big piece of meat was 1 shilling, now it is 100.” After getting her to compare what her household has now and what her childhood household offered, I pointed out that she and her husband have far more possessions than her family did when she was small, but she refused to agree, insisting that “Now things are so high.” In other interviews as well, despite persistent probing, people refused to agree that their lives were better today. The discrepancy between local perceptions and what appears from the outside to be the case is striking. But as with the elderly’s perception that children are a form of wealth, it is local perceptions that drive local reproductive models.

The family planning program now offers a solution. Because President Kenyatta did not support the government’s family planning policy, few services were offered through the Ministry of Health. By the time Daniel arap Moi succeeded Kenyatta in 1978, power differentials had altered. Moi’s political position was weak and the economic downturn had made foreign funds more important to the Kenyan government (Grindle 1996; Widner 1992). In addition, the international population movement was far stronger than it had been when Kenyatta came to power, and the World Bank and the International Monetary Fund had added social aims to their financial functions (Watkins and Hodgson 1998; Bordo and James 2000; Brechin 1997; Escobar 1995). Moi began tentatively: addressing officials of the Family Planning Association of Kenya, he interpreted the foreign model as simply a version of African birth spacing customs, and urged parents to have only the number of children they could support (Daily Nation 1979). The World Bank and the IMF flexed their muscles, threatening to withhold funds unless the Kenyan government took a more active role in reducing population growth. Moi may also have been subject to social influence from global networks: he complained that “Whenever I go to international conferences, people point out at me saying that ‘that is the leader of the people with the highest population growth rate in the world’” (quoted in Shaw 1983: 17; see also Meyer et al. 1997). Moi’s verbal support for fertility reduction escalated. He spoke about the dangers of population growth and threatened to fire civil servants who had more than three children (Daily Nation 1987).

Although Moi’s reiterated public support for population control and family planning appears to have been strongly influenced by outsiders, it
had three important consequences: it provoked public debate, energized donors, and galvanized support from the Ministry of Health. For several years following Moi's public commitment to smaller families and lower fertility, there were articles pro and con in the Kenyan press. In 1980, an article in the *Weekly Review* said that when Moi spoke out, politicians followed and the government adopted "blunter terminology and tactics" (*Weekly Review* 1980: 13). The editors of the *Weekly Review* and the *Daily Nation* wrote in favor of the new efforts (Shaw 1983; *Daily Nation* 1984). Such statements provoked opposition, expressed publicly in articles and letters from readers arguing that family planning was not the solution to the population bomb (Gatara 1984), that the family planning program was not paying enough attention to Kenyan cultural values and was too dependent on foreign experts, especially in policy formation and financing (Ikiara 1982), and that Kenyans were taking to "blind borrowing of western development models which they impose on the people" (Odegi-Owuondo 1984). This public debate probably stimulated private discussion, much as happened after the Bradlaugh–Besant trial in late-eighteenth-century England (Caldwell 1999).

After Moi supported family planning, donors responded energetically. Between 1972 and 1978, the US Agency for International Development spent on average $611,000 per year for family planning in Kenya; between 1979 and 1985, the average was $2,389,000, and from 1986 to 1992 it was $10,655,000 (Deborah Barrett, personal communication 1999; see also Barrett and Tsui 1999). In 1987 116 agencies were active in population and family planning in Nairobi, of which approximately 25 were donors and most of the rest were donor-funded (Krystall and Schneller 1987).

Relying largely on foreign funding, the Kenyan government developed a relatively aggressive (but not coercive) government family planning program, led by a galvanized Ministry of Health, and methods of family planning gradually came to be widely known and accessible. "Family planning talks" for mothers waiting in the maternal and child health clinics and individual counseling on family planning became routine (Ndhlouvu et al. 1996), even though the counselors themselves remained suspicious about some of the program's directives well after the shift in policy under Moi (Khasiani and Maganja 1988). Clinic-based activities were supported by media campaigns and posters that promoted the *wazungu* model. *Tushauriane*, a radio program that promoted family planning, was said to be the most popular show in Kenya when it was aired between 1987 and 1989 (Population Information Program 1989: 22).

By the 1980s family planning services were being distributed by Kenyans, not foreigners; the latter were behind the scenes providing technical assistance and funding in Nairobi (World Bank 1992). Nonetheless, the foreign flavor of the programs may have provoked suspicion. The posters that I saw either in the clinics or in archives were clearly foreign to Luo-speaking Nyanza: they were in English or Kiswahili (spoken by a mi-
nority of our respondents) and pictured generic Africans rather than iden-
tifiable Luos. Tellingly, some respondents referred to modern methods by
the English term "family planning," usually shortened to "family," or by the
Kiswahili term panga uzazi. The posters are, however, adapted to the context of
the 1980s and 1990s rather than the 1960s. They stress the burdens of many
children, rather than the opportunities perceived by the respondents in Molnos's
survey such as going "to live in a town."

The most striking difference between our study in the mid-1990s and
that of Molnos in the mid-1960s is that almost all our respondents treated
the decision to practice or not practice family planning as a legitimate choice,
to be made on grounds other than morality. In our semistructured inter-
views only a few men and women said that others (not themselves) be-
lieved that family planning was against God's will or that a woman should
"finish all the eggs in her body," and a small proportion in the household
survey gave a similar response. It may be, however, that there are lingering
doubts about the licitness of family planning, expressed in guarded terms.
For example, concerns about side effects sometimes evoke earlier objec-
tions to deliberate control: stories of women who used family planning and
gave birth to deformed children (Rutenberg and Watkins 1997).

Considering the wazungu model

By the mid-1990s, most of those we interviewed considered fertility con-
trol a legitimate choice. What the decision should be, however, was still not
obvious. The conversations about family size that our respondents reported
were suffused with ambivalence about models of reproduction (Watkins,
Rutenberg, and Green 1995; see also Bledsoe 1994).

Ambivalence was particularly evident when we asked about respon-
dents' expectations that their children would support them in old age. Par-
ents thought it right for their children to support them when they are too
old to care for themselves, but many were concerned that their children
might only manage to support themselves; others knew of children who
left the village and forgot about the old folks back home.

Another major source of uncertainty about the wazungu model was mor-
tality, which was perceived to be low among wazungu but high among Luos:

The reason why we can't have few is the medical side. You have many and a
few will die, so eventually you have a few. It is the wazungus who introduced
family planning. This is because their children don't die. But ours keep on
dying.... (male respondent, 1994)

Declines in infant and child mortality occurred in Nyanza, although the rates
have recently risen, probably because of the relatively high levels of HIV/
AIDS: some of our respondents commented "there are so many diseases
these days” (Rutaremwa 1999; Kenya, Republic of 1998).22 The respondents in Molnos’s survey three decades earlier, however, did not appear to perceive mortality declines either, and in our household survey in 1996–97 over 90 percent of both male and female respondents believed that children were more likely to die now than when they themselves were children, a time well before AIDS. Perhaps it is too difficult to perceive declines in infant and child mortality when observation shows more frequent infant and child funerals, a consequence of population growth (Montgomery 1998).

In their ambivalence about family size, men and women evaluate alternative reproductive models, as the following illustrates:

The famine was so severe that people who had many children found it very tough. There was a young boy who passed by where we were waiting to be collected to come here, so I imagined that people who have boys of that size must be finding it rough feeding them during the famine. Two kilograms of flour is nothing to them. Still, some people say that having many children is a good thing, especially when it comes to work like during the weeding. Large families are able to weed their farms within a short time.23 (female focus group participant, 1994)

As in many of the conversations described to us, more than one reproductive model is under consideration: less food to be bought versus faster weeding. The traditional model of many children as wealth may be expressed in a variety of terms—here it is agricultural production rather than the bridewealth emphasized by an earlier generation—but it is still considered a reasonable option. The small-family model is, however, no longer so closely associated with opportunities for progress, but rather with reduced economic burdens.

By the mid-1990s, the optimism of the early Kenyatta years had largely evaporated. Although some associated few children with potential, for most the advantage of a small number of children is that they can be educated. Having “enlightened” children is still intrinsically desirable. Now, however, the high levels of unemployment even among those who finish secondary school and university mean that educated children are seen less as a route to progress than as the only conceivable way to avoid further impoverishment. The burdens of children are now contrasted not with small families achieved by happenstance but with small families achieved through the deliberate and licit use of clinic-based methods of family planning.

Domesticating the wazungu model in rural Nyanza

Some of the terms of local Luo debates about models of reproduction are set outside—sometimes far outside—the local communities (McNicoll 1983). The prices of some goods are determined by national and international mar-
kets, whereas the prices of others, such as schooling and medical care, are set by the government and influenced by international agencies such as the IMF and World Bank (Kelley and Nobbe 1990). The local conversations domesticate the foreign by creating a common calculus of costs and benefits. They define the salient categories of costs and benefits and establish a weighting system; they also display publicly the arguments and evidence that are legitimate in the particular local context. The elements of the good life that are jointly constructed are expressed in down-to-earth terms that reflect men’s and women’s domestic responsibilities and their visions of “possible lives”: weeding, store-bought baby powder, daily meals, school fees, support when they are old, a bit of peace and quiet without noisy children.

Just as an elite urban respondent commented in the late 1970s that family planning was Kenyan because it was distributed by the Family Planning Association of Kenya, the routinization of family planning talks in local maternal and child health clinics contributes to making family planning Luo. The nurses we met were Luo; they live in the communities and some are from South Nyanza; they speak Luo and understand the local context. The clinics are important but not sufficient, however: a social distance between nurses and local women needs to be bridged, and their talks on family planning need to be reinterpreted within local networks (Rutenberg and Watkins 1997).

By the mid-1990s, many women used, or had used, family planning and could provide stories of their own experience, or serve as the topic of gossip by others. Both men and women tell of individuals they know or have heard about who have used family planning, why they did so, and the consequences: for example, some are said to become healthy and plump, while others experience side effects because the white man’s medicine did not “rhyme with her blood” (Watkins, Rutenberg, and Green 1995; Rutenberg and Watkins 1997; Watkins, Rutenberg, and Wilkinson 1997). The most vivid stories justify women’s decisions to use family planning (“family”) secretly because their husbands do not approve:

Some women want to tell their husbands, rather than ask first, but the husband might refuse. But, you see, it is the women who feel the burden, like when she is sick with the pregnancy, she is the one suffering, when the children disturb her, she is the one suffering. And when you tell the husband about “family” [in English] he cannot agree—this forces women to go and do “family” secretly because she’s the one feeling the burden. (female focus group participant, 1994)

Conversations about family planning are frequent: in the 1996–97 household survey, 82 percent of women and 75 percent of men reported talking with someone about the topic, and approximately 50 percent of both men and women had done so in the past month.
The interpretation of conversations in local networks as domesticating the wazungu model of family planning is supported by our household surveys, which show that the social distance between women and their conversational partners is small (Watkins and Warriner 1999). Women talk about family planning with others who are much like themselves, rather than those higher on the social scale. When respondents were asked why they selected these particular people to talk with about family planning, they shrugged, explaining “these are people I see all the time,” or “these are the people I am close to,” or “these are women like me.” The influence of these conversations may be even stronger when the network partners are not only connected to the respondent but know each other and when the respondent believes her network partners practice family planning. The network partners we interviewed often contradicted the respondents’ perceptions (White and Watkins forthcoming). Nonetheless, when peers are perceived not to practice family planning, the respondent is also unlikely to do so; when network partners who know each other are perceived to practice family planning, the respondent herself is likely to do so (Kohler, Behrman, and Watkins forthcoming).

Discussion and wider implications

I have described three cultural models of reproduction under consideration by Luo men and women during the past six decades. The provenance of these models matters to this history. Two are perceived by Luos as local, the third is foreign—although it is in the process of becoming Luo. The first is a large-family model of children as the route to riches. It is described by Luos as traditional and is associated with a past of supposed abundance. Although this perception of abundance is contradicted by records from the colonial period and the traditional model had already begun to be undermined when the elderly who now defend it were themselves in their childbearing years, the power of this model is demonstrated by the fact that it is still in play in local conversations. The second is a small-family model formulated by Luos in response to the changes during the colonial period, particularly the introduction of attractive consumer goods and desirable jobs that required education. This small-family model was indigenous and was associated with the progress expected to accompany development. Although it was a model of a small family achieved by happenstance rather than choice, it paved the way for consideration of the third model, which adds the deliberate limitation of family size through the use of clinic-based methods of contraception. This wazungu model was introduced and broadcast by the international population movement. The formulation of the Luo small-family model, the translation of the wazungu model of deliberate choice and clinic-based methods into local terms, and the diffusion of both models were key factors facilitating the increase, measured in surveys, in the proportion want-
ing no more children and the proportion using family planning, and thus for the resulting recent declines in fertility.

I have emphasized the decades of cultural activity that created and altered reproductive models. This cultural activity was provoked by outside actors and conducted by local “communication communities” (see also Szreter 1993: 523). Fertility declines, if and when they occur, are almost invariably portrayed as resulting entirely from the agency of individual local actors: colonial governments and the World Bank are rarely seen, nor are gossip networks. But in Kenya the small-family model and the wazungu model were influenced by powerful actors far from the shores of Lake Victoria and were formulated, altered, and evaluated in local networks.

The colonizers of Kenya played a crucial role in stimulating uncertainties about the traditional model, for they changed the context in which reproductive decisions were made. They moved Kenyans into native reserves and imposed taxes, and they integrated Kenya into an imperial polity and economy that offered new forms of wealth and new strategies to achieve them. Wealth came to be measured not only by cattle and wives but also by new styles of clothing and baby powder; increasingly, Luos came to perceive that educating children who could work in the city would be a more promising route to riches. Together, new visions of a good life and new strategies to achieve it undermined the model of “children as wealth,” leading to the formulation of a “small family is progressive” model.

The integration of Kenya into a global economy and polity surged after Independence, bringing a new crowd of global actors scrambling to offer advice and funds. The good life for the country and its families was described by development experts, both international and national, in the language of modernization: roads, industries, education, and health care for all. The new image of modernity was spread widely by migrants and the media, and the economic growth of the 1960s and 1970s must have made modernity appear attainable.

For this story of change in reproductive models, the arrival of foreigners alarmed by population growth and ready to provide family planning methods was particularly significant. The international population movement propagated a new cultural model of reproduction, displayed in posters of well-dressed small families and squalid large ones that reiterated the indigenous “small family is progressive” model already under consideration. In the mid-1960s, international population leaders persuaded President Kenyatta to adopt a family planning policy but could not overcome his resistance to implementing it. Under President Moi, who succeeded Kenyatta in 1978, the balance of power changed. Moi was politically weaker and the economy had deteriorated; moreover, the population movement was stronger, and global financial actors were not only more powerful but also more committed to directing and supporting social change in developing countries. Moi agreed to the conditions imposed by the World Bank and the
IMF and he supported the wazungu model. Whatever Moi’s personal beliefs about reproduction, as the head of an autocratic regime his publicly reiterated support energized donors, galvanized the Ministry of Health, and provoked intense debate in the press and, presumably, at home.

Altering reproductive models does not appear to have occurred quickly: the seeds of the Luo small-family model are evident in Nyanza in the 1930s, but it was articulated only by a minority on surveys in the 1960s. Adding the wazungu model to the previous two models was perhaps even more difficult. “Cultural barriers,” often mentioned by proponents of lower fertility and family planning, are invariably perceived to be exotic aspects of local cultures. From the perspective of Nyanza the cultural barrier was the exotic wazungu model.

The foreign provenance of the wazungu model gave it power through its association with people perceived to be wealthy, but it also provoked suspicion: white foreigners were not only “gentlemen” but also “strange, tricky.” Not until the wazungu model was domesticated was it perceived by significant numbers of Luos as a possible guide for their own reproduction.

The process of domestication was not so much individual as communal, involving both Kenyan institutions and Luo social networks. The active promotion of family planning by the government was important. Family planning services, although largely funded behind the scenes by foreign donors, increasingly became an integral part of the daily routines of government clinics. Today, Luo nurses and community-based distribution agents help to domesticate the wazungu model by promoting family planning services with a Luo face. They also engage in cultural activity by modifying and even actively subverting the international guidelines adopted by the government. Although this is often criticized as “provider bias,” the nurses and agents reinterpret the rules for distributing family planning to bring them in line with local norms (Kaler and Watkins 1999).

An even more critical step in the domestication of the wazungu model is now occurring in local networks, as men and women in the villages of South Nyanza observe friends, relatives, and neighbors practicing family planning, and as they gossip about other Luos they knew who had smaller (or larger) families. It may be that at an earlier stage of Nyanza’s fertility transition informal networks were important for transmitting information about clinic-based methods and their availability. Now, however, the conversations evaluate the “children are wealth,” “small families are progressive,” and wazungu models of reproduction in the context of local circumstances and uncertainties. The networks permit those for whom the wazungu model is attractive to voice the arguments and evidence for the new model of reproduction in local terms and to gauge the responses of their friends, relatives, and neighbors.

The preceding history of alterations and emendations of cultural models is specific to Nyanza, yet some of the themes have also been emphasized
by others and some aspects may be generalizable to other places and other issues. It is likely that had Kenya not become a British colony, and had the international population movement not been active in Kenya, a similar succession of models would nevertheless have occurred in Nyanza: connections across time and space construct “what is imaginable and what is politically possible,” whether a country was a colony or not (Cooper forthcoming). Countries that were never colonies are now integrated in a global economy that offers attractive consumer goods and jobs that require education. Foreign advisers representing the international population movement were influential in the government’s adoption of a population policy, but perhaps the influential Kenyans who studied abroad and returned to promote the wazungu model through the Family Planning Association of Kenya would have been equally successful. And other scenarios are possible: local Luos might have come to perceive deliberate fertility control as licit, and might either have used their traditional methods of childspacing to stop childbearing or have learned of foreign methods through networks of students and workers that connect Kenya to other countries in Africa as well as the West. These are counterfactuals, however. After Independence Kenyans were not left to their own devices.

Globalization is often defined by an increase in the range and density of networks (Giddens 1990; Robertson 1992). Flows of people, technologies, finances, information, and ideologies will change the local context in places far from the centers of power, provoking reevaluation of cultural models (see, for example, Appadurai 1990; Hannerz 1997). Some of these flows are undirected, but greater globalization facilitates attempts to promote social change. It is unlikely that the attempts of global actors to alter the reproductive behavior of men and women in developing countries will cease. Absent marked changes in the global economy, power differentials between rich and poor countries are likely to remain relevant, as they were for population control and family planning, and are now for the international reproductive health platform formulated at Cairo (Luke and Watkins 2000).

Currently, international actors are engaged in propagating models of sexual behavior to control AIDS, and the interactions between these actors and the Luo community appear to be very similar to earlier interactions around reproductive models. In Nyanza AIDS, like family planning, was initially perceived to have been introduced by foreigners, perhaps with the same malicious intentions that were seen to motivate their promotion of population control. More significantly, models of prevention also come from outside. Global actors promote two wazungu models: chastity (for the unmarried) and fidelity (for the married) or consistent use of condoms. Luos have their own cultural models of sexual behavior, however, and there is local resistance to the adoption of these exotic—and austere—models; and again such resistance is labeled by experts as cultural barriers to behavior change.
The preceding history of cultural change in Nyanza suggests, however, that it is helpful to think of culture as malleable rather than as a barrier, that the Luo models of sexual behavior will in fact change, and that the process of cultural change will be similar to that described for reproductive behavior. In particular, it is likely that local networks will alter indigenous cultural models of sexual behavior and domesticate foreign ones. AIDS, once seen as an “outside” disease, is now being described in Uganda as “this sickness of ours” (quoted in Whyte 1997: 205), and in Nyanza we found Luos formulating local strategies for prevention (Watkins and Schatz forthcoming). Because the motivation to avoid AIDS may be even greater than the motivation to achieve progress through small families, the transformation of sexual models may occur more rapidly. Even so, the collective cultural process is likely to be similar to that which transformed the wazungu model of reproduction into a local Luo model.

Notes

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1 After our project began, South Nyanza District was divided into three districts: Suba, Karachuonyo, and Homa Bay. We interviewed in four sublocations: Kawadghone, Obisa, Owich, and Wakula South.

2 However, change in these cultural patterns is difficult to measure. For example, gender relations may have changed, but no one referred to this in our interviews.

3 In the 1978 World Fertility Survey the total fertility rate in Kenya was 8.2 and in Nyanza Province 8.1; 17 percent and 8 percent, respectively, of currently married women reported that they wanted no more children; and 8 percent and 9 percent, respectively, were using some method of family planning (Kenya, Republic of 1980). Subsequent Demographic and Health Surveys for Kenya and for Nyanza Province showed a steady decline in the total fertility rate and a steady increase in the proportion wanting no more children and practicing family planning. According to the 1998 Demographic and Health Survey the total fertility rate for Kenya is 5.0 births per woman; for Nyanza the figure is 4.7.

4 South Kavirondo is the former name of a Luo-Abasuba area with approximately the same boundaries as South Nyanza District. Local Native Councils were instruments of British indirect rule.

5 Whisson learned this from the District Commissioner at the time of his field research (Whisson, personal communication, 1999).

6 The term wazungu included former residents of India and their descendants, who conducted much of the trade in rural areas.

7 The colonial bureaucrats recognized, and deferred to, the strength of popular interest in education. On 23 February 1932 the District
Commissioner for South Nyanza wrote to the Provincial Commissioner, “It is possible that the [Local Native] Council will object to cutting down any Education expenditure. In that case I take it nothing can be done, or at all events it would not be advisable to do anything in the matter” (Kenya, Colony and Protectorate 1931–37).

8 The undermining of the traditional model of reproduction and the formulation of a new model probably proceeded more rapidly in urban than in rural areas, but urban and rural Luos were linked by visits back and forth (Ogot 1963; Parkin 1975; Goldenberg 1982).

9 Because Heisel does not present cross-tabulations of women who “want no more children” by ethnic group, it may be that Luos in Nyanza were predominantly among those who, even at high parities, said they wanted more children. A decade later, the 1977/78 Kenya World Fertility Survey found that in Nyanza, of currently married fecund women aged 24–35 with six children, 8 percent wanted no more; and of those with eight children, 40 percent wanted no more. In Central Province (Kikuyuland) these figures were 22 percent and 69 percent, respectively, suggesting later changes in reproductive preferences among the Luos than among the Kikuyu that parallel the timing of the onset of fertility declines in the two groups (Kenya, Republic of 1980: A-365).

10 Molnos described her sampling, data collection, and coding procedures in great detail. At that time a relatively small proportion of children attended primary school, and an even smaller proportion continued to secondary school. Molnos used a quota sample to try to include all types of schools within each area, but says that sometimes a particular kind of school did not exist (Molnos 1968: 42). While she believed her sample to be representative of children attending school, it obviously ruled out children from poor homes and children of “‘reactionary’ families who resist modern education” (ibid.: 43). The selection of specific schools is not described, but personal introductions and convenience probably played a role in the choice.

11 Although it is likely that issues related to birth control were less salient to Molnos’s students than to the older and married women in Heisel’s survey, 73 percent of the students were aged 15 or older (Molnos 1968: 162). In 1977/78 the median female age at marriage nationally was 17.5, and 16.5 in Nyanza (Brass and Jolly 1993: 93); thus, the young women were approaching marriage, and surely had friends who were married.

12 Urban life appears to hold a persistent attraction: in the early 1990s, Alan Ferguson showed photographs of various locales in Kenya to teenagers, asking them where they would rather live. Overwhelmingly, the teenagers chose not the pastoral pictures, but rather those of the slums of Nairobi (Ferguson, personal communication).

13 The same respondents did not answer both questions. Molnos had four questionnaires, distributed to each class in seating order. “A couple who has three children...” is on one questionnaire; “A young married couple who decided not to have many children...” is on another. Molnos reports that she analyzed the distribution of the four questionnaires by sex and educational level and found no significant differences (Molnos 1968: 31). In addition, the wording differs: one questionnaire defines a small family as three children, the other says “decided not to have many,” which could have evoked images of six or seven, as well as of three.

14 It is not clear whether “medicines” referred to traditional or modern methods. There appears to have been less interest in birth spacing in Kenya than in some other sub-Saharan African countries (e.g., Malawi; see Zulu 1996); if Luos used traditional herbs for birth spacing, either there is a collective amnesia about them or respondents were unwilling to tell us. The main traditional method we heard about was postpartum abstinence.

15 Radel’s elite sample included cabinet ministers and assistant ministers, MPs, senior civil servants, business executives, university professors, and media executives (Radel 1973: 164).

16 The postwar prosperity may have touched Nyanza less than some other provinces, and the Luos claim that they were disadvantaged under the Kikuyu-favoring regime of Kenyatta and later under the Kalenjin-favoring regime of Moi (e.g., Ogot 1996). In an analysis of provincial-level economic statistics, Weinreb (2000) finds support for the Luos’ perceptions. Increases in wage employment and
per capita income were greater under Kenyatta (a Kikuyu) among the Kikuyu in Central Province and their political allies in Eastern Province than in the other provinces; and under Moi (a Kalenjin) these same indicators increased more in Rift Valley Province and Western Province, dominated respectively by the Kalenjin and their political allies the Luyha. See also Widner (1992) for the importance of ethnicity in the political economy of Kenya.

17 The annual rate of inflation was 18 percent in 1990, 20 percent in 1991, 28 percent in 1992, and 46 percent in 1993 (Mwega, Mwangi, and Olewe-Ochilo 1994; Ndung‘u 1997).

18 We went through all available volumes of the Weekly Review, Daily Nation, and The Standard, with earlier dates more likely to be missing. Based on the volumes to which we had access, there is an evident increase in articles on population and family planning after 1978, with particular activity in 1980–81 after the US Food and Drug Administration banned the injectable contraceptive Depo-Provera in the United States, and again after Kenya’s Sessional Paper No. 4 of 1984 set out population policy guidelines. Interestingly, Moi’s threats to fire civil servants if they had too many children do not appear to have been taken seriously: I expected letters of outrage to follow in the Kenyan press, but found none.

19 I have no persuasive evidence that donor-funded activities had anywhere near the impact on reducing family size that might have been expected from the large sums spent on population programs. Perhaps the 116 agencies engaged in population activities in Nairobi in 1987 were simply spinning their wheels, or perhaps corruption siphoned off much of the money. But in considering the role of informal debates about family size and family planning in Nyanza in the mid-1990s, I think it likely that the activities of population agencies stimulated discussions in local networks that hastened the domestication of the deliberate control of fertility within marriage.

20 I am grateful to Eva Egensteiner for showing me the poster archives in the African collection of Northwestern University, for giving me a set of her photos of the posters, and for her paper on “Reproduction and mass media” (1997).

21 English is learned in school, and Kiswahili is learned on the streets. Of the women in our household survey in 1995–96, 42 percent reported that they spoke Kiswahili well enough to have a conversation, and 8 percent English.


23 This quotation illustrates a typical characteristic of responses to our questions about the advantages and disadvantages of small or large families: the speaker presents herself (or himself, in the male interviews) as favoring smaller numbers of children, while presenting opposing views as “some people say.” This marks a change from the Molnos survey. Although her respondents were students and thus reporting on what others said, it seems that by now respondents are distancing themselves from negative views, perhaps because our survey was perceived to be promoting family planning; certainly, respondents expected that their community and they themselves might benefit from our research, e.g., that we might provide a new hospital or pay school fees (for a further discussion of this issue, see Miller, Zulu, and Watkins 2000).

24 The 1993 KDHS showed that 22 percent of currently married women in Nyanza Province were using family planning, and 11.3 percent in South Nyanza (Kenya, Republic of 1994: 43, 45).

25 It is difficult to evaluate quantitatively the impact of the domestication of the wazungu model on fertility behavior, although promising research on social networks may eventually permit us to describe this in more detail: Ngom 1994; Arends-Kuenning, Hossain, and Khuda 1999; Entwistle and Godley 1998; Montgomery 1999; Montgomery and Casterline 1993; Montgomery and Chung 1994; Rosero-Bixby and Casterline 1994; Munshi 1997; Valente 1995; Valente et al. 1997; Kohler, Behrman, and Watkins 2000.

26 Most demographic theorists pay little attention to outside actors, but the importance I give to the activities of representatives of the international population movement is consistent with the claims of family planning sup-
Some of the features of this history are not original. For example, the three Luo models of reproduction bear a kinship to Ansley Coale’s (1973) three preconditions for fertility decline (circumstances make fewer children more advantageous than many children, deliberate control is licit, and means of control are available); and the shift from “children are wealth” to “small families are progressive” is not unlike the shift from “quantity” to “quality” (Becker 1981). Similarly, the long process of change in models of reproduction fits well with John Caldwell’s (1999) conclusion that children had become a net economic burden well before fertility declined in English-speaking countries. And the role I give to social interaction is consistent with the perspectives of others (e.g., Freedman and Takeshita 1969; Cleland and Wilson 1987; Hammel 1990; Szreter 1993; Mason 1997; Szreter and Garrett 1999).

Perhaps there are only a few general explanations for fertility decline, albeit many particular versions of these explanations (e.g., van de Kaa 1996; Casterline 1999). On the other hand, some common analytic frameworks are difficult to reconcile with local Luo perceptions. The depiction of a sharp inflection point—such as when the supply of children exceeds the demand (Easterlin and Crimmins 1985) or when the net flows of wealth reverse direction (Caldwell 1976)—is inconsistent with the uncertainty surrounding reproductive decisions in Nyanza and perhaps, in some cases, the absence of a decision (Fisher 2000). Theories that emphasize mortality declines are not inconsistent with this history, but need to be reformulated so that they do not assume that the greater survival of children is actually perceived. Finally, the “opportunity costs of women’s time” should not, in contexts such as rural Nyanza, be measured in terms of money.

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Conditioning Factors for Fertility Decline in Bengal: History, Language Identity, and Openness to Innovations

Alaka Malwade Basu
Sajeda Amin

Declines in fertility in the contemporary world tend to be explained in contemporary terms. Immediate causes are sought and generally center around issues of changing demand and supply. More specifically, the proponents of the importance of changing demand stress the changing structural conditions that alter the costs and benefits of children, while the “supply-siders” give central importance to family planning programs which purportedly increase awareness and practice of contraception so that birth control becomes both desirable and possible.

In recent years, these explanations have become enriched by another class of explanations that focus on the spread of positive attitudes toward controlled fertility and toward contraception. These attitudes may arise through means that are only tangentially related to changing economic environments or to government population policy. In particular, they may develop through a process of diffusion of ideas from individuals already positively inclined in this direction. Montgomery and Casterline (1998) provide a clear definition of such diffusion of attitudes in the context of social change: they refer to diffusion as “a process in which individuals’ decisions...are affected by the knowledge, attitudes, and behavior of others with whom they come in contact” (p. 39). These “others” may be of different kinds—peer groups, elites, family, friends, and so on—and the contact may occur in a variety of ways. Montgomery and Casterline (1998) postulate three principal mechanisms for these “social effects”: social learning, social influence, and social norms.

Several kinds of evidence support the validity of these diffusion theories as partial explanations of fertility decline. But most diffusion theories in demography have two features in common. First, they concentrate on
the fact of diffusion itself, as an independent variable, amenable to inde-
pendent manipulation and therefore a useful policy instrument. Second,
they see diffusion as being concerned primarily with the spread of attitudes
and beliefs regarding contraception and controlled fertility, with a conse-
quent policy focus on family planning messages.

In this article, we expand the concept and the relevance of diffusion
on both these fronts. On the first point, the independence of the diffusion
variable, we suggest that diffusion does not take place in a vacuum: there
are characteristics of both the “diffusers” and the “diffusees” (if one may
coin these terms) that determine the nature, pace, and impact of the diffu-
sion process. As Casterline (1999) writes, we are still far from understand-
ing the conditions under which social effects can play a significant role. Sec-
ond, one needs a more general definition of what is being diffused, if we
are properly to understand the role of diffusion in fertility change. Our con-
tention is that there is more to be learned from an understanding of the
forces that promote the diffusion of a new ideology or worldview than from
focusing on the ways in which specific attitudes to contraception are spread.

To illustrate these two propositions, we examine the experience of the
geographic area we call Greater Bengal. This is the Bengali-speaking region
encompassed by the country of Bangladesh and the state of West Bengal in
India. The demographic transition of Bangladesh is of course one of the
most intensely studied transitions in the contemporary world. Its fertility
decline—both in terms of the onset and the pace—has seemed to defy stan-
dard explanations except if formulated in often convoluted ways, and there
is a large literature trying to understand how fertility has fallen so rapidly
in a country that apparently meets few of the standard preconditions for
fertility decline: significant socioeconomic progress; major falls in mortal-
ity; substantial changes in the status of women. Moreover, Bangladesh is a
predominantly Muslim country, and the conventional understanding is that
Islam is a conservative religion with especially conservative views on mat-
ters of abortion and contraception. Given all this, it is not surprising that
the literature has contained so much debate on whether the fertility de-
cline is driven primarily by social change (e.g., Caldwell et al. 1999), the
family planning program (e.g., Cleland et al. 1994), a rise in the status of
women (e.g., Schuller and Hashemi 1994), coercion (e.g., Hartmann 1995),
or a change in the nature and a possible intensification of poverty (e.g., Adnan
1998). But note that all these debates frame the argument in immediate cause-
and-effect terms and have little interest, except in a very short-term sense,
in the historical processes that may have led to their operation. Indeed, as
Greenhalgh (1995) complains, ahistorical approaches are a striking feature of
analyses of reproductive change in the developing world.

West Bengal, in contrast, has not excited the demographic imagina-
tion. It occupies an ambiguous geographical position in the popular north–
south analytic dichotomy in studies of India, and it does not display the
starkly extreme demographic regimes of, say, Uttar Pradesh and Kerala. West Bengal is nevertheless interesting demographically. Calcutta, the capital of the state, began its fertility decline much earlier than the rest of India according to estimates by Mari Bhat (1996). Today, fertility levels in West Bengal are well below the national average for the country (see Table 1), and its levels of use of temporary methods of contraception, according to the National Family and Health Survey (NFHS), are the highest (International Institute for Population Studies 1995a). These high levels of use of temporary methods are at least partly the result of unusually high levels of use of traditional methods of contraception. While one could argue that traditional methods do not represent very effective contraceptive use, a counter-argument could be made that they nevertheless indicate intentions to delay or space births. These intentions are also indicated by NFHS results which find that West Bengal has the highest level of contraceptive use among women with no living children (20 percent, as compared to 4 percent for all-India) and that, except for Delhi and Tripura, West Bengal has the lowest proportion of women for whom sterilization is the first method of contraception ever used.

In addition, while Muslims throughout India have lower levels of contraceptive use than Hindus, the Muslims of West Bengal have the highest level of contraceptive use (43 percent) in the country (the all-India average is 28 percent)—higher even than that of the Muslims of Kerala (38 percent). In other words, the Muslims of West Bengal are clearly different from their coreligionists in other parts of the country (on all this, see Ramesh, Gulati, and Retherford 1996).

The most interesting demographic feature of West Bengal is that these differences from all-India averages exist despite a state government that has been quite indifferent to population policy: West Bengal has never had the kind of aggressive or even efficient family planning campaign or program that many other parts of India have embraced at various times.

### Table 1

**Estimated total fertility rates: India, Bangladesh, West Bengal, and Pakistan, 1975-97**

<table>
<thead>
<tr>
<th>Year</th>
<th>Indiaa</th>
<th>Bangladesha</th>
<th>West Bengalb</th>
<th>Pakistanb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>4.9</td>
<td>6.3</td>
<td>N.A.</td>
<td>6.3</td>
</tr>
<tr>
<td>1980</td>
<td>4.5</td>
<td>6.2</td>
<td>4.2</td>
<td>6.2</td>
</tr>
<tr>
<td>1985</td>
<td>4.3</td>
<td>5.7</td>
<td>3.7</td>
<td>6.1</td>
</tr>
<tr>
<td>1989</td>
<td>3.9</td>
<td>5.1</td>
<td>3.3</td>
<td>5.7</td>
</tr>
<tr>
<td>1991</td>
<td>3.6</td>
<td>4.3</td>
<td>2.9</td>
<td>5.5</td>
</tr>
<tr>
<td>1993</td>
<td>3.5</td>
<td>3.4</td>
<td>3.0</td>
<td>5.4</td>
</tr>
<tr>
<td>1997</td>
<td>3.4</td>
<td>3.3</td>
<td>2.3</td>
<td>5.3</td>
</tr>
</tbody>
</table>


The low level of demographic interest notwithstanding, West Bengal has been of great interest to other social scientists—historians and political scientists in particular. In this article we rely on some of the resultant literature to support our contention that history and culture can combine to create an environment that is more conducive to social change in some situations than in others, a conduciveness that can lead to significant reproductive change even in the absence of changes in the standard demand and supply factors associated with reproductive control. The Bengali language is a crucial element in the spread of such conduciveness, and we suggest that a proper understanding of the fertility decline in Bangladesh therefore requires a joint study of Bangladesh and West Bengal. Such a study would probably yield lessons on fertility change in West Bengal as well, but we do not have a sufficient record of the details of fertility change in West Bengal from which to distill such lessons. We thus use other markers of social change in West Bengal: its unique political situation (it is the only part of the world with a large population that has had an unbroken record of almost a quarter-century of elected Communist Party rule) and its remarkable success in fostering agrarian change in general and the adoption of agricultural innovations in particular. In our formulation, these markers of social change are analogous to the social change implied by fertility decline in Bangladesh. All these changes are in turn a concomitant of the diffusion of an ideology of openness to change and to innovative behavior that we posit is an important conditioning factor for fertility decline.

Our central message is that the two Bengals (Bangladesh and West Bengal) have, for a combination of historical, cultural, and political reasons, long had a willingness to change that often ran counter to their socioeconomic circumstances. This willingness to change began with the “elites” but spread to the general population for these same reasons. We hypothesize that this unique combination of historical, cultural, and political factors in Greater Bengal has resulted in a unique form of Bengali “modernism” and Bengali nationalism. In turn, these phenomena have facilitated the transition to what may be called a secular society that is somewhat at odds with the general socioeconomic development of the region. As the literature on the European fertility transition illustrates, such a secular, “liberal” outlook can facilitate an openness to change and innovation when the opportunities for such change or innovation arise (e.g., Lesthaeghe and Wilson 1986). In other words, it is quite possible that the program and development factors that inform part of the debate on the determinants of fertility change in Bangladesh would not have had similar effects in another environment.

Indeed, one could also suggest that the very appearance of such factors on the Bengal scene is an outcome of the modernization just described. That is, policymakers as well as politicians have themselves been more receptive to the idea of radical programs. In this context an analogy may be drawn between the programs of the Communist Party that has ruled West
Bengal and the programs of the government and the nongovernmental organizations that dominate the policy scene in Bangladesh.

As for Bengali nationalism, it has helped to do two things. First, it has increased the interaction between the two Bengals, and, given the political and religious divide between the two regions, it has thus exposed each region to a wider world of ideas and behaviors than would have been possible had the language-based interaction been confined within political borders. Second, within each region, it has increased the interaction between the elites and the general population in a way that is less common in areas where socioeconomic differences are not attenuated by a similarly strong sense of cultural identity. It is therefore not surprising that governmental and nongovernmental programs have relied heavily on mass recruitment and have developed urban–rural links in a way that is less common in other parts of South Asia.

In the following sections, we elaborate on these issues. We first justify our concentration on the elites of Bengali society. We then describe the rise of Bengali modernism and Bengali nationalism among the elites in the two Bengals up to as well as after the 1947 partition of the subcontinent. The discussion relates the rise of a Westernized, but nevertheless nationalistic middle class in Bengal to the early and intense experience of colonialism combined with some elements of its own past. We then consider some of the ways in which the strong sense of Bengali identity in the two Bengals has facilitated a continuous interaction between the elites of the two regions, so that they have strengthened and expanded the secular, liberal discourse within each region. We also examine some of the ways in which a strong language identity has fostered the diffusion of ideas between the elites and the larger population within each region. That is, we look at some of the implications of Bengali modernism and Bengali nationalism for the inclination and the ability of the elites to spread these new ideologies across socioeconomic boundaries within the two regions. This permeability, we claim, must be a part of the explanation for the highly successful spread of two kinds of innovations—agrarian change in West Bengal and contraceptive use in Bangladesh—that have attracted much academic attention in recent years. Finally, we speculate on some of the larger implications of our analysis.

The elites and reproductive change

In this article we look at the special position historically of the elites of the two Bengals. The theoretical justification for this focus comes from the diffusion literature in sociology. In particular, we draw upon the part of this literature that discusses the notion of the most effective agents of social change. The reference here is to the diffusion of a new way of thinking, a new ideology, and not merely to allaying fears about new forms of behavior and the adoption of physical innovations (such as the adoption of new
agricultural technology) in particular. The general conclusion from this discussion seems to be that in the latter case, the experience of those who face similar environments of risk has much to offer. But in introducing one to and legitimizing a new worldview, accepted figures of authority have more influence than friends and neighbors (on this, see also Granovetter 1973; Liu and Duff 1972; Basu and Sundar 1988).

But the strength of influence exerted by these accepted figures of authority depends in turn on two factors: their own openness and commitment to change and innovations and their ability to transmit these attributes to the general population. Continuing to draw on the diffusion literature, one may presume that the modernization of the elites depends on the heterogeneity of the world of ideas and experiences that they are exposed to. We contend that such heterogeneous exposure is facilitated by two things in Bengal: an early history of exposure to the larger world and the strong sense of language identity that links the elites on both sides of the political border and thus opens up to them a larger world of thought, policy, and programs than if their sources of such information had been limited to their own countrymen. In turn, this pervasive sense of language identity makes it easier for them to transmit these new modes of thought to the general population than is the case in populations in which the gulf between elites and “masses” is unbridgeably dominated by the socioeconomic differences between the two groups. In our case, the language identity is able to overcome these other differences to some extent and therefore facilitate the mass mobilization that heralds mass social change.

In the specific study of reproductive change, the focus on the elites is also empirically justified. First, it seems to be justified by the literature on historical as well as contemporary fertility transitions that suggests that the most-advantaged socioeconomic groups in a region are usually the first to adopt controlled fertility; they are what Livi-Bacci (1986) calls the “forerunners of fertility decline.” Indeed, the demographic literature suggests that it is often this change in behavior among the elites that diffuses into the general population through what Cleland and Wilson (1987) call “social imitation.”

We contend that the elites of Bengal are and were a privileged group in this respect. Their potential for facilitating the spread of fertility decline through their own behavior in this area seems to have been greater than for comparable groups elsewhere. To begin with, it is striking that as early as the 1970s the city of Calcutta (the population of which may be treated as the geographical elite of the greater Bengal region) had the lowest fertility in India. According to the estimates of Mari Bhat (1996), in 1974–80 the total fertility rate in Calcutta was 2.0, lower even than in Trivandrum (with a TFR of 2.5 at this time), the capital of the current low-fertility outlier among Indian states, Kerala.

It would of course have been helpful to have these data broken down by some indicator of social class, since it is the elites of greater Bengal that
are of concern here. The scattered evidence on this subject supports the assumption that the decline in elite fertility in Bengal began earlier and continues to be sharper than in other parts of India. A survey in three socioeconomically distinct parts of the city of Calcutta in 1947–49 found that, in the locality in which the population was largely upper-class and educated, as many as 38 percent of married women reported having used some form of birth control, this figure being as high as 18 percent even for women aged 40–44 at the time of the survey. That is, in this part of the city, significant levels of contraceptive use seem to have existed as far back as the 1930s and 1940s (Chandrasekaran and George 1962).

More contemporary data, from the National Family Health Survey for example, suggest strongly that the elites (broadly measured here as women who have completed at least a high school education) of West Bengal today are more modern in their fertility behavior than the elites of the rest of India, including Kerala (although fertility levels in Kerala vary less by class). Table 2 lays out some statewise differentials in elite fertility in India; it is clear that in this group West Bengal leads the rest of the country, a lead that we suggest has historical roots.

Even if one does not subscribe to diffusion theories of reproductive change, the attitudes and values of the elites remain a focus of interest because these groups carry the greatest potential for social change in general and fertility change in particular. This potential derives from their ability to

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**TABLE 2** Indicators of elite fertility in India: Selected states, 1990-92

<table>
<thead>
<tr>
<th>State</th>
<th>TFR of currently married women with a high school or higher education</th>
<th>Percent of current users of contraception among women with a high school or higher education</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-India</td>
<td>2.15</td>
<td>55</td>
</tr>
<tr>
<td>West Bengal</td>
<td>1.50</td>
<td>73</td>
</tr>
<tr>
<td>Kerala</td>
<td>1.95</td>
<td>63</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>1.84</td>
<td>52</td>
</tr>
<tr>
<td>Karnataka</td>
<td>2.00</td>
<td>57</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>2.04</td>
<td>52</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>2.08</td>
<td>45</td>
</tr>
<tr>
<td>Bihar</td>
<td>2.58</td>
<td>46</td>
</tr>
<tr>
<td>Punjab</td>
<td>2.23</td>
<td>62</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>2.47</td>
<td>50</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>2.32</td>
<td>47</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>2.55</td>
<td>40</td>
</tr>
<tr>
<td>Orissa</td>
<td>1.63</td>
<td>49</td>
</tr>
</tbody>
</table>

*Ramesh, Gulati, and Retherford 1996.
mold popular opinions and attitudes, including some of the rising material aspirations that may contribute to falling fertility (e.g., Casterline 1999; Sathar and Casterline 1998), and to legitimize new forms of behavior (including contraceptive practice). It also derives from their control of the policies and programs that can be catalysts of change in poor societies. In other words, even a change in the structural circumstances of people—in the fertility context, a change in the determinants of demand—requires some form of policy, even if the policy is one of nonintervention.

In particular, a society’s elites are implicated in the growing literature on the role of governance in fertility declines (e.g., McNicoll 1997). While it is commonplace to discuss the role of family planning programs or other policies in reproductive change, this is not the same thing as exploring the macrolevel political economy of reproductive change.\(^5\) A political economy perspective would need to endogenize government, would need to try (as discussed by Dixit 1996; Basu 2000) to understand the constraints and influences on the formulators and implementers of policy. What we seek to do here therefore is to place the elites of a society in their historical and cultural context, so that their actions themselves are as much to be explained as the impact of their actions.\(^6\)

Barkat-e-Khuda et al. (1996) take one step toward endogenizing the relevant characteristics of Bangladeshi elites. They locate these elites (composed mainly of senior bureaucrats, in their analysis) in the larger postcolonial culture that was heavily informed by Malthusian arguments and by arguments for political intervention in public affairs. But they do not carry their endogenizing far enough. In particular, they do not grapple with elite differentials within South Asia. Given the common colonial history of the region and common (and, subsequent to 1971, similar) structures of elite training and formation in East and West Pakistan, one needs to explain how the elites of Bangladesh have turned out to be so much better able to foster social change. By focusing on neo-Malthusianism, these authors also do not depict the elites of Bangladesh as agents of social change in general, concentrating rather on more narrowly defined population policies and family planning programs—factors that in our framework are but manifestations of a greater propensity to generate overall social change. We turn now to the history of the Bengali-speaking world of which Bangladesh is a part.

History, culture, and the growth of elite modernism in the two Bengals

First we specify what we mean by Bengali modernism. While modernism is often used as a synonym for Westernization,\(^7\) that use still begs the question of what one means by Westernization. The term may refer to purely structural processes, such as changes in modes of production, or to qualita-
tive changes in worldviews and attitudes. On the latter, one may in turn think of Westernization as an adoption of Western forms of behavior and preferences. For example, in many parts of the developing world, Westernization has included (some would say, consisted solely of) the wholesale adoption of popular Western (or, increasingly, North American) culture. At a more abstruse level of imitation, Westernization would include an appreciation of and achievement of excellence in Western forms of civilization, in art or classical music for instance. This form of imitation is most evident in countries of the Far East and in some parts of the Middle East.

Alternatively, one may see Westernization as the adoption of Western modes of thought without reference to the ultimate preferences and behaviors in which these thought processes result. The Bengal experience suggests a form of Westernization that need not go hand in hand with the obvious adoption of Western modes of behavior. Instead, it involves the adoption of a secular philosophy that defines an approach to thought and behavior rather than the thought or behavior itself. In the present context, this secularism is manifested in two ways: in a separation of the religious and the political spheres of life, and in a willingness to question the old ways and to experiment with new forms of behavior even if these new modes are often merely altered versions of the old rather than imports originating from and developed in the West.

It is this willingness to question, to debate things that have long been taken for granted, that probably defines the essence of modernism in our context. This willingness can come through formal education, but it can also arise from other shocks to the system—wars, for example. The moral acceptance of the idea of specific forms of contraception or even of fertility control in general is, in this formulation, but one manifestation of the willingness to consider alternatives. As Lesthaeghe (1983) discusses with reference to the European experience, this kind of moral acceptability that accompanied the processes of secularization must have been an important determinant of differentials in the pace of fertility decline that could not be explained solely by changing structural factors. Secularization helped to bring the idea of fertility control, in the familiar words of Coale (1973), “within the calculus of conscious choice.” As discussed below, it is this kind of secularization that took hold as Bengal modernized and that continues today in an allegiance to free thought and ideological radicalism that at times seems curiously misplaced.

A combination of circumstances, including the historical accident of being the first major outpost of the British Empire in undivided India, led to a unique brand of “nationalist modernization” in Bengal, a modernization that sought to combine traditional forms of learning and culture with modern perspectives gleaned from Western styles of education and politicization of the elites. The result was what has been called the Bengal re-
Conditioning Factors for Fertility Decline in Bengal

In the nineteenth and early twentieth centuries, leading to the somewhat exaggerated statement by the social reformer Gopal Krishna Gokhale that "what Bengal thinks today, the rest of India thinks tomorrow."

Calcutta, the current capital of the Indian state of West Bengal, was the first administrative as well as economic capital of colonial India—serving as the administrative capital of the East India Company from 1757 to 1858 and then of the Indian part of the British Empire from 1858 to 1911. Thus, it is not surprising that it was also the first site for the spread of modern knowledge and the spread of an ideology of modernization. This spread is best appreciated by mention of the growth of education and of the print media in Bengal in the nineteenth century.

To summarize briefly, modern education made its first appearance on the Indian subcontinent in Bengal; its subsequent growth, too, was faster in this part of the region. For example, in 1901–02, there were 44 colleges (government and private) in Bengal, compared with 40 in Madras, 26 in the United Provinces, and 10 in Bombay. By 1918, Calcutta University, with 27,000 students, was the largest university in the world.

While much of this new education was elitist, restricted to the arts and humanities, and concerned with producing junior government officials to run the day-to-day business of the colonial government, it did have the less clearly anticipated effect of producing a class of thinkers who used their education to do more than simply teach the next generation of civil servants or serve the government themselves.

Bengal's educated elites were also distinct in not being almost exclusively Brahmin by caste. Indeed, they were not even exclusively upper caste (see Wolpert 1994; Spear 1990; Marshall 1987)—a factor that must have contributed to their greater enthusiasm for the new ideas that modern education encouraged. In Madras, on the other hand, higher education was open almost exclusively only to the Brahmin or otherwise conservative elites, their conservatism in fact being strengthened by perceived threats to their privileged status by a more egalitarian system of education. (For a description of some of the debates on this subject in Madras Presidency, see Frykenberg 1986.) In Bombay Presidency similarly, the Marathi-speaking beneficiaries of the new higher education were almost exclusively Brahmin; the non-Marathi-speaking beneficiaries belonged almost entirely to an urban commercial middle class; and all groups came from backgrounds that were neither economically powerful nor rurally influential (Gumperz 1974).

The lessons learned under this new form of modern education in Bengal were of course subversively used to encourage an anticolonial stance, but this education also provided the impetus for the development of an intellectual tradition that was conscious of the need for change in and reform of many aspects of Bengali life. What was usually advocated was a reappraisal of Bengal's own past to attune it more to indigenous realities, and not necessarily a rejection of this past.
The growth of this tradition is best embodied in the formation of several literary and learned societies (see Sanyal 1980 for a compendium of the large number of such groups in the nineteenth century) such as the Society for the Acquisition of General Knowledge, founded in 1838, and the Bengal Social Science Association, established in 1867, as well as the formation and high visibility of more radical groups such as the Young Bengal organization and the much more sustained and influential Brahmo Samaj. All these organizations and associations and key individuals actively discussed and debated many of the venerable traditions of India. Questions related to women, caste, education, and work all became legitimate issues of inquiry and redefinition. While this debate did not often lead to action or led to modest action at best, it did legitimize debate and dissent concerning such matters, and it served to move many of these questions from the domestic to the public domain (T. Sarkar 1997).

The rapid growth of the print media also contributed to the general air of dissent, questioning, and introspection of this period. According to The Descriptive Catalogue of Bengali Works, published by the Irish missionary James Long in 1855 (cited in Roy 1995), at least 1,400 Bengali books and pamphlets had been printed during the first 50 years of the nineteenth century. While many of these books were mythological or fictional (the latter too frequently of an “amatory” nature according to the local authorities), there was an increasing presence (especially after 1850) of biographies, translations of English classics, and scientific discourses (Roy 1995). To give just two examples relevant in the present context, in 1878 Anandachandra Mitra published an Introduction to the Science of Politics, which grappled with many of the problems of governance that enter the current literature on the role of governance and civil society in demographic change (Chatterjee 1995). And Satishchandra Chakraborty’s Character Formation of Children, published in 1912, deeply influenced the debate on the changing nature of the family, the correct upbringing of the model child, and the central role of the mother in this endeavor (Bose 1995).

To the demographer, it may appear odd that most of these debates in the nineteenth century and the first half of the twentieth related to matters of social and personal reform, with much less interest in larger economic forces as they impinged on society. Thus there was, for example, little public interest in the winds of Malthusianism that earlier swept across Europe and later, albeit more slowly, across the Indian subcontinent. But this did not mean that population-related matters were not part of the intellectual and moral agenda of the elites. In fact, there was much public discussion on the new roles of women and the place of childbearing in these new roles. One salient caveat is called for, however. The new roles envisioned for women did not include independence from men; instead the intent was to educate and develop a new breed of wives and mothers who were better companions to their husbands and better mothers to a new generation of disci-
plined and healthy children. Both these abilities were naturally hampered by untrammeled childbearing, and there was much attempt, especially in the rapidly multiplying women's magazines and medical and marriage manuals, to teach women how to control their fertility.

It is here of incidental interest that most of this birth control information was wrong. For example, the most fertile period was routinely described as stretching from a few days before to a few days after (as well as including the duration of) the menstrual period. Intercourse was thus to be avoided during this time if a pregnancy was to be prevented (Borthwick 1984). What is significant, though, is that most of the reproductive advice was related to means of preventing rather than establishing a pregnancy; that is, this advice was addressing the contraceptive needs of women. Prolonged breastfeeding was also commonly promoted as an effective contraceptive, independently of its value for the child. Additionally, there was a burgeoning of information on abortion, addressed not only to women socially proscribed from childbearing (such as prostitutes and widows), but also to married women. Guha (1996), for example, discusses a collection of folk remedies to induce abortion that was set to verse and easily available to married women in the early twentieth century.

That abortion itself was frequently attempted was recorded by several medical practitioners from as early as the mid-nineteenth century. Indeed, the classic work on medical jurisprudence (N. Chevers, A Manual of Medical Jurisprudence for Bengal and the North-Western Provinces, Calcutta, 1856; cited in Guha 1996), which was intended to "contribute to the HISTORY OF CRIME IN INDIA," referred to the "procuration of abortions" as among the "leading villainies of Bengalees...these ingenious, calm-tempered, indolently pertinacious sensualists." And from her massive survey of maternal mortality in Calcutta in 1936, Dr. Margaret I. Neal-Edwards reported that abortion was common in Bengal "among all classes, communities and ages of women, married and single" (cited in Guha 1996). Indeed by this time, abortion in Calcutta was publicly enough available for women to come seeking it from as far away as Delhi (interview with Roy Edward King Nissen, born 1905, in the series Memories of the British in India, Oral Archives at the India Office, London, cited in Guha 1996).

However, it should be added, it was the Hindu intelligentsia of Bengal that dominated the beginning of this growth in modern education and discourse. For example, in 1901 Hindus made up 94 percent of all students in liberal arts colleges, 96 percent in professional colleges, and 88 percent in high schools (Murshid 1995). Among Muslims, the Bengal elites were much less likely to owe allegiance to Bengal or to Bengali, and any social and political discourses they engaged in were more likely to be conducted in Persian or Urdu. (For a detailed discussion of religious differences in trends in and attitudes toward education, see Ahmed 1996.) But once the Muslim intelligentsia began to view an English-language education more favorably,
a class of Bengali Muslim intellectuals soon developed that was committed
to fostering social change in their community.  

Moreover, while the Muslim Bengali intelligentsia was slower to grow
than its Hindu counterpart, it is also true that Bengali Muslim culture and
society in the nineteenth and twentieth centuries were and are very differ-
ent from the societies and cultures of other Islamic regions. Ideas derived
from Islamic history and thought were tempered by the local Bengali mi-
lieu and by the strong Sufi underpinnings of Islam in Bengal (e.g., Haq 1975;
some detail, this fact led to a persistent tension between the religious and
secular perceptions of the Muslim intelligentsia in colonial Bengal. For ex-
ample, the “Faith Movement” of the traditionalists of the 1920s was counter-
balanced by the “Movement for the Emancipation of the Intellect,” which
argued vociferously for the exercise of personal freedom and the right to be
selective in allegiance to the various faces of Islam. At least partly, this secular
temperament was an outcome of or ran parallel to similar trends in Bengali
Hindu secularism, the leaders in the two groups having ties with one an-
other (Murshid 1995).

This intellectual tradition continued after the partition of India in 1947,
with a consequent massive growth in the education and modernization of a
new Bengali Muslim elite, drawn largely from the educated, upwardly mo-
bile middle-ashraf (aristocracy). The teachers and students of Dhaka Uni-
versity were important agents of change in this regard and came to embody
the search for a secular Bengali identity that reexamined many of the sup-
posedly Islamic (and hence by extrapolation non-Bengali) underpinnings
of Pakistan within its post-1947 borders. For example, the journal New Val-
ues, founded in 1949 by Sarwar Murshid, a teacher in the English depart-
ment of the university, aimed to “direct a searching inquiry into the roots
of our beliefs and attitudes and help remove some of the obstacles to intel-
ligent action as a means to good life” (vol. 1, no. 1, 1949). The journal en-
couraged debate on all matters, with its own leaning being in the direction
of a rational and secular society: “A secular attitude to cultural values will,
in our context, keep culture from egocentricity and exclusion and make it
absorptive of outside influences” (editorial in vol. 2, no. 1, 1950). In the con-
text of religion, it emphasized adherence to the spirit of Islam rather than to
the letter of Islamic law.

Several other, individually small pieces of information create a picture
of growing (though fluctuating) secularism and modernization among the
Bengali Muslims of East Pakistan and then Bangladesh, a picture at odds
with the more conservative Islam of the former West Pakistan and the Middle
East, for example. Much of this had historical roots of course. Quite apart
from the impact of education and general modernization was the fact that
West Pakistan was dominated by the ashraf ideology, which accorded high
status to ethnic descent and to more conservative values. The East Pakistan
intelligentsia, on the other hand, was largely sprung from the ranks: it had strong rural roots and thus was more sympathetic to the syncretic culture of rural Bengal than to the purely Muslim culture of the ashraf.

It is particularly significant that while political regimes in Bangladesh have played the Muslim card for political purposes, they have on the whole been half-hearted about the Islamization of the country. For example, while the secularism “pillar” was removed from the 1972 Constitution (to be replaced with “in the name of Allah, the merciful and the beneficient”\(^{19}\)) and Islam is now officially the state religion, the government has thus far stopped short of declaring Bangladesh to be an Islamic state. And even the declaration of Islam as the state religion does not seem to have prevented any of the political parties in power from actively promoting various “modern” programs for social change—in girls’ education, women’s employment, and family planning, to name only some. In any case, it appears that these constitutional changes were never derived from public demand; they were instead an attempt by individual leaders like Ziaur Rahman to legitimize their own standing (Akter Banu 1992).

Indeed, all accounts indicate that the local population in Bangladesh continues to practice a kind of “religious secularism,” in that individual religiosity coexists with non-communalism (called dharma-nirapeksata in Bengali and loosely translated as “neutrality in religion”: see Siddique 1999; Akter Banu 1992) in interpersonal relations. This neutrality is also seen in the large proportions of individuals who believe that individual religiosity is compatible with a secular political system (see, e.g., the survey results in Akter Banu 1992) and in the fact that the religious organization with the largest public following is not a political party such as Jama’at-I-Islami but an apolitical one such as Tabligbad, which emphasizes personal but not public allegiance to Islam (Sikand 1999).

The quantitative information that exists on this subject yields more interesting information. In an extensive rural and urban survey of religious attitudes, Akter Banu (1992) found that the large majority of respondents felt that the satisfaction they got from work was related to the physical needs it could satisfy and to the sense of personal achievement it conferred rather than to its being a religious obligation. Similarly, while seeking advice or help on day-to-day matters, both rural and urban Bangladeshis were much more likely to report turning to peers or kin or to community leaders rather than to the local mullahs. And finally, the large majority were in favor of political leaders who were personally religious but secular in their political ideology.

The growth of a Bengali language identity

The colonial history of undivided Bengal is an important part of any attempt to understand Bengali modernism and Bengali nationalism, both of which survived the partition of the subcontinent in 1947 and the subse-
quent formation of the state of Bangladesh in 1971. In this section we summarize this history and its implications for language nationalism.

The distinguishing feature of Bengali language identity is that it is the primary form of identity of speakers of the language, usually superseding other forms of group allegiance.20 This distinction is important, for while a common language may increase the ease of communication between two groups, this ease may not translate into greater discourse if other, non-language-related barriers to communication—such as religion or nationality—are paramount. Here the Bengal situation is different because it is not just a common language we are talking about. A strong sense of language identity distinguishes the Bengali-speaking populations of the world, an identity that at most normal times transcends a national or even a religious identity. Thus the Bengali in West Bengal is often seen by his compatriots in other parts of the country as being a Bengali first and an Indian next;21 while the Bangladeshi citizen has traditionally caused concern in the larger Muslim world for seeing himself as a Bengali first and a Muslim next.

How and when did this strong sense of language identity emerge? Historically, one needs to look at this question in two parts. The first is the development of Bengali identity in the undivided Bengal of colonial times; the second is the emergence of Bengali nationalism in East Pakistan that culminated in the creation and consequent sustenance of Bangladesh.

Language identity in greater Bengal and later West Bengal

Although the Bengali language itself has a long history (see Sen 1960), a conscious Bengali identity seems to have developed in the region only during colonialism and, many historians suggest, as a response to the colonial experience. We may note two strands of influence in the literature. Both influences were more powerful in their effect in Bengal than in other parts of colonial India because Calcutta was the seat of colonial power up to 1911, at which time the administrative and political capital shifted to Delhi.

First, the development of a self-identity was an inevitable result of the Western-style education that the bhadralok22 in Bengal took to so naturally. While this education led to the kind of modernization of attitudes and values discussed in the last section, it also soon led to the adoption of political ideas of self-government and freedom from foreign rule that this liberal education emphasized.

Second, notions of self-identity and self-pride were developed as a direct reaction to the colonial representation of their subjects as uncivilized (that is, needing to be ruled), weak, effete, and deceitful. (All of these adjectives were used by colonial authorities at one time or another to define the Bengali in particular and the Indian subject in general; a vast literature on this subject and references to this literature can be found in, e.g., Moorhouse
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1971; Chowdhury 1998; Sinha 1995; Chatterji 1994; S. Sarkar 1973; Metcalf 1994.) This representation naturally led not only to an opposition to the ruling colonial power but also to a reexamination and redefinition of the self.

While these anticolonial attempts to define a new self focused broadly on a nationalism that was framed in terms of Indianness (and, frequently, Hinduness; see, e.g., Chowdhury 1998; Chatterji 1994), at a more local and immediate level it was expressed as a resurgence of Bengali identity. The Bengali language was of course the primary marker of such an identity, and allegiance to the Bengali language was emphasized in early attempts to mobilize anti-British sentiments.23 Bengali nationalism and (perhaps more importantly) the advent of printing also led to such a phenomenal growth in publishing in Bengali (as discussed above) that it became progressively easier to emphasize Bengali identity.

This invigorated identity was strong enough to continue to exist as a distinct entity after independence; it derived continuing strength from, and in turn led to the intellectual and cultural development of the Bengali region, or, more accurately, Calcutta. This began with a thriving economy but was not fazed by the subsequently slow economic progress made by the region. As Moorhouse (1971) describes it, “there are far more poets in this city [Calcutta] than there are novelists in Dublin” (p. 190), and “more publishers in Calcutta, it is said, than in all the rest of India” (p. 191).

This is of course a highly stylized picture. It is also a picture that in recent times (and similarly to the situation described for contemporary Bangladesh below) is threatened and, more importantly, perceived to be seriously threatened, by global, national, and local “non-Bengali” forces that prevent the nurturing of the Bengali language in West Bengal. The very recent attempts to redress this perceived neglect by such symbolic gestures as changing the names of Calcutta and West Bengal to more Bengali versions, as well as more substantive measures such as the establishment of a language committee to strengthen the role of Bengali in education and culture, can, however, also be read as indicators of the continuing importance and strength of the Bengali identity. This is different from the sons-of-the-soil movements that fight for local rights in other parts of India: here language primacy is at stake, rather than economic or administrative rights for the locals.

Language identity in Bangladesh

The birth of Bangladesh was itself an outcome of a growing Bengali or “Bangla” identity, distinct from the larger Muslim identity that pitched East Bengal into Pakistan in the 1947 partition of the Indian subcontinent. The force of the language identity is best exemplified by the Language Movement, which began soon after 1947 to resist the imposition of Urdu as the official language of the erstwhile Pakistan.24 The Language Movement be-
came indelibly imprinted in Bangladeshi mass consciousness after the vio-
lence of 21 February 1952 (21 February being celebrated ever since as Lan-
guage Martyrs’ Day) and eventually led to the establishment of Bengali as
the official language of independent Bangladesh not just in conducting the
affairs of government but also as the medium of instruction in education
and the vehicle of development of a Bangladeshi culture. Indeed, this as-
sertion of a Bengali identity facilitated the aforementioned development of
secularism among the Bangladeshi intelligentsia.

That Bangladeshi culture is more Bengali than Islamic is evident in
the many symbols of Bengaliness that have their origins in Hinduism rather
than in Islam, but are seen today as being neither Hindu nor Muslim, merely
Bengali (on this “syncretic” Islam of Bangladesh, see Roy 1983; Gardner
1998). The emphasis in matters of names, dress, music, the arts, and litera-
ture is often on Bengali rather than Muslim roots, although a modest move-
ment that seeks to reemphasize the Islamic element in Bangladeshi culture
has long existed and has been growing recently.

Language identity and the diffusion
of modernization

This article gives importance to language identity as an encourager of com-
munication and to a common language as a facilitator of communication.
We discuss two aspects of this encouraging and facilitating role of language.

The first is that language, as a primary marker of self-identification,
can encourage links between groups that are otherwise disparate. We hy-
pothesize that the larger and more diverse the network within which a lan-
guage is shared, the greater its potential to facilitate changes in norms and
behavior. On this count, the Bengali language is somewhat distinct: it is
shared by groups that do not share political or religious boundaries, and it
is associated in the minds of its speakers with a sense of identity that tends
to supersede other forms of group identity. As we discuss below, this has
led to a continuous intellectual and sociocultural interaction between West
Bengal and Bangladesh at several levels, direct and indirect. This interac-
tion may have overcome some of the conventional barriers to fertility de-
cline because it has led to a greater exposure to new ideas and a greater
openness to change in the two regions. All this has been helped by histori-
cal factors that gave the Bengal region a head start in modern education
and in intellectual discourses that informed the worldviews of the elites.
These worldviews are now being pressed into service to enable more rapid
social change than has occurred in those parts of South Asia with a shorter
history of intellectual and cultural exposure to the wider world.

Second, the Bengali identity has greatly facilitated a diffusion of new
ideas and attitudes from the elites to the general population within each
Diffusion across political boundaries

One of the two central hypotheses of this article is that the elites’ own attitudes toward change in Bengal have been reinforced by the strong sense of Bengali identity that links them across political borders and thus increases the heterogeneity of their networks of interaction. There is much empirical evidence (albeit all qualitative) for this sustained and intense interaction between the elites of the two Bengals.

Historically, of course, large-scale movements of the Bengali elites took place across political borders during and soon after the creation of Pakistan and then Bangladesh. On both sides they came with novel ideas and new attitudes, and it seems to be acknowledged that these cross-border movements brought with them a breath of fresh air. This migration-induced exposure to the winds of change has been considered particularly relevant for women’s position in the two Bengals. For example, the writer and poet Nabaneeta Dev Sen has described great benefits for women’s autonomy and attitudes in West Bengal of having educated Hindu women from East Bengal move there after 1947. Having left their security and possessions behind, these East Bengal women were perforce more bold and liberated than their native counterparts and provided many role models for educated West Bengal women. On the other side, many of the Muslim women who moved from West Bengal to East Bengal came with what one interview respondent in Bangladesh called their “Calcutta education” and “Calcutta progressiveness,” which they soon put to use to stimulate social change for women in East Pakistan.26

Today, at a political level, this cross-border interaction tends to fluctuate in intensity and warmth; there is often hostility to and suspicion of one another’s motives. But at intellectual, cultural, and emotional levels, the two Bengals continue to share a long history of generally positive interactions. This is reflected in a constant coming and going of individuals between the two regions, a disproportionate amount of space being given to one another in newspapers and magazines, and a frequent collaboration in the production of art and in other cultural activities.27

The binding force of “Bengaliness” is particularly evident in the diasporic populations of West Bengal and Bangladesh. Most parts of the world that have a significant resident South Asian population boast of at least one Bengali As-
A review of the foremost Bengali literary and intellectual magazine, *Desh*, confirms this continuing interaction. The magazine is published from Calcutta, but in several ways it is more of a Bengali magazine at large, avidly read and contributed to by the elites on both sides of the Bengal border. And quite apart from the literary interaction is the strong literary nostalgia: a large body of fiction and nonfiction in which political boundaries are blurred and commonalities almost romanticized. (The most prominent recent novel in English on this theme of artificial boundaries between the two Bengals is Amitav Ghosh’s *The Shadow Lines*, published in 1988.)

An important connecting role in this process of cross-national interaction must be assigned to the influence of the 1913 Nobel laureate Rabindranath Tagore on the language, literature, and culture of Bengali society. Few individuals anywhere have left such a lasting legacy in so many areas of life. In particular, Tagore had definite views on what constitutes the modern life and the relevance of Western notions of the state and society, views that continue to inform the debates on modernization in the two Bengals and that formed the opinions of the leaders for a large part of the twentieth century. The Muslim poet and thinker Kazi Nazrul, writing mainly in the 1920s and 1930s, is also noteworthy in this respect. His pronouncements on religion, women, and related matters were far ahead of his time (see, e.g., Amin 1997), and his popularity as a poet helped greatly in the elites’ acceptance of his views on these matters as well.

But these individuals are even more important for the way they are claimed by both Bengals. They are not seen as Hindu or Muslim, Indian or Bangladeshi; instead they are seen as Bengalis on whom Bengalis on both sides of the border feel they have a legitimate claim. This double claiming of influential Bengali figures has been highlighted recently in the enthusiastic praise received in both West Bengal and Bangladesh by Amartya Sen, the Nobel laureate in economics for 1998. Sen himself has been quick to acknowledge his intellectual and emotional ties to both Bengals; he also established an educational foundation that will fund projects in both India and Bangladesh.

**Diffusion within political boundaries**

By diffusion we refer here to what Lesthaeghe and Vanderhoeft (1998) call “social permeability”: the degree to which the ideas and behaviors of higher socioeconomic groups are able to spread to the general population. Studies from other parts of the world and of other times also demonstrate the role of strong networks between the elites and the masses and in particular between urban elites and the rural population in fostering modernization and
social change, and, especially, fostering a faster pace of such change, whether in fertility decline or in some other facet of behavior. Rozman (1990), for example, contends that compared to China, Japanese society in the nineteenth century was particularly well poised for modernization because of the constant circulation of its elites from the provincial towns to the capital.

Both West Bengal and Bangladesh have long had the potential for unusually strong interactions between the elites and the general population. In particular, there has been much scope for interaction between the urban elites and the rural population, an interaction that could be exploited to disseminate information, attitudes, and ideology and to effect change in general if this were in the interests of the elites. This scope for interaction has its origins both in historical factors and in the primary allegiance to a common language.

The historical reasons for this close urban–rural link are similar in the two regions. In West Bengal the original urban elites were drawn largely from individuals who already belonged to the landed rural aristocracy or else used their newly generated urban wealth (wealth generated in the process of becoming merchants and bankers in a fast-growing Calcutta under the East India Company) to become large landowners or zamindars under the framework of the Permanent Settlement Act of 1793. In both cases, the newly educated Bengal elites thus tended to have strong rural connections. Indeed, these connections usually included extended families left behind in the village (including, often, wives and children), leading to a pervasive sense of nostalgia for the village of origin.

This nostalgia expressed itself in many ways. At the level of semantics it was evident in the way in which the urban elites of Bengal of the past (and often today’s as well) refer differently to the city (or town) home and the village home: the former is the basha or temporary lodging, the latter is the bari or home (see, e.g., S. Sarkar 1997; Chatterji 1994; Chaudhuri 1968; Chakrabarty 1996). It was also expressed through regular visits to the villages to collect rents but also to socialize and keep up family connections; and through the development of a literature and a poetry that eulogized the countryside. That this nostalgia and this interaction did not leave the general rural population unaffected by the changes taking place in the metropolis is suggested by the partition of Bengal in 1905. Ostensibly motivated by administrative considerations, it also had deeper roots in the threats perceived by Lord Curzon, Viceroy from 1898 to 1905, from an emerging middle-class nationalism in Bengal that he feared was being fueled by the close connections between Calcutta politicians and the East Bengal districts where many of them had their small-town or village homes (S. Sarkar 1997).

In what is today Bangladesh, the Bengali-speaking leadership that emerged after the creation of Pakistan had even stronger and more intimate rural roots than the leaders of West Bengal. The urban Muslim intelli-
gentsia that dominated the Calcutta of colonial India owed its primary allegiance to Urdu as a language and as a source of its culture, while Bengali Muslim culture was considered an attribute of the lower-class Muslim peasantry (see, e.g., Murshid 1995; Ahmed 1996). Most of these ashraf moved to West Pakistan at the time of the partition, and the new educated middle class that emerged and found a voice in East Pakistan consisted mainly of Bengali-speaking middle-level landholders who moved to Dhaka and other urban centers. These migrants to the city maintained rural links in the same way as the Hindu bhadralok of the nineteenth and twentieth centuries. In more recent times, the independence movement, which reinforced Bangladeshi national identity, also strengthened the sense of commonality between the urban elites and the rural population and must be at least partly responsible for the rural zeal of the urban-based contemporary NGO movement in Bangladesh.

In both West Bengal and Bangladesh these urban–rural links have been reinforced by the earlier movements to simplify the Bengali language among the Hindus and Muslims of greater Bengal. This simplification of the language, at least among the Hindus of colonial Bengal, got its impetus from the growth of the print media. It also gained impetus from key individuals such as Ishwarchandra Vidyasagar (T. Sarkar 1997) and Rabindranath Tagore (Sen 1960), who were concerned about the elitist nature of the existing language and its inability to reach out to the general population. Among the Muslims in colonial Bengal, the simplification of the language was spurred by the new proselytizing efforts by Islamic leaders in the Bengal countryside (S. Sarkar 1997).

This trend toward simplification meant that a common language between urban and rural Bengalis (both Hindu and Muslim) was much more a truly common language than the earlier notional commonality in which the elite or educated Hindus and Muslims spoke a Bengali that was heavily Sanskritized or Persianized, respectively, while the nonliterate population spoke and understood colloquial, simpler versions of the language. Indeed, the growth of the print media together with the simplification of the Bengali language has been another important factor in fostering links between the elites and the masses in the two Bengals. This fostering has been possible in spite of slow increases in rural literacy, because a vital part of the success of printing rested on the way in which the ideas and stories on the printed page could be spread by the tradition of the literate few reading aloud to the illiterate many. Printing also reached a wider audience indirectly. For example, the advent of cheap and plentiful publishing democratized new ideas and thoughts because it included a spurt in the writing of literature for public performance, moving plays from the exclusivity of the homes of rich patrons to the more accessible public theatres and halls that sprang up to accommodate this new surge of popular writing (S. Sarkar
1997). Needless to say, this new printed and performed literature was not all modern—indeed, it often satirized the modern—but it nevertheless meant that more and more people were being exposed to and learning to tolerate new modes of thought and behavior.33

These trends have persisted over time, and, on the whole, it is reasonable to say that social permeability in the two Bengals has been effective enough to counter more conservative forces opposed to radical change. In Bangladesh in particular, it is striking how periodic attempts by conservative religious forces to block the women-oriented or otherwise modern programs of the government (in family planning, for example) have not stopped their promotion by the mainstream governmental and nongovernmental agencies or their acceptance by the general population even though it is largely rural, nonliterate, and Muslim.34

As for the social change that can be accelerated by such urban–rural interactions, quite apart from the demographic example of the family planning program in Bangladesh, successful examples of mass mobilization abound in both Bengals. In West Bengal, the most striking manifestation of such interaction is political. The nearly quarter-century rule in West Bengal of the Communist Party (Marxist) of India (CPM) is remarkable for the way in which its leaders are mainly Western-style and often Western-educated city people (one scholar35 refers to them as “radical gentlemen”) while its mass base is rural and vast. Indeed, the CPM has very little mass support in Calcutta or the larger urban areas (on the great rural penetration of the Communist Party in West Bengal, see Rogaly 1998); what it has been able to exploit effectively is the intimacy of the real and imagined urban–rural relationship in the state. A related example of successful interaction can be found in West Bengal’s early and wholehearted adoption of the system of panchayati raj (a parallel structure of local government) that India has adopted in principle since 1978, but that until recently only West Bengal seems to have adopted in practice (Webster 1992). And in Bangladesh, the mass mobilization programs of both the state and the nongovernmental sector (of which BRAC, a development organization, and the Grameen Bank are two examples) represent that country’s own brand of successful urban–rural interactions.

Moreover, in both West Bengal and Bangladesh, the new agricultural technology adopted in rural areas has meant that West Bengal in recent years has seen the fastest growth in agricultural production in the country, while Bangladesh saw a massive rise in agricultural production in the 1980s (see Rogaly, Harriss-White, and Bose 1999; Ahmed, Haggblade, and Chowdhury 2000). This growth has occurred in contrasting policy environments in the two regions (a Communist Party focused on land reforms in West Bengal and a government focused on agricultural liberalization in Bangladesh), leaving researchers to decide which set of policies is more conducive to agricultural growth. But our analysis here suggests that perhaps more important
than the policies themselves are the implementation of policies and the crea-
tion of an environment conducive to growth and change through the mass
mobilization that characterizes the Bengal region.

Extending this discussion to fertility control, one can more easily ex-
plain the fertility decline that West Bengal has also experienced in spite of
little official commitment to the family planning program, in contrast to
the influential program in Bangladesh. One may also more confidently pre-
dict that a greater official commitment to a family planning program in the
state may result in greater success than in some other parts of India. As for
the governmental and NGO success in spreading birth control in Bangla-
desh, our analysis suggests it is not surprising that this diffusion process has
not been as easy to duplicate in other parts of South Asia and the Middle
East that share a common religion with Bangladesh but not a history of
earlier modernization. For example, as Amin and Lloyd (1998) describe in
their comparative analysis, Bangladesh has been much better able than Egypt
to withstand the rise of varieties of religious opposition to many of its mod-
ernization efforts (at both the provider and the client level) without offi-
cially suppressing or opposing these fundamentalist groups.

Conclusions

This article has sought to endogenize the agents of social change in order to
improve understanding of some of the conditioning factors that facilitate
fertility decline. It argues that looking solely at the immediate causes of re-
productive change may distort our understanding of policy options by fail-
ing to take into account the historical and cultural factors that affect not
only the impact of policies and programs but the very existence and nature
of these policies and programs.

By presenting a joint study of Bangladesh and West Bengal, we have
tried to demonstrate that historical and cultural factors are important influ-
ences on reproductive change. While the role of historical processes in so-
cial change has been neglected, the role of culture tends to be obscured in
contemporary debates on this issue that often view cultural attributes merely
within political boundaries. Thus in research on Bangladesh, for example,
culture is defined in terms of the educational levels of Bangladeshi women
or their autonomy in movement and decisionmaking. At other times, the
nature of Islamic marriage and the family is treated as the key cultural at-
tribute. The little change that these various indicators have exhibited over
the years is taken to demonstrate the irrelevance of social and cultural change
to the fertility decline that is occurring there.

We have taken a different perspective on culture in this study. This
perspective has two elements. On the one hand, cultural change is described
in terms of changes in worldviews or ideologies as well as, to a lesser ex-
tent, in norms about appropriate behavior. Such cultural change may be
reflected in changes in some cultural attributes and not in others. For example, it is possible for a change in family-size norms (one kind of cultural attribute) to occur without change in women’s autonomy in movement (another cultural attribute). That is, declining fertility may be seen as a profound cultural change in itself rather than as an outcome of other kinds of cultural change.

Our second perspective on culture sees it as a facilitating variable: some cultural attributes of a population make it easier or harder for individuals to gain exposure to new ways of thinking and to respond positively to new ideas. Moreover, there is more to this facilitating aspect of culture than women’s education and the nature of the family. In particular, there is the strong impact of language (the Bengali language in this case), which often transcends the religious identity of a population (as witnessed most starkly in Bangladesh’s independence movement) and which links the country with its Bengali counterpart in India (the state of West Bengal) in ways that few other cross-cultural interactions demonstrate. This continuous and intense interaction between Bangladesh and West Bengal and the strong sense of common identity conferred by the Bengali language are important sources of the diffusion of ideas and attitudes in both regions, so that the Bengali culture as a whole is often more progressive and open to outside influences than either Hindu or Muslim culture in general.

This observation could explain, for example, the conclusion by Dyson (1996) that the Bengali region of South Asia may have begun its fertility decline as early as 1960. It could also explain the convergence of fertility levels in Bangladesh and West Bengal in spite of radically different policies in the field, and, in contrast, the vast gulf in fertility levels between two other contiguous but politically separate areas that speak the same language: the Punjabi-speaking regions of India and Pakistan (see, e.g., Ramesh 1996). In the Punjab case, all indications are that the language identity is not strong enough to overcome the communication barriers imposed by religion and by political borders. In the Bengal case, the role of cross-border interactions is also suggested by the commonality of fertility behavior in the districts along the border separating the two Bengals (Amin, Basu, and Stephenson 2000).

We have proposed that the best diffusion channels are those that are both homogeneous and heterogeneous; the Bengal experience suggests that each kind has a role to play. Homogeneous cultural networks (a common language in this case) can facilitate the transmission of new modes of thought and behavior; this facilitating role of language has been used to at least partly explain the patterns exhibited by the European fertility transition as well as by some contemporary transitions (see, e.g., Montgomery and Casterline 1998 and several chapters in Leete 1999). When the common language is also associated with a strong sense of loyalty to it, this ease of transmission is further facilitated because there is an urge to make it a vital means of com-
munication between the elites and the masses: we have sought to demonstrate this point with examples of mass mobilizations by different entities in the two
Bengals.37

On the other hand, socioeconomic and geographic heterogeneity in
diffusion channels increases exposure to new ideas that are subsequently
diffused; obviously one’s immediate contacts have less that is new to tell us
than do those who inhabit another, often larger world. The importance of
heterogeneous networks is becoming apparent in studies that document the
role of global networks in contemporary fertility decline (see, in particular,
Bongaarts and Watkins 1996) and in the literature on the role of elites in
fostering social change. Bengali-speaking elites or reference groups are thus
important sources of transmission of new ideas among the general popula-
tion. In addition, these groups have themselves been doubly blessed in this
respect. On the one hand, they have the historical experience of early and
intense exposure to the modern world in the ways described above; on the
other hand, by occupying politically different spaces (that is, West Bengal
and Bangladesh), they continue to have interaction with and exposure to a
wider religious, political, and policy world than do Muslim populations in
other parts of the Islamic world and Hindu populations in other parts of
India. The result, we suggest, is that the elites of Bangladesh and West Ben-
gal display a greater intellectual and ideological progressiveness than their
counterparts in these other regions, a progressiveness that has on occasion
been communicated outward through the medium of a common language.

These findings may also be seen as contributing to a process of reflec-
tion on two matters. The first matter is methodological. While the policy
community emphasizes national political boundaries with good reason, fo-
cusing research and analysis on populations delineated by political bound-
daries may obscure important insights. In an increasingly interconnected
world it makes sense to look at “outside” influences on behavior (e.g., Bon-
gaarts and Watkins 1996); our study suggests that such influences and in-
teractions are not merely a feature of contemporary technology. They may
just as well exist between otherwise closed, politically demarcated areas that
have a shared history and culture. To that extent, we may be wrong if we
assume that the Bangladesh–West Bengal case is unique. Our guess, how-
ever, is that such a strong loyalty to a common language is rare. Thus, this
kind of analysis needs to be strengthened through application to other parts
of the world.

The second matter on which this study may throw some light is the
absence of comparable fertility change in many other parts of the world.
While it might not be much help to the impatient policymaker to be told
that some populations are quicker to respond to antinatalist policies than
others, by endogenizing policymakers and aspects of governance we hope
to add to our understanding of the larger historical and cultural constraints
on policymakers themselves. The central conclusion in this context is that for diffusion to serve as an effective channel of social change, two conditions must be satisfied: the elites must be sufficiently advanced themselves as reflected in the indicators of social change, and they must have strong channels of interactions with the general population. Slower social change in Latin America in spite of a modern elite may be explained by the scantiness of this elite’s interactions with the rural population; and slow change in sub-Saharan Africa in spite of strong networks of urban-rural interaction may be explained by the greater personal traditionalism of the elites (on both matters see Guzman 1994). In both regions, in short, there is only partial fulfillment of the two conditions necessary for change through diffusion.38

Ours is not meant to be a deterministic model of social change; it leaves room for what may be called “quakes,” or sudden changes in a hitherto placid environment. Political upheavals provide the most potent example of this and may be especially relevant to the experience of rapid fertility change in countries such as Vietnam.39 While such quakes may contribute to a rapid transformation of society, our article suggests that historical processes may otherwise leave an imprint that shapes a society’s predispositions for a long time to come.

Notes

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1 For a review of the latest thinking on the subject of diffusion processes in fertility decline, see the proceedings of the National Research Council’s Workshop on the Role of Diffusion Processes in Fertility Change and the subsequent summary report on the workshop (National Research Council 1999).

2 But it is not our contention in this article that the elites in the two Bengals have the interests of the general population more at heart than do the elites in other parts of the world. We merely assert that when they choose to effect mass change, for the historical and cultural reasons discussed here, the Bengali elites seem to be more successful than their counterparts elsewhere. As for their motivations in trying to effect such change, these may usually be self-serving. In this article we use such words as “elites,” “masses,” “liberal,” and “modern” in a merely descriptive way, without any of the value judgments, positive or negative, that the terms also usually imply.

3 Because this article is concerned with the potential influence of the elites on fertility control, and because fertility change may be viewed as a move from traditional to more modern forms of behavior, the elites described here are those who have themselves acquired the knowledge and opinions that go to form a modern worldview or ideology and who are in turn in a position to affect the beliefs and behaviors of others. In this sense and in this context, the elites may be defined loosely as the modern intelligentsia of a society, the intelligentsia in turn being defined, in the words of one of the most influential works on the
subject, as those groups or individuals in a society "whose special task it is to provide an interpretation of the world for that society" (Mannheim 1936). To that extent we include more than the economic or political elites in our analysis. Indeed, there is much evidence not only that South Asian policy has traditionally been informed more by the intellectual than the political elites, but that the political elite has traditionally been drawn largely from the intellectual elites to begin with.

4 Although primary-level education in India is highest in Kerala, college levels of education are highest in West Bengal; see, e.g., International Institute for Population Studies (1995b).

5 The microlevel political economy of reproductive change in particular and demographic change in general has, on the other hand, received much attention in recent years, especially with the growth of anthropological demography; indeed, this detailed attention to the household perspective has sometimes led to a neglect of the role of larger forces, including the state itself, in promoting change (see Basu 1997).

6 Nathanson (1996) makes a related point about some of the underlying social and political processes that promote or hinder successful health policies. It is often not enough to know that certain technologies are effective against certain diseases. When and how the policies that incorporate these technologies are implemented requires an understanding of the larger sociopolitical context.

7 As Inkeles (1983) discusses, Westernization refers to the adoption of the cultural and intellectual attributes of the Western world as they evolved in the nineteenth and twentieth centuries; at other times, individual modernity may well have been an attribute more common in non-Western cultures. On this, see also Sen (2000).

8 It is notable that the first signs of fertility decline in the United States appeared in New England after the Revolutionary War (Ewbank 1991), with another noticeable drop after the Civil War (David and Sanderson 1987).

9 Lesthaeghe and Wilson (1986) refer to an interesting earlier work by Wolf (1912), which broached this idea of a change in Weltanschauung being involved in changing fertility behavior. Wolf's analysis suggested a relationship between birth rates and the percentage of votes cast for the Socialist Party in Germany. This is an intriguing idea, of particular relevance to the Indian states of Kerala and West Bengal, which must be the only parts of the world to have had democratically elected Communist Parties in power for long periods of time. Kerala is recognized as a demographic pioneer, and, as we suggest in this article, West Bengal too has some unique features conducive to fertility decline.

10 The East India Company, once it gained formal administrative control of its Indian territories, divided these into three Presidencies: Bengal, Bombay, and Madras. Beginning in 1773, overall authority was invested in the Governor-General, who operated from Bengal Presidency and whose authority extended to the Governors who administered Bombay and Madras Presidencies. Over time and even more so after the Crown took over, these territories were expanded, reorganized, and renamed, but Calcutta remained the seat of the central government until 1911.

11 S. Sarkar (1997) would add the impact of chakri, the employment of the newly educated middle classes primarily in clerical positions in the British government in Bengal and other parts of India. The mixed effects of this employment are particularly important for the middle rungs of the newly literate, who did not contribute to the renaissance in the same way as the upper middle classes composed of lawyers, doctors, and other professionals, but who nevertheless acquired and often unknowingly disseminated the new knowledge and ideas emanating from the latter.

12 To quote from Thomas Macaulay's Minute on Education of 1835, this education was needed to create "a class of persons Indian in blood and color, but English in taste, in opinions, in morals and in intellect...who may be interpreters between us and the millions whom we govern" (cited in Clive 1973: 376).

13 In addition, the moral and philosophical content of the Western educational syllabus in Bombay tended for a long time to inspire a reform of the self (that is, of the newly educated individual) rather than of the larger society (McDonald 1966), something that was
at the root of the ideological content of the college syllabus in Calcutta.

14 Indeed, the philosophical content of this education virtually begged to be used in this way (see, e.g., Bagchi 1991). That this is by no means a uniquely Bengal phenomenon is illustrated in Anderson (1991).

15 Nevertheless, a rejection of the past and of traditional beliefs was also an important component of many debates during the Bengal renaissance. Several writers have described the heated debates on atheism that took place in many of the literary societies of the day (see, e.g., Sanyal 1980).

16 From the beginning of the twentieth century, Malthusian arguments for reduced population growth were well entrenched and accepted by the elites of the Indian subcontinent. And while acceptance of such arguments explains the genesis of family planning programs in this region (see, e.g., Robinson 1996; Khuda et al. 1996), it does not explain how these similarly planned and motivated programs had such sharply different levels of success in various parts of South Asia. For example, the Malthusianism inculcated in the training of the bureaucracy that Khuda et al. mention as one factor in the fertility decline in Bangladesh was part of the training of the civil service in West Pakistan as well.

17 Indeed, it was only the upper-class (but not necessarily upper-caste) Hindu who initially participated in this growth in modernization. Western-style education was expensive; when it was professional, it took many years; and its most popular subjects (literature and the humanities) were most consistent with the interests and aptitudes of a landed leisure class. For all these reasons, it often served merely to transform “an aristocracy of wealth” into an “aristocracy of culture” (Chatterji 1994).

18 As early as 1863, Abdul Latif, the most prominent Muslim public figure of Calcutta, started the Mahomedan Literary Society to “imbue its members with a desire to interest themselves in western learning and progress, and to give them an opportunity for the cultivation of social and intellectual intercourse with the best representatives of English and Hindoo society” (Latif, cited in Sanyal 1980). Also around this time, upper-class Bengali Muslim intellectuals like Sayyid Ahmed Khan and Syed Ameri Ali, deeply influenced by Western ideas, began to give rational interpretations of the Koran and Hadith. They sought to differentiate between the ‘fundamentals’ and the ‘accidentals’ of Islam, and urged the adoption of the fundamentals as opposed to the ancillary aspects of their religion” (Akter Banu 1992: 175).

19 In a major ideological turnaround, the “socialism” pillar, too, was replaced, with “social justice.”

20 We use the terms “Bengali nationalism” and “Bengali identity” interchangeably in this article because “nationalism” in our analysis refers to “identity” without reference to “statehood.” That is, it does not follow that nationhood coincides with statehood. What we describe is a largely depoliticized concept of nationality, a “renunciation of the idea that those who feel themselves to be a nation should necessarily constitute an independent state of their own” (Prasad 1944). While Bengali nationalism did eventually lead to the creation of Bangladesh, this nationalism in the first place was not tied to questions of nationhood; its proponents were quite willing for it to exist within the larger political entity of Pakistan until its language identity was denied.

21 Perhaps this “self-obsession” (Chatterji 1994) is best illustrated by the Bengali word for those who belong to other parts of India. These individuals are described not as belonging, say, to Tamil Nadu, Punjab, or Kerala, but as abangali, that is, non-Bengali. In other words, there are the Bengalis, and there is everyone else.

22 Bhadrakolok is the Bengali term for the educated middle class, but actually means much more than this. It is the term used to describe the elites of Bengal by themselves and by knowledgeable outsiders, and its exact sense is best captured by a frequently quoted definition from Broomfield (1968), “a socially privileged and consciously superior group, economically dependent upon landed rents and professional and clerical employment” (pp. 12–13).

23 For example, the members of the Society for the Promotion of National Pride were fined one paisa for every word of English that they used at their meetings (Chowdhury 1998).

24 The movement also grew out of a resistance to other tendencies toward Islamization of the government of West Pakistan—in-
cluding attempts to introduce the Persian script for writing Bengali in East Pakistan and the periodic ban on performances and broadcasts of the music and arts of Hindu Bengalis such as Rabindranath Tagore.

25 There was growing opposition in East Bengal to the determination of the rulers of erstwhile Pakistan to have only Urdu as the official national language. This opposition culminated on 21 February 1952 in a series of well-orchestrated strikes and demonstrations organized by the newly formed State Language Action Council of East Pakistan. A number of demonstrators were killed in the police firing that followed the strikes, which the central government had anticipated and sought to prevent by the imposition of a ban on processions and strikes.

26 Personal interview (1999) with Mrs. Chitra Bhattacharya, Member of Parliament and prominent women’s activist, in Dhaka.

27 Indeed, this constant interaction was a matter of concern to the government of Pakistan before the independence of Bangladesh and led to futile attempts to ban the import of books, music, and films from West Bengal into East Pakistan in the 1960s. This ban probably did little more than fuel further the Language Movement that helped produce an independent Bangladesh.

28 These associations are usually quite active: the North American Bengali Association, for example, has a week-long conference (called the NABC by the initiated) every year, in which activities and events are organized that rely freely on expertise from both Bengals.

29 By contrast, in the Bombay and Madras Presidencies, modern education was first taken up by groups that were predominantly urban, or, if they had begun life in the village, did not represent the more powerful or influential elements of the village.

30 Less charitable explanations of the interactions between the Bengali bhadralok and the rural population have focused on this being one way for the former to increase their power and patronage in colonial Bengal (see, e.g., Chowdhury 1998; Guha 1989).

31 It is interesting that the simplification of the Bengali language was originally motivated by the need to make the women of upper-class families better helpmates to their rapidly modernizing husbands rather than to foster interclass communication. The women of upper-class families could not at first be sent out to schools to be educated; their education therefore had to come from magazines that catered to them in their own simpler, more colloquial Bengali. As Peary Chand Mitra pointed out in the inaugural issue of his magazine, *Masik Patra*, in 1854: “This magazine is published for ordinary people, particularly for women. All compositions will be written in a language in which we carry out our day to day conversations. If learned pandits wish to read this, they may do so, but this magazine is not for them.” Indeed, in his *Dialogues Intended to Facilitate the Acquiring of the Bengalee Language*, a compendium of the customs and language of the different classes and castes of Bengal, published in 1801, the Orientalist William Carey classified women with the low castes for “the vulgarity of their speech” (Sangari and Vaid 1997).

32 The miscommunication possible between different groups that ostensibly speak the same language can occur despite rising literacy levels, thus greatly hampering developmental efforts that hinge on the transmission of new ideas or instructions. Gumperz (1957) describes, in the case of north India, the high levels of misunderstanding by villagers with more than five years of schooling of simple governmental pamphlets; for the illiterate, who depended on having these pamphlets read to them, the misunderstanding was even more complete.

33 T. Sarkar (1997) illustrates the diverse opinions to which the Bengal population has long been exposed by popular print and visual media. A local case of adultery and murder in the late nineteenth century was publicized and discussed at so many levels and with so many interpretations through newspapers, popular plays, novels, and paintings that it ended up doing two important things: (1) it democratized the debates because different categories of people were all exposed to the moral, legal, and political issues through these varied forums; and (2) it exposed people to a variety of opinions on such issues—the guilty party being sometimes seen as the woman (for having an adulterous relationship), sometimes the husband (who murdered her), sometimes the...
priest (with whom she had the adulterous relationship), sometimes the colonial state (which convicted the husband of murder), and sometimes the system of patriarchy (which forced young wives to visit their parents for respite and in this case exposed the wife to the priest’s attentions). The main outcome of this widespread debate (and Sarkar stresses that her case is only illustrative) was that no notions or traditions were sacred; they could all be debated.

34 Indeed, it is striking just how limited the impact of conservative religious forces has been until recent years. Part of the resistance to the attempts of religious conservatives to forestall social changes may be attributed to their perceived role as collaborators in Pakistan’s governance of East Pakistan before 1971. This factor undoubtedly helped President Ziaur Rahman to implement many programs—in the area of family planning and women’s employment, for example—that conservative religious leaders decried. But in addition, mass movements against religious fundamentalism seem to have emerged in response to a culture of positive attitudes to modernization. To quote an otherwise pessimistic scholar on Bangladesh (Feldman 1998), the Jama‘at-i-Islami (the primary conservative religious party) “is continually challenged by an increasingly organized opposition, which has included a more vocal and organized women’s movement that has successfully mobilized rural women.”

35 Kamal Siddique (personal communication, 1999).

36 But this convergence may not last as fertility decline in Bangladesh continues at a faster pace because of greater official commitment to the decline.

37 That this social permeability is important is also suggested by the continuing conservatism of the lower-income Bangladeshi diaspora, in the United Kingdom for example. Not having access to interaction with culturally homogeneous reference groups, these immigrants are often much slower to change than the rural populations they have left behind.

38 In the modern world, diffusion processes may of course also be promoted by less interpersonal means. The mass media and good transportation come immediately to mind as examples.

39 Political upheavals are, in one sense, analogous to language identity in that they give otherwise diverse populations what may be called a shared worldview.

References


NOTES AND COMMENTARY

Perceiving Mortality Decline

MARK R. MONTGOMERY

The topic of mortality risk perceptions has somehow failed to engage the interest of demographers. Perhaps this is because in demography, as in social science more generally, the passage from socioeconomic change to individual perceptions of change has been assumed to be immediate, or to involve lags of little consequence. If individual perceptions adjust quickly to changing empirical realities, such perceptions can justifiably be ignored. In the case of mortality decline in developing countries, however, there is good reason to believe that perceptions are likely to be diffuse, are quite possibly biased upward in relation to the empirical risks, and are probably rather slow to adjust to declines in those risks.

I base these propositions not on a large empirical literature in demography—there is almost no literature of this kind to cite—but on findings from cognitive and social psychology, disciplines in which probability and risk assessment have been intensively studied. A sketch of the findings from their literatures is as follows. When laypersons attempt to understand mortality decline, they are apt to bring to the task a great variety of rules of thumb and heuristic standards of judgment (see, among others, McKenzie 1994; Mellers, Schwartz, and Coale 1998; Nisbett and Ross 1980; Tversky and Kahneman 1974). The layperson’s understanding of probability and risk is imperfect at best, and is particularly so when the probabilities are changing or when a correct assessment requires fine discrimination among levels of risk. Individual perceptions and individual experience alone may not then suffice. Furthermore, social learning—that is, learning from the experiences of family, peers, social network partners, and mass media—may suffer from biases and uncertainties that are similar to those affecting individual perception.

The usual perceptual difficulties are greatly amplified in the case of mortality by the fact that mortality decline is not fully exogenous. Rather,
in developing countries it involves a new set of social and political actors and institutions—those constituting the modern health care system—whose methods may not initially be accepted or judged to be clearly effective. Whether mortality decline is perceived is not just a matter of correct assessment of the external environment, but also a matter of how such new institutions establish credibility and win the trust of their clients.

Biases and lags in mortality perception may have a number of implications for demographic behavior. The most immediate of these may be seen in the motivations for modern health care, in which perceptual lags may leave doubts about the net gains to be expected from such care. The concepts of perceived efficacy and personal agency are pertinent here. But mortality decline has also been regarded as an important mechanism in fertility decline, taking a leading role in the formulation of demographic transition theory by Notestein (1945). It may be that biases in the perception of mortality decline, which cause the full extent of change to be screened from view, have much to do with delays in the response of fertility. Lloyd and Ivanov (1988) wrote of a “transition effect,” by which mortality decline brings greater predictability to the external environment and enhances individual confidence and the sense of personal control. These developments, in turn, may encourage a longer-term view of family-building and thereby set the stage for adoption of fertility control. One can imagine situations in which the motivation of parents to invest in the schooling of their children are also linked to perceived mortality risks. Lags and upward biases in mortality perception could therefore delay progress in both the quantity and quality dimensions of the fertility transition.

In the first section to follow, I sketch the health decision environment as it might be seen by a developing-country family, and single out the features of this environment that depend on perceptions. In the second section, drawing upon the rich literature in cognitive and social psychology, I stress the limits and potential biases that can distort probability perceptions and discuss how social learning—learning from others—can either correct or amplify individual biases. The third section presses the argument further, linking it to aspects of both modern and traditional health care. The key question in this section is how perceptions and social definitions shape beliefs about the relative efficacy of modern health care as compared to the traditional alternatives.

In the fourth section, I turn to the implications for fertility and investments in human capital. The links of mortality to fertility include the aforementioned transition effect and the three mechanisms identified by Preston (1978)—the insurance, replacement, and lactation-interruption effects. Although the connection of mortality to fertility has been the subject of considerable research (see Preston 1978; Montgomery and Cohen 1998), the insurance and transition effects remain poorly understood, and I argue that mortality perceptions are a central factor in these effects. As for hu-
man capital investments, I consider several pathways of influence through which perceived mortality decline might enhance motivations for investment. In the concluding section, I offer suggestions for a new research agenda.

The health decision environment

The task of detecting lower mortality might seem trivial at first glance, but consider the many social and perceptual issues that face families as they attempt to evaluate mortality risk. There is, first, the difficulty posed by multiple levels and actors. Mortality is partly the result of endogenous behavior on the part of families, as they choose among various forms of health treatment and prevention. The risk level also depends on exogenous factors that lie outside family control, such as state-initiated investments in water supply and sanitation, the extension of modern health service delivery, and the development of a modern private sector in health care. The second difficulty, which follows from the first, is that the parameters of the decision environment are changing, as new ideas about health care are introduced and new behavioral options are made available. The resulting trends in mortality are thus the product of powerful exogenous forces and the multiple endogenous responses to them.

Owing to this mix of the exogenous and endogenous, families seeking evidence on mortality risk will probably draw their information from a variety of sources. For some families, perhaps, a general sketch of the situation might suffice to summarize the risks. Others will require more information, seeking to understand what features of the changing health environment and what new options for health care yield demonstrably lower risks overall. For such families, the question of mortality decline is linked inextricably to changing information and transformed perceptions of modern and traditional health care.

In what follows, my central thesis is that it is far more difficult than one might suppose for families left to their own devices to perceive even the general outlines of mortality decline. The empirical facts will often be hidden from their view, obscured at least for a time by a number of perceptual barriers. For more accessible evidence, families may turn to the immediately surrounding health and health care environment, which will present both modern and traditional features. They may be persuaded of mortality decline if they can see in this heterogeneous environment clear evidence of the efficacy of modern health care. In this way, perceptions of mortality decline may depend to a considerable extent on perceptions of the modern health system.

To appreciate these issues, let us consider a family's perspective in more detail. Figure 1 depicts the situation that a family might face when one of its children falls ill. Three choice options are assumed to be avail-
able: do nothing and hope for the child’s recovery; make use of traditional care, which entails costs \( c_t \); or seek modern medical treatment, with associated costs \( c_m \). The outcome of any of these choices is uncertain, and such uncertainty is expressed in the mortality probabilities \( p_n \), \( p_t \), and \( p_m \) that are associated with the choice alternatives. A rational decisionmaker, upon surveying this range of costs and probabilities, would select the type of care offering the highest expected net benefit.

For those who have adopted Western views about medical care, it might be taken as a given that \( p_m < p_t \) and \( p_m < p_n \). That is, holding constant the severity of the child’s illness, such decisionmakers would rate the prospects for survival as better if the child is given modern treatment rather than traditional or no treatment. But how widely shared are such Western-influenced views? Are they mainly the beliefs of the better educated? What heterogeneity in views exists? Even if modern health treatment is commonly acknowledged to have a higher payoff than traditional care (in the sense that \( p_m < p_t \), the perceived margin of difference in these probabilities might be regarded as slight. Furthermore, if high costs \( c_m \) hinder access to modern care, this could reverse its net advantage over the traditional modes. Important determinants of such costs lie on the supply side, where shortages of medicines and personnel can render the modern system’s superiority largely hypothetical. When taken together, all these costs and probabilities determine the proportions of families choosing modern health treatment.

The likelihood of obtaining modern treatment will vary over time in response to trends in the outcome probabilities, the associated costs, or both.

**FIGURE 1  Decision options for the parents of an ill child**

- **Child is ill**
  - **No care**
    - Child survives \( 1 - p_n \)
    - Child dies \( p_n \)
  - **Traditional care at cost \( c_t \)**
    - Child survives \( 1 - p_t \)
    - Child dies \( p_t \)
  - **Modern care at cost \( c_m \)**
    - Child survives \( 1 - p_m \)
    - Child dies \( p_m \)
For example, as general living standards improve, the probabilities of recovery from illness may rise, so that $p_r$, $p_t$, and $p_m$ all decline. These changes may be proportional, or, if the quality of modern treatment also improves, $p_m$ may decline by the greatest proportion. If such changes are mirrored in perceptions, they should increase the motivation to use modern treatment and lead to a greater overall decline in mortality than would otherwise have occurred. Likewise, program-driven improvements in access to modern care will reduce $c_m$ and thereby increase the likelihood of modern care.\(^2\)

Figure 2 extends consideration to the prevention of illness. Here, the child is assumed to be initially healthy, and the question is whether to invest family resources $c_a$ in obtaining a vaccination against a particular cause of illness (“Cause A”). The issues are not specific to vaccines; they could be illustrated with any relatively new preventive behavior. The expected net benefit of the vaccine will depend on the perceived incidence of this cause (as expressed in the probability $p_a$ that an unvaccinated child will contract the illness) and will also depend on lay understandings of the efficacy of vaccines. Figure 2 depicts a situation in which the vaccine is believed to be perfectly effective in preventing Cause A illnesses. Of course, this may not be the way that vaccines are actually viewed. Suppose it is difficult to distinguish between the symptoms of Cause A and the symptoms of other causes of illness. How, then, does a layperson come to know that the vaccine is perfectly effective? Under what circumstances do the assurances of modern health personnel become credible?

**FIGURE 2  Decision options for the parents of a healthy child**

- **No preventive care**
  - Child is healthy
  - Child is ill of cause A ($1 - p_a - p_o$)
- **Preventive care (Vaccine A) at cost $c_a$**
  - Child is healthy ($1 - p_o$)
  - Child is ill of other cause ($p_o$)
The family’s motivation to adopt a new preventive behavior (here, a vaccination) will be derived, in part, from the consequences it would face if prevention fails. In this way, the costs of health treatment and the outcome probabilities that were sketched in Figure 1 would affect the perceived net benefits of the preventive vaccination option shown in Figure 2. If families behave as if they conceptually linked Figures 1 and 2, then their decisions about prevention would depend in a complicated fashion on a host of probabilities and costs.

The image just invoked, of rational family decisionmakers assessing various health decision options, requires further elaboration. The costs and probabilities of Figures 1 and 2 are properly viewed as subjective quantities, having values that are dependent on the information available to the family and the way in which that information is processed. In no socioeconomic setting—not even in the most highly developed of Western societies—will very many families have knowledge of disease incidence probabilities and mortality risks. In general, and particularly in poor developing countries, such risks will be understood in terms of approximate comparisons and subjective rankings or ranges.3

A developing-country family thus faces a complex set of tasks in seeking to understand mortality risks. A correct assessment—one that accords with the objective risks—would seem to require unusual sophistication and powers of discrimination. Sorting through the risks would be difficult enough in an unchanging environment, but the task is rendered even more difficult by variation over time in the exogenous probabilities and costs.

Mortality perceptions

In this section, I argue that individual perceptions of mortality risk are not likely to track the improving empirical realities without an intervening period of upward bias and uncertainty. Remarkably little demographic research has considered the possibility of a gap or lag between the changing empirical risks of mortality, on the one hand, and the perception of these risks, on the other. Some gaps and lags in understanding are to be expected, of course, but the social circumstances associated with long lags and enduring biases in perception have not been studied. Although the demographic literature has been largely silent on the matter, some insights can be gleaned from an extensive literature in cognitive and social psychology on the issue of lay perceptions and understandings of risk and probability (for a review, see Montgomery 1998).

This literature suggests that, if left to their own perceptual devices, individuals may be poorly equipped to comprehend the improvements in survival that are underway. The facts that are readily accessible to them will seem to support alternative interpretations, and considerable time can
elapse before the downward trend in risk becomes fully apparent. One should therefore expect the initiation of mortality decline to be followed by an interim period during which the phenomenon is in doubt. Mortality decline will be dimly perceived by some but stoutly denied by others, and most will be left uncertain.

In many ways, the case of mortality decline exemplifies the perceptual difficulties that confront laypeople in matters of probability and risk. Some form of probabilistic thinking may well be required even to organize the relevant data. A lay counterpart to the concept of events (deaths) in relation to the population at risk seems to be needed, as well as a means of gathering the numerators and denominators. It is not at all obvious how the layperson, situated in a rural village or living amidst the bustle of a developing-country city, would find himself equipped with such concepts and information. Since mortality decline gives rise to more rapid natural increase, total deaths may increase even as the crude death rate decreases. This no doubt compounds the problem.

A further difficulty is the natural tendency among laypeople to view death as the noteworthy event, with its logical complement, survival, attracting less attention. Psychologists would term survival a “null event” from the viewpoint of the layperson (Estes 1976; Nisbett and Ross 1980). As long as a child survives, nothing really seems to have happened, whereas a child’s death is readily marked as an event. Such perceptual biases are accentuated by the tendency, well documented in the psychological literature, for negative events to exert a disproportionate influence on beliefs, with positive events appearing to have much less subjective impact (e.g., Skowronski and Carlston 1989; Taylor 1991; Viscusi 1997).

The literature also shows that, often, the layperson will attach too much weight to a small sample of immediate experience—say, a few years’ worth of births in his own village—a tendency that can overwhelm the efforts of public health campaigns to convey the broader and more representative picture. Adding to these difficulties is what psychologists term the “primacy effect,” by which events that occur early in a temporal sequence appear to exert disproportionate influence over later beliefs. In the case of mortality experience, one might form one’s first impressions of risk during childhood or adolescence, these being relatively high-mortality periods in an era of secularly declining mortality. This early experience may establish a durable perceptual frame that resists revision. One’s own direct experience with risks, derived from a lower-mortality period, might prove insufficient to dislodge earlier beliefs.

Another aspect of the problem is the need to separate average mortality risk from its variance (Slovic 1972). High-mortality environments often exhibit considerable variability in mortality, with experience being punctuated by occasional episodes of famine, flood, and epidemic. Looking back
on such experience, the layperson might find it difficult to discern the general downward trend in risk, with memory distracted by such vivid and catastrophic occurrences.

The common theme in these observations—necessarily offered tentatively, given the absence of demographic research—is that individual perception alone is probably a poor device for detecting downward trends in mortality. Individuals cannot be expected to act as lay statisticians: they lack both the necessary information and the conceptual framework for organizing it. If left to themselves, they would seem to be ill equipped to filter the signal from the surrounding noise.

In time, of course, perceptions will come to be corrected and mortality decline will come to be recognized. But if unaided individual perception is as weak a discriminator as I have suggested, might the key to learning be the information that individuals draw from their social interactions? Information can be gathered from interactions with family, discussions in peer groups and other social networks, and conversations with the better-educated; it can be distilled from media messages and from the modern health sector. All these can be regarded as avenues for social learning and diffusion (Montgomery and Casterline 1996), by which new ideas about mortality risks come to intermingle with the old.

Learning from family

Children growing up in high-mortality environments will inevitably know or hear of the deaths in infancy and childhood of their siblings and other relatives. Mothers, fathers, and elders may sometimes tell children of their own family histories, which unfolded in even higher-mortality eras. As children enter adulthood and begin to build their own families, much of the social knowledge they inherit would thus seem to exaggerate the current level of mortality risk.

Counteracting this perception, however, is the possibility that with declining mortality, the parents of one generation will find themselves surprised by the number of their children who have survived, that is, surprised in relation to the smaller number they had somehow expected to survive. Parents may find their larger-than-anticipated families pressing against scarce resources such as land. Looking about them, they may observe their peers also struggling to accommodate larger surviving families. When it can be set against some readily understandable denominator—such as arable land—the fact of improved child survival may then clearly impress itself upon the older generation and become part of the social knowledge they bequeath to their own adult children.

Social learning of this form would seem to require considerable time, during which the data are pieced together by the older generation, slowly
understood, and the implications then imparted to the young. If this is indeed the dominant form of social learning, it would imply very long lags—perhaps as much as a generation—between the initial stages of mortality decline and the beginnings of a response in fertility or other demographic behavior. The mechanism requires something akin to a comprehensible denominator, and the role suggested above for land might not apply to rural areas with substantial out-migration and might not have any obvious counterpart in urban areas.

Learning from social networks

Networks of peers and other contemporaries may allow social learning to proceed at a faster pace. Just as with familial experience, however, it is difficult to say whether information drawn from social networks must necessarily reduce the upward biases of individual perceptions. Much depends on the nature of these networks and the variety of information possessed by network members. The notion of “weak ties” is pertinent here (Granovetter 1973).

Consider an individual woman whose social network is homogeneous, being largely populated with her peers. Her network is then rather like a small population in which, over a short period, the stochastic nature of births and deaths can give a misleading picture of the underlying probabilities. If her attention is selective, tending to focus on negative events, then instances of child death within the network will come readily to mind, will have the force of immediate example, and will seem to disprove the hypothesis of mortality decline. Moreover, in a high-mortality population, at least one woman in each network can be expected to know of a statistically unusual case, such as a family that has lost all of its children. Her experience can be shared with her network partners, and if such atypical cases dominate perception, the propagation of information by networks might further exaggerate individual bias. As long as the perceptual biases described above are widely shared, and as long as individual network members possess no novel information that forces long-held beliefs to be reexamined, the fact that individuals are linked to each other by networks need not bring perceptions any closer to the empirical realities.

If social networks are heterogeneous, however, either in perceptual style or in information, then social interaction can serve as a corrective. Consider a case in which an uneducated woman is linked to a network partner who has some experience of primary school. Through schooling, this somewhat better-educated woman might have absorbed a few facts about health conditions and changes in survival. She could have learned to be more attentive to the messages about health and health care that emanate from government and the media. She might at least have been
exposed to the idea that mortality is controllable, a view that in itself would
tend to heighten attention to information (Simons 1989). When shared
with her network partners, the educated woman’s example or experience
might lead her partners toward a new way of thinking about their own
environments. Functioning in this way, heterogeneous networks, in which
some members are connected to others who possess distinctive informa-
tion, can assist in spreading new views of mortality risks and the emerging
health care options.

New conceptions of adult mortality risks may also be shaped by informa-
tion exchange. Adult beliefs about risk may be much affected by the
perceived incidence of premature death, whether resulting from maternal
mortality, accident, or AIDS. In some developing-country settings (not-
ably, in West Africa), adult social networks can exhibit an extraordinary
breadth. Such wide networks facilitate transmission of information about
premature adult death, and this alone might cause the risks to be exagger-
ated. Yet, wide networks may also offer weak links to better-educated or
urban residents who have new ideas to share about improvements in health
and declining mortality risks. Here, too, the net effects of social interaction
are ambiguous and dependent on network structure and heterogeneity.

Other social effects

I have stressed the role of social learning in the transmission of informa-
tion about risk, but some potentially important byproducts of social inter-
action need not involve learning as such. Ewbank and Preston (1990) and
Lindenbaum (1990), among others, have stressed the power of social ex-
ample to spread new models of personal hygiene. In Lindenbaum’s depic-
tion of rural Bangladesh, better-educated women often adopt distinctive
practices in their childrearing and discipline, in their treatment of food,
and in the cleanliness and order they impose on home and courtyard. They
do so not because they expect benefits to materialize in the form of better
child survival—there may be no perceived connection whatsoever—but
rather to establish a certain social distance between themselves and the
other villagers. Nevertheless, if the better-educated women succeed in pre-
senting themselves as models worthy of emulation, their example may en-
courage new and beneficial forms of behavior.

Perceptions of modern health care

As I noted above, exogenous mortality decline can occur as the result of
economic development and the improvements it brings in individual in-
comes and government investment in public health. Particularly in the early
stages of development, however, such improvements are likely to be dis-
tributed unevenly, with benefits conferred on some socioeconomic groups while others are left in isolation. Furthermore, although exogenous factors will remain important, deep declines in mortality almost surely require access to modern methods of disease prevention and cure. Access to these methods entails money, time, and social costs, so that if their use is to be widespread the benefits of modern methods must be commonly perceived to outweigh the costs. The perception-based motivations for modern health care use are therefore central to the endogenous aspects of mortality decline.

In high-mortality, pretransitional societies, individuals engage in any number of preventive and curative health behaviors. The developments needed to produce sustained mortality decline are, first, that these individual energies are redirected to the modern health system; and, second, that the modern system obtains the resources it needs to supply effective health care. The two developments are, of course, closely related. In addition, they are linked by potentially beneficial feedbacks.

This discussion returns the focus to Figures 1 and 2, in which several factors involved in health decisionmaking were schematically presented. The concept that encompasses these figures is that of “agency,” a term that refers to the choice options available to a decisionmaker (e.g., the presence of a vaccine option in Figure 2), the accessibility of these options (e.g., the costs $c_m$ in Figure 1), and the degree to which choices make a difference to outcomes (e.g., the differences among the mortality probabilities $p_m$, $p_t$, and $p_n$ of Figure 1). The concept of agency is central to much of the literature on health decisionmaking, where it appears under various guises—internal locus of control (Higginbotham and Connor 1990; Landau 1995), coherence and predictability (Lundberg 1997, citing Antonovsky), and self-efficacy (Bandura 1988). It is an important feature of economic expected-utility models of health decisions and figures as well in the closely allied health belief model (Becker et al. 1977) and the theory of reasoned action (see Vanlandingham et al. 1995).

Conditional linkages to modern care

In high-mortality societies the link between individual agency and use of modern health care can be weak or elusive, sometimes dependent on circumstance and emerging only in certain stages of illness. Some illnesses first manifest themselves in a benign, everyday form that, even in pretransitional settings, allows considerable latitude for individual decision and experimentation. In the early stage of illness, modern health treatments can be employed along with various home or traditional remedies; the caretaker or afflicted individual is permitted some freedom in choosing among the options. If the illness progresses, however, understandings of its root cause may also shift, and it may come to be recognized as the ex-
pression of malevolent earthly or supernatural forces. Once the new interpretation is adopted, modern health treatments may be discarded as largely irrelevant. The locus of control may then pass from the individual to the wider social group, sometimes involving family elders and traditional healers, who attempt to understand the full meaning of the illness and act accordingly.

Kirby (1997) describes the case of the Anufo of northern Ghana, whose vocabulary of illness distinguishes a “cool” or “white” stage of illness from a hotter or “red” stage and, as death approaches, a final “black” stage. These categories represent ways of ordering the interpretations of illness and allow the Anufo to express their shared understandings of the causes and remedies that apply to a given stage. In the white stage of simple, everyday illness, individuals may experiment freely with Western and traditional medicines. But, as the illness worsens and enters the more serious red stage,

Now everyone has a specific role to play and the entire process is orchestrated by the elders. Ill persons are no longer free to exercise their individual decisions in the matter, mothers are no longer free to take their children to the clinic or to prepare amateur herbal treatments. All activities of self-help, characteristic of the pre-diagnostic [white] stage, cease. (Kirby 1997: 223)

Although the transition from individual to collective action is not always so marked as in West Africa, a great number of societies show similar tendencies in classifying illnesses and tailoring responses.9

In many settings, illnesses such as neonatal tetanus and measles present symptoms that are immediately recognized as the expression of powerful external forces working against the child, its parents, or the community. Illnesses such as these will not naturally fall within the scope of the modern health care system. In West Africa, a belief in “spirit children” (Feyisetan, Asa, and Ebigbola 1997) remains common: these are children who, because of their circumstances of birth or distinctive early behavior, are understood to be only tenuously linked to life and who may easily slip back into the other world. In other societies, such as in northeastern Brazil (Scheper-Hughes 1992), some children are thought to be born lacking sufficient will to survive. Through no one’s fault, it is believed, they are unlikely to live and there is really nothing that can be done about it. These are situations in which social definitions limit the reach of modern health care.

Extending the modern system’s reach

For the modern health care system to take a more prominent place in decisionmaking, it must first display its superior effectiveness in regard to either prevention of illness or cure, and the system must be organized to
permit access to care of adequate quality. How, then, does the modern system prove its effectiveness? To the layperson, what constitutes evidence? When is such evidence felt to be persuasive?

Views of effectiveness are dependent on both individual and social experience, with each of these being filtered by perception. In health, the modern system proposes new causal explanations for illness and advances claims for new causal links between modern care and positive health outcomes. At least where treatment is concerned, one might think that a few rounds of exposure to the modern techniques would prove sufficient to sway any skeptics, leaving it incontrovertibly clear that the new methods will improve survival.

Yet, as discussed by McKenzie (1994) and Nisbett and Ross (1980), there are severe constraints on laypeople’s abilities to detect such covariation in their immediate experience. The key concepts in covariation detection are those of “distinctiveness,” or the extent to which the outcome of interest is mainly observed in the presence of one cause, and “consistency,” which describes whether the outcome is always observed when the proposed cause is present. If such criteria are applied to health care, in which the link between treatment and response is necessarily probabilistic, the advantages offered by the modern system may seem less than obvious. After all, sick children sometimes recover after being treated by a traditional healer, and not all children will thrive after receiving modern treatment. Potential users must learn to appreciate the higher recovery probabilities associated with use of modern care, a task that may call for finer powers of discrimination than they possess. Selectivity biases associated with the costs of access to modern care may further cloud the picture. When the modern system imposes high fees for its services or access is delayed by time and travel costs, children may not be brought to the clinic until their conditions are too far advanced for simple treatments—or any modern care—to be effective. Understandings of modern preventive health care, in which behavior and outcome are separated in time, may prove even more difficult to achieve.

Perceptual difficulties are especially likely if long-established health beliefs act so as to screen the proposed new relationship from view. In some settings, the relative ineffectiveness of traditional health care may be well disguised, for as Nisbett and Ross write,

...objectively low or nonexistent covariations can be parlayed into massive perceived covariations through a priori theories and assumptions.

...Unexpected, true covariations can sometimes be detected, but they will be underestimated and are likely to be noticed only when the covariation is
very strong, and the relevant data set excludes ‘decoy’ features that bring into play popular but incorrect theories. (1980: 97, 109)

In a society with coherent and internally consistent traditional beliefs about the origins of illness, appropriate means of prevention, and routes to cure, modern health care may initially struggle to make a persuasive case (Caldwell, Reddy, and Caldwell 1983).

The difficulties facing advocates of the modern system should not be exaggerated, however. Most societies have seen a good deal of inter-penetration of modern and traditional health systems (e.g., Pitts et al. 1996; Haddad et al. 1998). The layperson’s understanding of health is often loosely organized, and in many settings individuals seem to adopt eclectic and improvisatory approaches. Bierlich describes health decisions in northern Ghana as follows:

People make use of both local and Western medicines, without knowing or being committed to the technical or philosophical premises of one or the other medical system. People are generally uncertain about the cause and outcome of illness and often act in advance of evidence about its cause. Their practices are not homogeneous, but diverse or ‘un-systematized,’ and highly innovative. Their approach to treatment shows itself in their general readiness to experiment with all kinds of medicine, simultaneously or serially. Medicines, local and Western, are used in a trial-and-error manner. If one does not produce the desired result, another medicine is tried instead. ‘We are just trying,’ people say. (1995: 505)

Such fluidity is also noted by Ryan (1998) and Cantrelle and Locoh (1990), who mention the practice of double consultations for illnesses that might be seen to have either a natural or a spiritual cause.

In settings such as these, the modern health care system can seize upon opportunities to associate its methods with the traditional vocabulary and understanding of health. Kirby (1997) notes that Western medicines can be associated with the “white” or “cool” initial stages of illness to encourage timely use. Vaccines can be described as strengthening the protection already being provided by amulets (Findley 1990; Nichter 1995); injections can be likened to beneficial fluids in settings where good health is thought to require a balance of positive and negative fluids (Bastien 1995); and oral medications can be left unsweetened and bitter to underscore the point that they are powerful.

Of course, the mapping of traditional labels onto modern methods will often prove to be imprecise (Gove and Pelto 1994). The consequences of such mis-mapping have been explored by Nichter (1990, 1995) in regard to community views of vaccination campaigns in South Asia. Nichter’s research illustrates the consequences stemming from folk labels that are
too broad in relation to the specific protective powers of a given vaccine. Suppose that the local label covers a cluster of illnesses with similar symptoms, with the vaccine being effective against only one illness in the cluster. This can lead to instances of apparent vaccine failure, which would undermine confidence in the vaccine’s efficacy and cast doubt on the claims of health personnel.\(^\text{10}\) The modern system may succeed in conveying the simple and general message that vaccines are good for health, but then fail to clearly differentiate these vaccines. In consequence, the local population may come to believe that vaccines are all very much alike. Parents may lack motivation to comply with the full regimen for any one vaccine and may not grasp why they should keep track of the number of vaccinations of a particular type a child has received. This, too, can lead to cases of apparent vaccine failure.

The matching of modern methods to folk concepts is therefore not a simple task. Fortunately, the widespread use of modern health care does not require the local population to discern the root causes of illness in the same way as their Western-influenced health providers. Disparities in the understanding of causes are not necessarily inconsistent with use of the modern system (Feyisetan, Asa, and Ebigbola 1997; Cleland 1990; Raharjo and Corner 1990). Indeed, as Cleland (1990) argues, health-related behavior is likely to change faster than underlying cultural beliefs about root causes. What matters is that the modern system is perceived to be effective and that it has the resources needed to deliver on its promises.

Social and political agency

As the modern health sector’s potential advantages gradually become clarified, so, too, will many of that sector’s limitations. Continuing shortages of medicine, high fees and long waits, the intermittent presence of key personnel, the abusive or condescending treatment of patients—all these will be exposed as the population comes into increasing contact with clinics and hospitals. Having been persuaded of the theoretical superiority of Western medicines, people may nevertheless avoid the modern system because of its higher social and monetary costs.

In successful transitions, this tension is eventually resolved with the emergence of new forms of social and political agency with respect to health. The concept of equity begins to be applied to the distribution of state-controlled health resources, and, with it, the definition of a right to press demands on the state for resource provision. Local, regional, and national political networks may evolve and provide a forum for voicing such demands. Such new political dialogue can eventually succeed in redirecting governmental priorities and improving the quality of health systems. When groups succeed in drawing the attention of the state to their needs, this may further enhance the sense of individual agency on the part of their
members, generating a kind of beneficial feedback. A number of accounts, both historical and contemporary, have emphasized the importance of such social and political dynamics (Dye and Smith 1986; Caldwell 1986; Lindenbaum 1990; Ewbank and Preston 1990; van de Walle and van de Walle 1990; Preston and Haines 1991).

The record of the United States from the late eighteenth to early twentieth centuries provides one case in point. Dye and Smith (1986), drawing their evidence from women’s diaries, find in this period that the possibility of child death was an ever-present concern. Vinovskis (1991), using similar materials, argues that mortality perceptions were likely to have been inflated in relation to the empirical realities. He locates one source of this exaggeration in the influence of religious institutions and the social emphasis attached to funerals.

Yet, with mortality still high, and even before the advent of modern medicine in the last years of the nineteenth century, a shift in the scope of personal agency began. The key change was that, over the century, child-rearing responsibilities were increasingly assigned to mothers, rather than being distributed among various kin and caretakers as in the earlier era (Dye and Smith 1986). As mothers began to be entrusted with the task of safeguarding their children, and as good mothering began to be defined in these terms, the lack of any truly effective medical care led to tensions between the newly assigned social roles and the limited health care options. Until the very end of the century, these socially defined obligations could not always be properly discharged; the result was mounting anxiety and a sense of frustrated personal agency.

When the medical breakthroughs were finally made, women responded in both personal and political terms (Dye and Smith 1986; Ewbank and Preston 1990; Preston and Haines 1991). In personal terms, they enthusiastically adopted the new medical techniques of the late nineteenth and early twentieth centuries, and were attentive to and adhered to advice. In the political sphere, activists channeled collective energies to the creation of the Children’s Bureau, supported local conferences and instruction for young mothers and girls, and aided other government and public health institutions. Thanks to the prevailing levels of literacy, pamphlets and even newspapers helped to diffuse information.

The foregoing account of the US experience illustrates more general themes that have been given little research attention by demographers. The American case raises the issue of perception of mortality risks, as against the empirical risks themselves. It underscores the distinction between high risks and risks that, although still high at the end of the nineteenth century, were increasingly believed to be controllable. The key role was played by new health care options that emerged at the dawn of the twentieth century, with support from new germ theories that gradually supplanted the older notions based on miasmas, sewer gases, and the like. Literacy
helped to spread the new ideas among women; but also important was the diffusion of information between public health practitioners, on the one side, and a sometimes reluctant medical profession, on the other (Preston and Haines 1991). The mix of personal, institutional, and political responses is not unique to the United States—Caldwell (1986) presents a similar account of the factors involved in mortality decline in Kerala.

**Mortality decline and the quantity–quality transition**

Where both mortality and fertility have been high, to adopt a new strategy of family limitation is to embark on a risky course of innovation, one that will often lack clear social guidance and normative support. Few people in such circumstances would be likely to experience criticism by adhering to the status quo. Potential innovators might be deterred by the prospect of child loss, even if they suspect that mortality rates are lower than they were in the past. They might feel unable to proceed without additional confirmation of their views and may therefore delay until very sure of the lower risks.

Such conservatism in risk-taking is predicted by a number of theories in psychology and economics. Experimental research on prospect theory (Kahneman and Tversky 1979) seems to have uncovered a fundamental asymmetry in how choices are made under risk (see Camerer and Kunreuther 1989; Camerer 1995; Conlisk 1996; Mellers, Schwartz, and Coale 1998). It appears that decisionmakers often behave as if they are more fearful of potential losses than attracted by potential gains. In addition, at least according to some psychologists (Mellers, Schwartz, and Coale 1998), regret is felt more keenly following decisions to act rather than to accept the status quo. This literature suggests that the anticipation of regret is an under-appreciated factor in decisionmaking.

If such findings can be extrapolated to the case at hand, they would suggest that new strategies of fertility limitation, insofar as they are motivated by lower mortality, should not be expected to appear on the heels of mortality decline. Potential innovators risk feeling regret should their new strategy fail, and they may also face social sanctions and criticism from family elders and others who never saw the need to deviate from the status quo. To buttress their own positions and fend off such attacks, innovators may need incontrovertible evidence of lower mortality risks before they proceed.

**Fertility control: Transition and insurance effects**

In high-mortality, pre-transitional societies, fertility decisionmaking is sometimes described as being passive or even “fatalistic.” More accurately, perhaps, it can be seen as the result of a rational stance vis-à-vis an uncertain
environment, in which the pervasiveness of uncertainty means that decisionmaking must be reactive and highly contingent. As child survival becomes increasingly assured, a different form of decisionmaking is permitted to emerge, one that involves forward-looking strategies that play out over longer time horizons. Parents may then begin to entertain the possibility of influencing the size of their own families, instead of leaving such matters to chance or to higher powers. As the number of children begins to assume importance as a decision option, so, too, do new forms of investment in children that would have been dismissed previously as too risky. Lloyd and Ivanov (1988) have described this transition as a shift from family-building by fate to family-building by design.

As it becomes useful to consider controlling the number of children, the perceived level of mortality may then begin to exert influence on the desired number. This is the essence of the insurance effect (Preston 1978; Wolpin 1998), which in its simplest form posits an inverse relationship between the probability of child survival and the desired number of births. As the articles in Preston (1978) and Montgomery and Cohen (1998) show, it has proven difficult to test the insurance hypothesis. Some authors have taken the level of mortality in the community, variously defined, to be the empirical counterpart to mortality risks as they are perceived by individual decisionmakers. The discussion above suggests that the association between such empirical measures and the subjective risks may well be weak. If so, then alternative measures of perceptions may be required, a point to which I return in the concluding section.

Capital investment

Few economists now question the importance of human capital accumulation to economic development. Yet, it is difficult to isolate the role of mortality decline in promoting human capital investments. After all, the vast majority of child deaths occur among children who have not yet reached school age. How, then, can schooling investments be directly affected by mortality decline? As Preston (1980: 324–326) showed, the mortality risks facing children in adolescence and the early adult years are relatively low even in high-mortality environments. From the viewpoint of the child who is old enough to embark on a school career, improvements in survivorship could have little effect on the private rate of return to schooling.11 The direct impact of mortality decline would therefore seem to be small.

Several indirect links, however, warrant consideration. First, high-mortality settings are often characterized by high morbidity. Morbidity may be associated with delayed entry to school, interrupted attendance, and eroded abilities to learn (Behrman 1996; Alderman et al. 1997). All these will tend to reduce the payoffs to schooling and thereby reduce the moti-
vation for parents to invest in it. A second possibility is that if the insurance mechanism is operative, higher mortality risks will be associated with higher fertility, with the result that in a typical household more young siblings may be present who will need care. Child care and related household responsibilities may then divert children’s time and attention from school, particularly for girls, and this may undermine abilities to learn and lower the returns to further schooling. In this case, mortality decline—if it is accompanied by some fertility decline—could raise the net benefits of schooling.

A third mechanism involves adult mortality. Environments with high infant and child mortality are also characterized by high adult mortality, and parents may well hold exaggerated views of adult mortality risks. Since it is parents, rather than children themselves, who finance human capital investment in developing countries, the parental time horizons and perceptions of risk are key factors in determining whether the investments are made. In many developing countries, fathers take on much of the burden of paying school fees and associated charges. Particularly where substantial age gaps separate husband and wife, the fathers of school-age children may often be of middle age themselves, entering a period in which their risks of mortality are felt to be appreciable. They may well be reluctant to embark on ambitious programs of human capital investment in their children, given the possibility that the child’s schooling might have to be truncated in the event of a parent’s death. Even if a child’s schooling can be completed, the time span during which the parents can expect to enjoy some returns will depend on adult mortality risks. Thus, when seen from the viewpoint of parents, perceived improvements in adult survivorship may considerably enhance the motivation for investing in children.

Little is known about adult perceptions of older-age mortality risks, but in recent years a small literature has emerged exploring the issues in the United States. Two studies have examined the fit between the survival perceptions of the elderly and the actuarial risks as summarized in period life tables. Hurd and McGarry (1995) drew upon the innovative measures of mortality perceptions that are being collected in the Health and Retirement Study. In their investigation, considering a highly literate population that is well supplied with information from pension and insurance systems, Hurd and McGarry found surprisingly good agreement between the subjective and objective measures. However, Mirowsky (1999), using less-refined questions from a different US survey, saw evidence of systematic differences between subjective expectations of years of life remaining and the actuarial counterparts. His results suggested that unexplained factors associated with race and socioeconomic status cause some groups to be unduly pessimistic about their survival prospects. Regrettably, no studies such as these seem to have been carried out in developing countries.
Much of the motivation for measuring old-age mortality perceptions in the Health and Retirement Study stemmed from a need to understand the determinants of financial savings. In developing countries, the expansion in parental time horizons brought about by lower adult mortality may well encourage financial savings. Lee, Mason, and Miller (2000), considering the case of Taiwan, show that the expected ratio of postretirement years to working years can increase greatly with mortality decline. This can substantially enhance the motivations for private savings.

Through routes such as these, recognition of lower child mortality and improved adult survivorship might increase the returns to investment in both human and physical capital. The prospects for greater returns in these dimensions could undermine much of the rationale for continued high fertility. In traditional settings, an important role for children is to serve as a form of savings: they embody parental claims upon future transfers from family. If mortality decline is accompanied by the emergence of better-developed financial systems and improved payoffs to financial and human capital investment, educated children and monetized savings might come to be seen as more effective instruments than numbers of children alone.

Conclusions: A new agenda

A main theme in this discussion has been the need to appreciate the many perceptual difficulties and biases that hinder people's understandings of social change and retard their demographic responses. Poorly equipped as they are to sort through the issues, individuals will probably be slow to recognize improvements in child and adult survival, whether these are linked to exogenous developments or to the new opportunities presented by modern health care. Without some assistance—from family, social networks, the better-educated, and health programs and policies—individuals will then be reluctant to disengage their energies from traditional forms of demographic behavior and to embark on risky courses of innovation. Although demographic research can offer no definitive proof, it is reasonable to think that the well-documented lags in the fertility response to mortality decline have much to do with the role of these perceptions and beliefs. The essence of the familiar insurance effect can be found in the complex of individuals' beliefs about the nature of the external environment they face, their sense of agency and ability to control that environment, and their understanding of the operation of cause and effect in health.

A second theme is that mortality decline can set in motion a series of reinforcing responses, with the long-term result being that higher survivorship becomes associated with a lower net reproduction rate. Little is known about the full causal chain or the important demographic and economic mechanisms that could generate such beneficial feedbacks. I have argued that both children's schooling and financial savings can be posi-
tively influenced by mortality decline and that capital formation will have broader benefits for economic development. It is at least possible that such feedbacks serve to link mortality decline to economic growth.

The discussion has taken mortality decline to be the dominant empirical phenomenon, but in some countries the prevalence of HIV infection will soon bring a halt to further declines and may sharply increase both adult and child death rates. The sheer scale of the impending losses in parts of Africa and the inability of the modern health system to mount an effective response, when coupled with the personal shame and stigma that accompany the infection, will likely bring about a profound confusion in beliefs. Individual time horizons, once lengthened by the prospect of lower mortality, will inevitably be pushed back toward the present; motivations for saving, schooling, and other future-oriented behavior may be seriously undermined.

The current state of demographic research permits very few of the effects that I have described to be quantified. Standard survey-based measures of perceptions will eventually be required, but these are probably not the tools to deploy first. Although the recent survey efforts in the United States appear promising (Hurd and McGarry 1995; Manski and Straub 2000; Mirowsky 1999), much work is required to devise appropriate measures for studies set in developing countries. Even semistructured individual interviews would need to be carefully crafted to accommodate local beliefs, vocabularies, and ways of thinking about probability and risk. In few settings will adults be able to articulate why they feel as they do about mortality risks; nor can they often trace for the interviewer’s benefit the connections they see between mortality risks and fertility or schooling decisions. Thus, even a program of qualitative investigation would be required to break new methodological ground. A systematic approach to these issues is well overdue.

Notes

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1 Of course, the mortality probabilities $p_n$, $p_t$, and $p_m$ and the costs $c$ and $c_m$ will depend on the severity of the child’s illness. The costs might have multiple dimensions, including travel time, monetary outlays, and various social “transactions costs” that arise, for example, from the need to negotiate with a spouse or family decisionmaker about health outlays.

2 To integrate such factors, the mortality probabilities and costs could be represented with a government policy index $g$ and a time index $t$, yielding, for example, $p_m(g,t)$ for the modern care mortality probability and $c_m(g,t)$ for the cost of modern care.

3 There is a formal mechanism available—Bayesian analysis—for taking such uncertainties into account. I have argued elsewhere (see Montgomery 1998) that to simply recast the decision problem in Bayesian terms is inadequate.

4 I present here only a sketch of the arguments; see Montgomery (1998) for more detail.

5 Lloyd and Ivanov (1988) note that as survivorship improves, the changing age pat-
tern of risk helps to distinguish the relatively high-risk period of infancy from the post-infancy period in which survival is almost assured. In this way, as mortality decline proceeds a dividing line emerges that helps to draw attention to the fact of survival, making it easier to recognize survival itself as a noteworthy event.

Although it might be thought that an averaging process would eliminate individual errors of observation when opinions are exchanged in larger groups, studies of group dynamics do not consistently support this contention. See Montgomery and Casterline (1996) and the references cited therein.

LeVine and colleagues (LeVine et al. 1994; Stuebing 1997) have argued that schooling provides individuals with the cognitive skills they need to translate the “decontextualized” language of the formal health care sector into terms that are meaningful to individual experience.

It can be argued (see National Research Council 1993: Chapter 4) that the long reach of networks in West Africa is itself the outgrowth of a need for social mechanisms of insurance and support, given the great uncertainties of the natural environment.

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Jean-Baptiste Moheau on the Moral Causes of Diminished Fertility

It has been said that most of the founders of demography were astronomers (viz., Halley or Quetelet) or clergymen (viz., Süssmilch or Malthus). Jean-Baptiste Moheau, the author of a treatise, published in 1778 under the title Recherches et considérations sur la population de la France, was an exception to this rule. He seems to have been an obscure bureaucrat, and left so few tracks in the record that his very existence was long in doubt. Today, however, the rough outlines of a biography have been traced. Moheau was born in 1745, and died in 1794; he was not thirty years old when he wrote the treatise. He made no other contribution to science, and appears to have been unwilling even to make simple corrections to his text when changes were requested by the 1780 German translator of the work. (There exists no translation in English.) He was the personal secretary of Montyon, the Intendant (the equivalent of a provincial governor, delegated by the central government) of the généralité of La Rochelle on the Atlantic coast of France. There is still a controversy about Montyon's possible contribution to the work, but it appears that Montyon was not interested in population, that he was not even in residence in La Rochelle, and that Moheau as his secretary was substituting for him, taking a special interest in the collection of population statistics that were requested by the royal administration.

At the time of publication, the work attracted some attention, including an unfavorable critique by Condorcet, and had some admirers in Germany where it was compared to the work of Süssmilch, the great Prussian political arithmetician, whose own Göttliche Ordnung (The Divine Order, first edition published in 1741) was unknown to the author or authors of the Recherches et considérations. Moheau's work was soon forgotten, however, until a 1912 re-edition. A modern critical edition, annotated by Eric Vilquin, which contains a biographical essay by René LeMée and a number of other contributions assessing the work and placing it in its historical context, was published in 1994 jointly by the Institut National
Recherches et considérations sur la population de la France, in any event, is a remarkable achievement for its time and deserves an important place in the history of demography. The title could be roughly translated, today, as “Empirical Studies on the Population of France, and Their Interpretation.” Like John Graunt’s 1662 Natural and Political Observations...made upon the Bills of Mortality, the work is characterized by a dual concern to present hard data and to use them to make politically and socially relevant inferences. Moheau’s book consists of two very different parts, however, and lexicographical analysis suggests that they were written by two authors. The first part (“State of the Population”) is a demographic monograph, and one is struck by the similarities of the chapter titles to those that one would find in any demographic description of a national population today:

- The means of investigating the population
- An estimate of the population of France
- Distribution by age and sex
- Distribution by socioeconomic characteristics
- Body size and strength
- Fertility
- Mortality
- Migration
- Is the population growing or decreasing?

The main demographic contribution of the work is in the area of fertility. Moheau lists the topics himself:

A multitude of interesting questions present themselves for our investigation. What is the fertility of women in France? One in how many women gives birth per year? What is the ratio of marriages to births, and what is the highest number of children per marriage? Is fertility the same in all provinces of France, in the cities and in the countryside, and in the various parts of Europe? Is the result roughly the same every year, or every month? And finally, which of the two sexes accounts for the most births? (p. 125)

This is a remarkable list of questions, and Moheau was the first to raise them so comprehensively. (It is noteworthy that there was not even a word in English, at that time, to express the concept of fertility as an aggregate characteristic of populations.) He distinguishes fertility from what we now call the birth rate, and marital fertility from overall fertility. He is interested in variability in space—national and international, and urban and rural. He analyzes the seasonality of births. He also concludes that fertility is constant over the years: “Nature has arranged the fertility of women in such a way that each year gives approximately the same number of
births” (p. 134). The result of this constancy is that, in the absence of a census, the number of registered births provides the best estimate of the population size of a country. This view conflicts with the idea of fertility decline, and with potential de-population as expressed later in the volume and in the passage below.

The second part of the book examines the causes of the progress or decay of the population. This is the part described by the word “considérations” in the title of the book. The author distinguishes between physical causes (climate, food, dangerous occupations...) and political, social, or moral causes. Among the latter factors, he discusses the effects of law, government, religion, taxes, war, and the possession of colonies. The excerpt translated below is entitled “Des moeurs” (literally: “Of Mores”), by which Moheau means private morality in the areas of sexuality and reproduction; this is not unlike the meaning adopted by Malthus when he speaks of “moral restraint.” The chapter deals mainly with four areas of sexual conduct: marital fidelity, prostitution, breastfeeding, and nonmarital sex (which may occasion venereal diseases). A specially noteworthy passage alludes to funestes secrets (fatal secrets), an expression widely quoted by French demographers and often interpreted as a reference to the spread of contraception in marriage. In context, however, it would appear that Moheau had in mind the growing impact of various types of extramarital behavior—fornication, prostitution, and adultery.

But beyond offering a catalogue of individual behavior he considers reprehensible—a sharp-eyed critical description of some aspects of contemporary French mores—Moheau’s central concern in these matters is with the consequences that affect the strength of the State. Moral failings, he argues, lead to diminished fertility and damage the overall physical quality of the population; they are pernicious in the civil and political order. He notes the high economic costs of children and implies that economic calculus alone would result in failure to reproduce: “logic and a calculating mind would not lead to the propagation of the species.” Populousness of the State presupposes motivations that transcend material interest: it rests on the foundation of moral virtues.

It is an acknowledged truth that there is no well-organized Empire without morality. But the proposition is equally true that, without morality, there can be no prospect of a numerous population.

A nation endowed with morality, independent of religion, law, and even public opinion, possesses principles of justice, virtue, honesty, and generosity. These are the traits men must have to insure the populousness of a State.

If only material interests were at stake, in none of the orders, occupations, or trades would the multiplication of children constitute an increase of wealth. People have children because of a natural drive, and raise them out of love. But a reckoning of the burden they entail would demonstrate that, among the laboring classes, a child, before he is able to be useful, has cost much more than the wages of a grown and able man. In the other
classes of society, children impose on their parents the burden of giving them an education and an establishment. When they are grown, they leave and sometimes cause them unhappiness through their disorderly conduct and their vices. Thus, logic and a calculating mind would not lead to the propagation of the species. Motivations that transcend interest, the renunciation of wealth and luxury, and a sense of principled responsibility must exist to persuade one to assume this domestic burden. The love and obedience of children must also offer a prospect of happiness for parents in their old age. These feelings and dispositions are the result of morality.

Morality, in keeping man away from libertine behavior, is necessary to multiply the number of marriages. If things were arranged in such a way that a man could have sensual relations with a woman only by being married, the attraction for each of the sexes to such a union would be certainly stronger and more active; there would be fewer persons who are celibate and fewer marriages where the spouses, in contravention to their vows and to the wishes of nature, would behave as if they were celibate. A single girl who abandons herself to a forbidden relation will not add to the population, because debauchery does not breed; and she spoils the chances of the honest girl who would have had a husband if the enticement of libertinism had not taken him away from her.

Let it not be assumed that illicit pairings will compensate the State. They are never as prolific as the unions approved by law and whose fruits can see the light of day without dishonoring their author. We have seen earlier that the ratio of births to marriages exceeds four to one in France. This means that every married woman contributes more than four individuals to the State and that, if one of them is less fertile, another will provide more. But what single girl or libertine widow has a similar ratio for the benefit of the State? Persons addicted to prostitution breed no children; they avoid them as an obstacle to their trade. Seduced single girls and widows who have renounced chastity have not always renounced feelings of shame, so they fear fertility as a testimony to their lost honor. Hence, out of two thousand single girls or widows who have illicit liaisons, there is not one who has two children.

Moreover, great are the dangers to which these children are exposed! Before their birth, their mothers often have homicidal designs against them: pity their fate if their mothers are knowledgeable in the art of precocious murder. The secret birth of these children imposes precautions that may, and often do, threaten their survival. It is in vain that the law condemns to death the girl whose child has perished, if she had not declared her fault to a judge. In order to avoid shame, she confronts the danger, and sometimes commits the crime, and an overly rigorous law remains ineffective. These children, handed over to the care of strangers from the moment of their birth to the time when they can survive on their own, and deprived of their mother’s care because she cannot visit them without betraying her-
self and deplores their birth more than their demise, are exposed to infi-
nite dangers. Their mortality exceeds by far that of their age mates, and it
can be estimated that illicit relations between the sexes do not yield a twen-
tieth of the number of adults that are produced by those unions that are
publicly recognized and authorized by law.

If libertinism enters marriages and corrupts them, these unions lose
their security and their greatest appeal. Who would accept the burden of a
wife if another man shares her affection? When fatherhood becomes sus-
pect and uncertain, what man would submit himself to the most forbid-
ding of all taxations, that of supporting the needs of a large family?

Whatever allurement, whatever semblance of skill and talent, what-
ever ridiculous point of honor the easy mores of the nation and the cor-
ruption of the times have associated with the seduction of women, it re-
mains that anyone who disturbs the peace of a marriage engages in an
action that is vicious and reprehensible in the moral order, and pernicious
in the civil and political order.

If one consults the men whom religion has assigned to be deposi-
tories of the secrets of the hearts and of the foibles of mankind, or consults
those whom a taste for the physical investigations that are important for
the welfare of the State has made into accurate observers of the mores of
country people and paupers, they will tell you that rich women, for whom
pleasure is the greatest interest and the sole occupation, are not the only
ones who regard the propagation of the species as a dupery of olden times;
already the fatal secrets unknown to any animal but man have penetrated
in the countryside: nature gets cheated even in the villages.

If these licentious practices, if these homicidal tastes spread more, they
will be no less fatal to the State than the plagues that devastated it in the past.
It is time to stop this secret and terrible cause of depopulation that stealthily
undermines the nation; it might soon be too late to control it. To forestall
these disasters, the only, the sole means is the restoration of morality.

Even among virtuous women, there are many who are kept busy by
their frivolous tastes, neglecting the duties that are a consequence of the
married state. They believe that the example of others and custom justify
this. But they are wrong, they betray their duties as citizens, as wives, and
as mothers. To abandon a child to nursing by a stranger is a cruel and un-
natural act, and if it were rare it would be considered an atrocity; the mul-
tiplicity of the culprits does not diminish its perversity.*

*It has been asserted that three children out of fifteen nursed by their mothers die, whereas among
the same number entrusted to a wet nurse, five die. The latter estimate does not seem correct, and if it is the
result of some actual observations, these must have been related to foundlings, who are often in a weakened
state of health and whose poorly chosen wet nurses gave them care as inadequate as are their wages, so that
the natural order of things was disturbed. In any case, it is certain that natural milk is most healthy, and that
mercenary care cannot replace that of nature. Given that infanticide is a horrible crime, what opinion must
we have toward a woman who risks committing it by abandoning her children? Although this type of murder
sheds no blood and is not carried out by wielding a knife, what matter the means if the result is the same?
Nature that was cheated avenges itself and inflicts a penalty; milk, which ought to be the nourishment of children, becomes, for the mothers who deprive them of it, an instrument of sickness and death.

The children who have been banished from their mother’s arms from the beginning of their lives, and have been removed from the sight of their parents to acquire knowledge rather than moral values, know only by hearsay who the authors of their being are. Soon they will be separated by their respective personal obligations, and the main relation that will remain between them will be that of a creditor and a debtor. From such a disposition, from feelings so perverted, and from families so organized, no devotion to the propagation of the species should be expected.

Moreover, how many people are there in France from whom little help can be expected to add to the population? How many men are enervated by debauchery and prematurely aged in their youth? Their bodies are without strength, their souls are without desire at the very moment when the elementary fire of generation should be felt for the first time.

It is not clear whether this class of men should be exhorted or forbidden to breed. The greatest number of them is infected by this terrible disease, which, thanks to the advances of medicine, is no longer deadly, but is still destructive of the human species by weakening its strengths and shortening the days of its life. And even if the children do not at birth carry the punishment for the fault of their parents, their breed is feeble and diminished and constitutes a bastardized generation, impoverished and degraded, and much inferior to the breed of men that is produced in the countryside.
VACLAV SMIL

Feeding the World: A Challenge for the Twenty-First Century

Vaclav Smil's Feeding the World: A Challenge for the Twenty-First Century is one of the best new volumes on the world's food situation in some time. The book is a true reflection of its author—broad, deep, and occasionally brash. It will prove useful as a reference guide for informed laypersons and also as a text—primary or supplemental—in world-food courses at the undergraduate or master's level. This volume, read together with the biennial food reviews of the International Food Policy Research Institute, will take anyone interested in the world's food very far, very fast.

Feeding the World is a sizable volume that covers the nature of current food problems; the scientific underpinnings of food production, including their environmental implications; a delineation of the various resource bases that serve agriculture; the basics of food consumption, diets, and nutrition; the role of animal products; an assessment of postharvest losses; and an analysis of China's future capacity to feed itself. Sprinkled liberally throughout the book are Smil's own views on the world food scene and his views of the various authors who write about it. His perspective is shaped by the needs of developing countries and by the problems of undernutrition.

The book's greatest strength is Smil's capacity to pull together relevant materials from the physical and social sciences in ways that both delineate the important questions and suggest sensible answers. The volume is informed geography at its best. Readers will appreciate especially Smil's systems approach to food issues—from photosynthesis to ecosystem services, from production to consumption, and from traditional crops to aquaculture.

Smil takes particular delight in skewering other writers in the field. He saves his most devastating comments for the pessimists, and his final chapter on feeding China is, in some sense, a rebuttal to Lester Brown, with whom he has dueled for years. On occasion, Smil is unfair in citing older, more extreme points of view of authors, rather than their more modulated recent views. (Even Malthus changed his mind, although he too is rarely given credit by anyone for having done so.) Although Smil promises to attack the cornucopians as much as the catastrophists, he does not really do so, and his own view can be described as being reasonably optimistic.

"Rationalizing animal food production" (Chapter 5) is a particularly useful contribution that moves questions about meat from the realm of moral imperatives to the world of empirical relationships. His discussion of energy requirements is balanced, and he avoids the use of an energy theory of value in evaluating the worth of animal products. He also provides a very useful section on the food-security dimensions of aquaculture—an increasingly important source of food, but also a significant source of demand for feed from both marine and terrestrial systems.
Although Feeding the World is a very good book, it might have been even better. Smil’s data are both recent and well assembled. In what should have been a volume filled with colorful charts and illustrations, there are instead only drab graphics for which MIT Press must surely bear primary responsibility. This flaw is more than just cosmetic, for it lessens considerably the value of the volume as a reference.

Readers will be disappointed that Smil is conspicuously quiet on the biotechnology revolution and what it might do for food security in developing nations; indeed, this omission may be the most serious shortcoming of the book. Quite clearly, modern biotechnology (for example, the use of molecular markers) is radically altering the speed at which conventional plant breeding can be accomplished. Moreover, the ability to sequence, clone, and move genes across species opens great new horizons for dealing with the biotic and abiotic stresses that often prevail in regions containing large numbers of impoverished people. Given the controversies that now surround genetically modified organisms (GMOs), readers are the poorer for not having Smil’s judgments on how best to balance possible ecosystem risks against the imperative of increased food production for many regions of the world; on labeling issues and consumers’ rights to know; and on appropriate regulatory systems for GMOs in poor countries. More generally, Feeding the World is a synthesis of Smil’s prior research on food issues, rather than a vehicle for exploring new technologies and altered institutions.

Smil spends less time on globalization issues than might have been expected. Another green revolution is called for by Smil, given his (sensible) assertion that yields will have to grow by at least 2 percent annually to meet projected increases in demand. On the other hand, the patenting of new germplasm technology and a restructuring of the global seed industry are likely to have negative effects on the ability of the poorest developing countries to gain access to modern agricultural technology. New provisos under international biosafety conventions are also likely to interrupt the flow of genetic materials among countries. Issues of this sort are simply not addressed by Smil.

Global changes and their implications for agriculture are recurring themes of Feeding the World. Smil’s discussion is consistently good on these topics; yet in several places readers will yearn for more details. The section on biodiversity represents such a case. The 1992 Convention on Biodiversity (CBD) has significantly snarled the transfer of agricultural-seed technologies. The CBD re-affirms national ownership of genetic materials, but provides only a very muddled definition of a variety’s “distinctive properties.” Numerous countries believe (almost always wrongly) that their varieties are worth genetic fortunes. Yet no principles are provided in the CBD on how countries are to be compensated for various genes or traits. This problem is illustrated well by the VEERY line of wheat, one of the most popular wheat varieties in the world. It is the product of 3,170 crosses involving 51 parents from 26 countries—an indication of both the scientific and administrative difficulties of applying the CBD to food crops. Since Smil is writing about “the world,” details of this sort would have usefully added political-economy perspectives to his international assessments.

Whether Smil has, in fact, produced a volume that provides an “unprejudiced reality check” (p. 21) may be in the eye of the beholder. But he has produced a read-
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able, interesting, and useful volume that will certainly help to inform the discussion about feeding a world that seems likely to contain some 9 billion people by 2050.

Stanford University

WALTER P. FALCON

ROBERT WILLIAM FOGEL
The Fourth Great Awakening and the Future of Egalitarianism

In this book, economic historian Robert W. Fogel joins forces with those who see America turning from materialism to the pursuit of self-realization, “the fullest development of the virtuous aspects of one’s nature” (p. 204, emphasis in original). Like two of his economist predecessors, John Stuart Mill and John Maynard Keynes, or contemporaries like political scientist Ronald Inglehart, all of whom have envisaged a similar shift, Fogel believes that “we are reaching saturation in commodities that once defined a high standard of living and quality of life” (p. 190). Unlike these other critics, however, Fogel does not see the shift from materialism as a natural consequence of goods saturation. Rather, the genesis of the shift is, in his view, the latest in a succession of religious-political cycles in American history, a “Fourth Great Awakening.” set off since 1960 by a “[r]eturn to sensuous religion and reassertion of experiential content of [the] Bible” (p. 28), and epitomized by the Religious Right. This religious movement’s political effects, which Fogel dates roughly from 1990 onward, include an “[a]ttack on materialist corruption; rise of prolife, profamily, and media reform movements; campaign for more values-oriented school curriculum; expansion of tax revolt; [and] attack on entitlements” (p. 28). He sees this new religious-political cycle as leading to a new type of egalitarianism, a more equal distribution of what he calls “spiritual resources.”

These spiritual resources, or spiritual assets, which are vital to both economic success and the good life, are, according to Fogel, 15 in number. Here is a sample of five: sense of purpose, strong family ethic, work ethic, capacity to resist the lure of hedonism, and self-esteem (pp. 205–207). No data are given on any of the spiritual assets, but Fogel identifies two groups as especially disadvantaged in regard to such resources, namely, children of single teenage mothers and the elderly (pp. 207–214). Other sections of the population that are noted as disadvantaged include “blacks, Hispanics, the poor generally, and women” (p. 223). Those advantaged are not specified, but those among the rich who are “preoccupied with sensual gratification are as likely to fail in self-realization as are the poor who share that preoccupation” (p. 205). One suspects that the advantaged are those who are better educated, because Fogel places education at the heart of his policy agenda to achieve a more equitable distribution of spiritual resources. But the content of the education he advocates is far more sweeping than the expansion of traditional career-oriented higher education. It embraces, among other things, “prenatal counseling; mentoring programs for deprived mothers, alienated youngsters, and the aged; . . . and the development of lifelong educational programs” (p. 217).
This summary of Fogel’s thesis does not do justice to the wealth of historical knowledge in the book. Fogel traces a succession of four overlapping religious-political cycles since 1730 that have, in his view, shaped the struggle for egalitarianism in America. These cycles are attributed to massive technological changes that outrun “human capacity to cope with change” (p. 40). A sizable segment of the book is devoted to documenting and elaborating on “technophysio evolution,” including biomedical advances, and the manner in which the dislocations associated therewith have caused powerful religious and political protest movements. The nature and causes of the historical development of the “egalitarian creed in America” are also discussed at length. The volume is buttressed by seven appendices and about 40 pages of footnotes.

Demographers will be especially interested in Fogel’s presentation of a figure for the United States for 1710 through 1970 based on approximately quinquennial data of the mean final height of native-born white American males and their life expectancy at age ten (p. 141). Fogel puzzles over the apparent contradiction in the nineteenth century between the lack of improvement in these series and the large increase in per capita income. On the basis of the height and life expectancy series he argues that the “modernization of the nineteenth century was a mixed blessing for those who lived through it” (p. 142), and that the twentieth century was, in fact, the century of more rapid progress.

It is true that the standard of living, broadly conceived, advanced more rapidly in the twentieth century than in the nineteenth. But the nineteenth-century puzzle that bemuses Fogel is a construct largely of an incomplete model, in which health and life expectancy are expected to vary simply with nutritional intake (proxied by GDP per capita), rather than with the retention of nutrients (which is affected by the incidence of disease) as well. The time-series change in stature and life expectancy is, in fact, dominated by the prevalence of diseases that determine nutritional retention, and it is not until the advance of knowledge brings contagious diseases under control that a “take-off” occurs in stature and life expectancy. Fogel’s analysis would benefit by distinguishing explicitly between the goods and services component of the standard of living (captured in GDP estimates) and the health component (reflected in Fogel’s measures of stature and life expectancy). If this were done, then rapid advance in the goods and services component would be found to date from the early part of the nineteenth century, while rapid advance in the health component dates from the bacteriological revolution of the late nineteenth century (Easterlin 2000). By focusing primarily on stature and life expectancy, Fogel is led to a view of the trend in the general standard of living in which the nineteenth century is unduly biased downward.

Reactions to this volume, considered as a whole, are likely to vary widely. Some may wonder why no mention is made of secular antimaterialist reform groups, such as the environmental movement. Quantitative social scientists will find the narrow line tread by Fogel between moralizing and analyzing a far cry from the tenets of the new economic history, for his contributions to which Fogel was awarded the 1993 Nobel Prize in economics. The emphasis of the new economic history is on the rigorous application of economic theory and quantitative analysis to the interpretation of history. Fogel is noted especially for his innovative work in “counterfactual history,” but not much of this to be found in the
book. Europeans may especially wonder whether one can speak in such a pre-
dominantly American vein of the post-1800 evolution of egalitarianism. But, the
notion of a “Fourth Great Awakening” of the sort described by Fogel will no doubt
have considerable appeal to those who would like to believe that the pursuit of
material goals is on the wane. Personally, I think the bulk of the evidence is to the
contrary, and that modern economic growth engenders a self-perpetuating pur-
suit of material gain that militates against the shift Fogel envisages.

University of Southern California

Reference


MASSIMO LIVI BACCI

The Population of Europe: A History


This volume is a translation of the book La popolazione nella storia d’Europa, origi-
nally written in Italian for the series The Making of Europe, a joint venture of five
European publishers to make the volumes available in English, German, Italian,
French, and Spanish.

Although the work is subtitled A History, it is not a conventional history of
population. Livi Bacci does not try to reconstruct and describe systematically de-
velopments from century to century during the second millennium. His purpose
is to investigate why events unfolded and the reason for the differences between
regions. In other words, this is not a descriptive but a pragmatic history: a histori-
cal review of the entangled relationships between environment, economy, culture,
and population systems and trends. Thus it lays claim to readers with a more gen-
eral interest rather than those concerned with European historical demography.

The starting point of the study is the size of the European population, which,
through alternating periods of growth, stagnation, and decline during the past mil-
lennium, increased by a factor of 10 or 20. In Livi Bacci’s view these demographic
transformations were the result of a clash between the factors of constraints (cli-
mate, space, land, settlement patterns, disease, energy, and food) and the factors
of choice (socially and culturally determined and tied to individual, family, and
collective demographic behaviors).

In the first four chapters, the author surveys the historical evidence on the
primary constraints in the high-mortality and low-growth old demographic re-
gimes and describes how they worked. The chapter on space deals not only with
land reclamation and the slow conquest of space, but also with migration, settle-
ment, and urbanization. The following two chapters examine the prominent roles
of morbidity and mortality in old-regime societies, where life expectancy at birth
was typically between 25 and 35 years, reaching 40 only for short periods before the nineteenth century. Although hunger and famine had dire demographic consequences, the author concludes that the prevailing theories about relationships between food supply, nutritional level, morbidity, and mortality are not supported by historical facts. The link between food and mortality appears minimal or even nonexistent in cases of historically important diseases such as plague, smallpox, and malaria.

In accordance with its prominent role in historical context, mortality is treated in several chapters. In the chapter on microbes and disease, a plethora of epidemics and their consequences are described in detail, especially the plague that first appeared in 1347 and caused such losses that by the mid-fifteenth century there were at least one-third fewer Europeans than a century before. The analysis extends to the variability of the relationship between microbes and humans and to their mutual adaptation. One purpose of historical studies is to obtain lessons instructive for today, and the history of infectious diseases, indeed, offers such lessons. Epidemics such as the plague and the deadly "sweating sickness" in the first half of the sixteenth century appeared and disappeared without a satisfactory explanation. At the dawn of the twentieth century a false security developed, with the assumption that modern clinical research, medical practice, and vaccination could eliminate communicable diseases. Then came the influenza epidemic of 1918; old pathologies like tuberculosis, cholera, and malaria reappeared; and new pathogens and sicknesses are still appearing such as HIV/AIDS, Lyme disease, ebola, and recently the West Nile virus in the New York metropolitan area. The lesson is: do not hope that the fight against epidemics is ever over.

By way of introduction to the great transformation that began in the nineteenth century, Livi Bacci describes the old-regime demographic system, a "combination of demographic behaviors governed by fairly stable rules and relationships" by use of the measure of reproductivity, which includes survival to adulthood, migration, nuptiality, duration of marriage, and fertility (pp. 92ff). With an abundance of relevant data, he discusses the great transformation of these factors: the unprecedented growth in the length of life expectancy, the explosive increase in population that made mass overseas migration possible, the abandonment of "natural fertility," the advent of birth control, the secular decline of fertility unstoppable by population policy measures, and the changes in nuptiality and other demographic behaviors.

The author considers this process of transformation not as a simple dependent relationship between demography and economics but as an interactive relationship. He also reviews cultural changes, medical and nutritional advances, and other factors connected with the transition and, finally, provides a succinct description of the demographic situation at the end of the transition cycle.

The maze of historical facts provides evidence both for and against the demographic transition model, but ultimately the debate has failed to produce an explicative model that incorporates the many relevant factors. This is partly because such a model should explain not only the decline of fertility but the whole process of transition including other demographic variables. The author may have written the last word on this debate (p. 157): "The process of fertility decline, for the most
part, followed the geographical path of economic development and declining mortality, but with many deviations and exceptions attributable to culture and tradition, religions and institutions, permanence and change, all of which can only be understood at local and specific levels of analysis.”

Acsádi Associates, Consultants in Demography
New York City

GEORGE T. F. ACSÁDI

RICHARD G. ROGERS, ROBERT A. HUMMER, AND CHARLES B. NAM
Living and Dying in the USA: Behavioral, Health, and Social Differentials of Adult Mortality

Inequalities of health—and commentary about them—have a long history in demographic research. Until comparatively recently most studies of adult mortality had been carried out in what are now low-mortality countries. In other parts of the world the focus has been on differentials in infant and child mortality. This concentration has been dictated by data availability rather than by choice. Many studies have found significant links between such aspects of mortality as sex, age, and cause of death, on one hand, and environmental, social, and economic factors, on the other. Analyses of these links are typically hampered by the inconsistency of information coming from two different sources of data: usually census and death registration. The book under review avoids this problem. The authors use a unique data set created in the United States by matching the annual National Health Interview Survey (NHIS) with the Multiple Cause of Death files (MCD). The linked data set thus alleviates the problem of inconsistency between numerator and denominator encountered when two diverse data sources are used in mortality analysis.

The NHIS includes annual information on the civilian noninstitutionalized population in roughly 49,000 households; it covers gender, age, ethnicity, marital status, family size, income, education, and current occupation. Supplementary questions, which vary from year to year, include such items as religious attendance, sources of income, and health-related behavior. The NHIS data from the surveys of 1986 to 1994 were successfully matched with the MCD surveys for 1986 to 1995 for individuals aged 18 years and older; as a result the characteristics of the individuals interviewed in 1986–94 who later died have been identified. The matched NHIS–MCD data set makes it possible to employ multivariate analysis, in particular discrete hazard modeling, in the study of differentials in adult mortality.

The contents of the book are well structured, making it comparatively easy to follow the exposition of the authors’ analyses. Following the introduction and a chapter on data and methods, the results of the analysis are presented in three main parts: demographic and sociocultural characteristics associated with mortality; socioeconomic factors and occupational status; health-related behavior and health status. In the concluding chapter the authors bring together the results of
their analyses in an attempt to provide orientation to further research and policy formulation. Within each chapter the authors start by presenting a descriptive table that shows, for most covariates, the percentage distribution of cases specific to survival status; for continuously measured variables, the mean values specific to survival status are shown. Most of the analyses in the book are built around discrete-time hazard models using different sets of covariates as explanatory variables.

Many of the findings shed new light on mortality differentials in the adult population. Thus, the authors found that some US minority groups—Mexican Americans, Cubans, and other Hispanics—appear to have lower odds of mortality than their social and economic circumstances would lead one to expect. Selectivity of the migration process probably plays some role in this. Among the causes of death, social pathologies (accidents, homicides, suicides, cirrhosis of the liver) represent a comparatively high risk among Mexican Americans, Puerto Ricans, other Hispanics, and African Americans, but a low risk among Asian Americans. The differences may be closely related to health behavior, in particular smoking and dietary practices. In recent years, sex-specific differences in cigarette smoking appear to have narrowed the sex gap in longevity as young women in the United States are now taking up smoking in greater proportions than men, and older men are quitting. It is also of interest that the sex mortality gap varies across social and economic strata of the society. Men living in high-income families have only moderately higher mortality than their female counterparts.

The NHIS data provide new opportunities to consider the complex interplay between such characteristics as family composition and religious attendance and mortality. Family composition was found in this study to be significantly associated with mortality risk of individuals. The lowest level of mortality is experienced by individuals who live with their spouses and two children. Other family configurations have higher, sometimes considerably higher mortality. One of the highest risks is that of an adult child living with married parents and two siblings. Males suffer much higher mortality than females in comparable family arrangements. And in some instances the magnitude of the association between religious attendance and mortality is as strong as that between sex or ethnicity and mortality. As the authors point out, religious attendance is related to health-promoting behavior, to emotional, social, and even financial support, to reduction of stress, and to improved recovery from illness and surgery.

Education has been demonstrated to be strongly inversely associated with mortality (in particular, parents’ education is inversely associated with mortality of their children). This study confirms that even in a low-mortality country, the level of education has a detectable effect on adult mortality; however, its effect is nullified by controlling for income and employment status. The study also confirms what has been labeled “the healthy worker effect”: those who work, even in menial jobs, have generally lower mortality than those not in the labor force.

Self-reported assessment of health status and health-related behavior is seldom found in demographic studies of mortality in general and adult mortality in particular. The authors were able to incorporate such data as were provided in the NHIS as covariates in their models. Those self-identified as having mental disorders were found to have double the risk of death of those who were free of such disorders. Those reporting drug or alcohol abuse also had a higher risk of death.
One of the leading causes of death in these groups is suicide. In contrast, the study suggests that light drinking is associated with lower risk of death; this confirms earlier findings that attributed the effect to improved food digestion and increase in cholesterol-reducing lipids. Not unexpectedly, cigarette smoking was found to be the most life-threatening among the behavior variables in this study.

The authors, prominent demographers, have made a valuable contribution to the knowledge of factors associated with inequality of death in modern America. Their book—which has an extensive list of references and good author and subject indexes—will be a valuable guide not only for further research on the subject but also for orientation of health policies.

Fellow, Academy of the Social Sciences, Australia

LADO T. RUZICKA

SHORT REVIEWS

by Susan Greenhalgh, Geoffrey McNicoll, Michael P. Todaro

NEIL J. DIAMANT
Revolutionizing the Family: Politics, Love, and Divorce in Urban and Rural China, 1949–1968

In this contentious book, political scientist and China specialist Neil J. Diamant challenges some long-held orthodoxies of the field, especially of its feminist wing. Based on the research of (mostly women) scholars in the early 1980s, the consensus of the field has been that the divorce provisions of the revolutionary 1950 Marriage Law failed to produce fundamental change in marriage and gender relations because peasant patriarchs opposed this destabilizing change and the party-state, needing the patriarchs’ political support, backed away from implementing the law. In this dissertation-turned-book Diamant, now at Tel Aviv University, reports the results of his research into the Chinese archives on divorce from four locales during the 1950s and 1960s. He argues that it was rural men—not women—who were the big losers in the divorce battles of the early 1950s, and that men’s victimization has been overlooked because research on these topics has been
dominated by women (p. 327), and because feminist scholars, despite their espousal of feminist views, have missed rural women's active agency in taking advantage of the law to press for divorce. In developing this argument, the author presents colorful cases of "feisty" peasant women who actively defied the social order and state law. One woman reportedly told her husband's parents: "Even if this food was shit, I still wouldn't give it to you" (p. 9). Diamant clearly relishes his role as iconoclast, but his challenge to the feminist work misses its mark for two reasons. First, Diamant lumps all "Western feminists" together, ignoring the last decade of feminist recasting of gender issues in China; second, he exaggerates the impact of divorce on gender inequality by neglecting the question of the long-term effects of divorce on the two parties (something that would have required additional interviews to understand). Diamant's use of his archival materials is also questionable, for he treats the stories in the documents as unproblematic reflections of social facts, ignoring their constructed character. Despite these oversights and oversimplifications, Diamant's study makes some valuable contributions. It offers fascinating thoughts about such topics as the legal and sexual cultures of the Chinese peasantry, the scattered nature of the Chinese party-state, the contingent character of the state's penetration of family life, and the ironies of promoting "modern" change in a "traditional" society. For one versed in the literature on rural China, the author's reinterpretations make for lively and provocative reading. Although intended primarily for an audience of China specialists, Revolutionizing the Family suggests fresh ways of understanding the politics of marriage and divorce that could usefully inform the work of students of the family in other societies as well. Bibliography, index.—S.G.

INTERNATIONAL FEDERATION OF RED CROSS AND RED CRESCENT SOCIETIES
World Disasters Report 2000: Focus on Public Health
Geneva, 2000. 240 p. $25.00 (pbk.).

Disasters in 1999, according to this latest edition of the IFRC disasters report, killed 80,404 persons, a number exceeded only once (in 1991, with 201,459 fatalities, most of them caused by a cyclone in Bangladesh) in the last decade. In the largest 1999 disaster, some 30,000 died in Venezuelan floods. "Non-natural" disasters, encompassing industrial, transport, and miscellaneous accidents, are reported to have taken 6,361 lives—presumably excluding road traffic fatalities, which in the US alone have been running at 40-50,000 a year. These figures record local and sometimes national tragedies, but in global terms they seem modest numbers amid an annual total of 50 million deaths (though 212,544,647 persons are said to have been "affected by disasters" in 1999). The 2000 report expands its territory and casualties by discussing what it calls "chronic public health crises" and "ongoing disasters." Separate chapters, their authors identified in the front matter, give vivid and disturbing on-the-ground accounts of the African AIDS epidemic, the decay of North Korea's public health system, the continuing physical and psychological effects of the Chernobyl explosion, the "humanitarian Klondike" of Kosovo. The statistical side of the report is a series of tables based on data compiled by the
Centre for Research on the Epidemiology of Disasters (CRED) at the Catholic University of Louvain, the US Committee for Refugees, the World Food Program, and the OECD Development Assistance Committee. While the report recognizes that disaster data are “essentially soft and noisy,” a firmer hand governing their presentation would be useful. Some of the noise, like the meaningless digits, could be readily eliminated. But how is one to interpret a statement such as “natural disasters have quadrupled since the 1960s”? The report refers to itself with the acronym WDR, perhaps an ironic mirroring of the World Development Report. A short review of the 1998 IFRC report appeared in PDR 25(3): 605–606.—G.McN.

CHRISTIAN JOPPKE
Immigration and the Nation-State: The United States, Germany, and Great Britain
New York: Oxford University Press, 1999. $72.00; $22.95 (pbk.).

As corporate-led globalization inexorably reduces and eventually eliminates the power of individual nation-states to regulate and control the flow of goods, services, and finance across their borders, the last remaining barrier to a fully integrated world economy is to be found in the realm of restricted labor mobility. While the literature on international migration has become voluminous, few studies have examined the impact of immigration on sovereignty and citizenship, two generic attributes of the nation-state. In these two areas, at least, nation-states, according to the author of this interesting and informative book, have proved remarkably resilient. By comparing the postwar politics of immigration control and immigrant integration in the United States, Germany, and Britain, Joppke demonstrates how the policies of these three liberal states, which are characterized by very different traditions of nationhood, have led to distinct experiences concerning immigration. For example, the United States, which was founded, settled, and developed by immigrants to such an extent that the idea of the melting pot became an abiding myth of the nation-state, stands in sharp contrast to Germany, a nation of distinct ethnicity defined by common blood rather than a common creed. As a result, while the history of the former was one of inclusion and assimilation, that of the latter took on a character of exclusion through high barriers for admitting new citizens. Britain seems to share elements of both countries: a civic creed but, until recently, a reluctance to open its borders to immigrants, even many of those from its former colonies.

This book examines these three cases in two sections. Part I is a standard examination of immigration policy—the determination of regulations for entry and residence, the nature of border controls, and the role of human rights perspectives. A separate chapter describes the approaches of each of the three countries. The United States is described as once again opening itself to large-scale immigration in a context in which a civil rights culture of nondiscrimination and interest group politics both play a pivotal role. Germany is characterized as a nation that, in spite of “zero-immigration” policies since 1973, has nevertheless decided through judicial decisions and human rights considerations to permit continued residence for previously recruited guestworkers. Britain is described as being more effective
than Germany in implementing its zero-immigration policies because of the weaker legal and moral restraints on the executive branch of its government.

In Part II, the author focuses on “multicultural integration” with emphasis on citizenship as a legal status and identity. Again using a comparative analysis of how each of the three countries has dealt with the diverse national origins of recent immigrants, Joppke notes a growing commonality—the erosion of the idea of assimilation and the growing respect for the unique cultural identities of immigrants. Each of the chapters in Part II is infused with the common theme of how immigration challenges the nation-state in the area of sovereignty and citizenship. The author concludes, nevertheless, that in both of these dimensions the nation-state has maintained its resiliency.

The strength of this book lies in its comparative analysis and its defense of the concept of nation-state sovereignty in the context of an increasingly borderless world. Its weakness, in addition to a neglect of the critical economic components of immigration, is its ponderous and jargon-filled prose that often requires the reader to endure convoluted discussions of straightforward ideas and concepts. Nevertheless, the uniqueness of perspective and a wealth of comparative insights make this book a valuable addition to the recent literature on international migration. The author is professor in the Department of Political and Social Sciences at the European University Institute, Florence. Bibliography, index.—M.P.T.

PENG XIZHE WITH GUO ZHIGANG (EDS.)
The Changing Population of China
Oxford: Blackwell, 2000. xvi + 291 p. $64.95; $29.95 (pbk.).

The last two decades of modernizing reform in China have produced not only a new demographic landscape, but also a new, internationally oriented generation of demographers to map its dimensions and socioeconomic ramifications. This book brings the work of that younger, mostly foreign-trained generation of scholars, described by Peng Xizhe as “the backbone of China’s demographic community” (p. 9), to an international audience. The book’s 20 chapters are short (averaging 14 pages), fact-filled, and descriptive. As employees of state-run organizations, Chinese demographers are expected to devote their energies to facilitating the smooth coordination of population growth with socioeconomic development. Reflecting this mandate, the topics covered here fairly closely track the concerns of China’s policymakers. The chapters can be loosely grouped into three clusters. A first set documents the remarkable changes in fertility and mortality that have occurred since the mid-twentieth century and the policy changes that propelled China’s rapid transition to a low-fertility, low-mortality demographic regime. A second group of chapters charts the impact of these demographic transformations on China’s society and economy. Deng’s famous command, “let some get rich first to lead all to common wealth,” has been widely followed, spawning not only enrichment but also growing inequalities throughout society. The contributors to this book chart such trends as the increase in urban–rural inequality, the rising sex ratio at birth, and the growing gaps in health care and old-age support, and de-
scribe the efforts the government has taken to lessen them. A third set of chapters covers a broad swath of social and economic domains that are linked in some way to the changing size and structure of the population: education, employment, urbanization, migration, population distribution, ethnicity, the environment, and more. Although the chapters provide useful quantitative overviews of their topics, the data presented are often less than robust and current. Such data gaps reflect the near-impossibility of gathering accurate population information in the highly politicized context of China, in which underreporting and manipulation of the numbers are now rampant. Some discussion of these data difficulties by those who know most about them would have been helpful. Another opportunity missed here was to reflect theoretically on the causes and consequences of the changes wrought in China’s population. Nevertheless, the volume’s short, table-filled chapters and broad coverage make this book the best English-language overview of population trends and problems in China available today. The editors’ decision to limit the presentation of technical details should make this collection highly accessible to a wide readership. Until the results of the 2000 census are available, this will be the definitive text on the social and economic dimensions of China’s population. Chapter-end references, index.—S.G.

SEBASTIÃO SALGADO
Migrations: Humanity in Transition

Demography without numbers, went a 1980s-vintage commentary on the state of the field, is waffle, an amiable kind of social natural history. The writers had in mind words, but a fortiori they might have included pictorial essays. This book is a hefty challenge to such a stricture: wholly without numbers and with a minimum of text but at the same time an eloquent portrayal and, in a way, an analytical scrutiny of its (demographic) subject. Salgado’s photographs convey the hard-edged realities of mass population displacement and of people’s search for political and economic security in the contemporary world. He captures refugee shambles amid social disorganization and environmental decline in tropical and arid-zone Africa, the physically fragile but socially resilient migrant settlements on the fringes of Asian and Latin American megacities, the bravado of the act of border-crossing—singly and en masse, South to North and East to West, and the unglamorous realities that greet many migrants who finally reach the New World and, increasingly, the Old. As with any research endeavor, what is uncovered bears the marks of the research instrument. In this case, a visible record of the migration experience, by its nature, underrepresents success: migrants who have blended furthest into the new society are no longer in transition. And photography as a medium is better in dealing with economic hardship than with the myriad family-level strains of the efforts and inevitable failures in cultural maintenance. The collection complements Salgado’s equally impressive earlier book, Workers: An Archaeology of the Industrial Age (1993).—G.McN.
UNITED NATIONS DEVELOPMENT PROGRAMME
Human Development Report 2000
New York: Oxford University Press, 2000. xiv + 290 p. $38.95; $22.95 (pbk.).

The series of Human Development Reports (HDR) begun in 1990 have been at the forefront of the UN’s slide away from being an instrument of member states qua states to being a prodder of national and international social change. HDR 2000, organized around the theme of human rights and human development, goes furthest in this direction, setting out the agenda of a global human rights regime (with the goal of “all rights for all people in every country”) and on particular issues singling out individual countries for praise or scolding. The rights in question are those delineated in the now numerous UN conventions, ranging from the Universal Declaration of 1948 to the Worst Form of Child Labour Convention of 1999. (Eight pages are devoted to listing the signatory status of each member state for 14 major conventions.) The Report is concerned to deny that economic rights should have precedence over civil and political rights. The perspective of human development—that is, “the process of enlarging people’s choices by expanding human functioning and capabilities”—is seen as bringing these two sets of rights together in the cause of “empowering people in the fight against poverty.” Past successes in strengthening national and international institutional supports for human rights are detailed and a strategy for the future is proposed. An imbalance that perhaps results from this promotional enthusiasm is that the Report rarely mentions duties—and when they are mentioned it is not as individual responsibilities complementing rights but as what governments must do to expand the exercise of rights. For example, problems of negative externalities of individual behavior, familiar issues in discussions of reproductive rights or in considering human impact on the natural environment (and on nonhumans), are ignored.

The HDR, the reader is told, is not a statistical publication but rather is a secondary user of data from other agencies in the UN system and from a range of nongovernmental organizations. The distinction may escape many readers: HDR 2000 includes over a hundred pages of tables reproducing these data, which most users will probably take at face value with UNDP imprimatur—though in doing so they would be overestimating the signal-to-noise ratio. (For a criticism of some HDR statistical procedures see the review of HDR 1998 by Ian Castles in PDR 24, no. 4.) HDR 2000 does, however, present detailed technical notes and source references on the data. The distinctive feature of the HDR’s statistics is the construction of summary country-level indexes on aspects of human development. These now include, in addition to the much-used and much-criticized human development index (HDI), two human poverty indexes (HPI-1 and HPI-2), the gender-related development index (GDI), and the gender empowerment measure (GEM). An index proposed in HDR 2000 but not actually calculated is a “human rights international accountability index,” indicators for which would include a country’s timely submission of treaty reports, its ratification of individual complaints procedures under particular treaties, and its “adequate response to recommendations by treaty bodies.”

Authorship of HDR 2000 is ascribed to a team of UNDP staff and consultants, led by Richard Jolly, which “assume[s] full responsibility for the opinions expressed in the Report.”—G.McN.
UNITED NATIONS POPULATION DIVISION
The World at Six Billion

This brief, reader-friendly publication summarizes information from current UN population estimates, the 1998 UN projections series, and the (separately published) long-range projections (to 2150). A table, sourced from the Population Division, gives world populations for the years 0 (300 million), 1000 (310 million), 1250 (400 million), 1500 (500 million), and at 50- or 10-year intervals from 1750 to 2150. (The peak, a population "just above 10 billion," is located beyond this distant horizon, around 2200.) The population forecast for 2150 is 9.75 billion, appreciably below the 11.5 billion anticipated for that year in the 1990 assessment (see PDR 18, no. 2, pp. 333–340). The absolute annual increments to the world's population have been dropping since the late 1980s, down from 86 million to the present 78 million. But the forecast pace of accumulation remains impressive: the last billion was added in 12 years, the next is expected to come in 14 years, and the one after that in 15 years.

Other items culled from the report: The average life expectancy of the world's population is 65 years and the average total fertility rate is 2.7 children per woman. Over the next 50 years 64 countries are forecast to more than double in population, 32 to show declines. In the same period the fraction of the world population aged 60 or older will rise from the present 10 percent to 22 percent (in Europe, from 20 to 35). The fraction under age 15 will fall from 30 percent to below 20. A table ranks "countries or areas" in population size now (China first; Pitcairn 228th) and in 2050 (India first; Pitcairn, its population unchanged at 47, still 228th). Numerous tables present lists of the top 10 countries (out of those with 150,000 population and over) in various categories for now and 2050: the highest and lowest in fertility, infant mortality, immigration and emigration rates, and sex ratios; the youngest and oldest populations; the most and least urbanized; and so on. A final set of tables draws on the UN's database on government stances about population policy issues.

UNITED NATIONS POPULATION DIVISION

This is the third in an annual series of thematic monitoring reports containing analysis by Demographic Division staff and contributions by other UN agencies (in the present case, by WHO and UNAIDS), loosely tied to implementation of the Cairo Program of Action. The 1996 monitoring report treated reproductive rights and reproductive health; the 1997 report dealt with international migration and development. Items from the health and mortality report: While the world death rate has halved since 1950, the average annual number of deaths has been nearly unchanged—at close to 50 million. Worldwide some 60 percent of deaths are now from noncommunicable diseases. Developing countries feel pressure to reallocate health resources from childhood infectious diseases to chronic and degenerative diseases of adulthood—with distributional consequences by income as well as age. (This from a chapter on the epidemiological transition by Irma Elo.) Annex tables
present mortality-related data from the 1996 UN population estimates and projections, the UN database on mortality, the Seventh United Nations Population Inquiry among Governments, WHO (on maternal mortality), and the Demographic and Health Surveys (on childhood stunting and immunization).—G.McN.

**WORLD BANK**

*Can Africa Claim the 21st Century?*


Africa here means sub-Saharan Africa. The title question refers to the prospects for the region catching up in development: Can Africa “reverse years of social and economic marginalization in an increasingly dynamic and competitive world, and so be well placed, after the early decades of the century, to take advantage of the rest?” According to this report, a collaborative effort by the World Bank, the African Development Bank, the UN Economic Commission for Africa, the Global Coalition for Africa, and the African Economic Research Consortium, the answer is yes. There is currently a window of development opportunity created by three sets of conditions: the expansion in political participation and (it is hoped) in government accountability; the cessation of malign Cold War–based influences on foreign assistance and development policy; and the promise of information technology and globalization. The agenda for success is set out in a few brisk chapters: improving governance, addressing poverty, investing in people, lowering infrastructure barriers, spurring agriculture, diversifying exports, and reducing aid dependency.

At first sight the report is a kind of WDR-Lite, an impression given by its wide margins to accommodate one-sentence summaries of the text and its many edifying miniature case-studies in boxes. But though brief, it is not anodyne. It is nuanced and blunt on government performance (Mauritius—African by propinquity—is the principal exhibit of “capable and effective governance”; larger numbers of countries are grouped under “state crisis and institutional decay” and “violent conflict and state disintegration”). It pushes privatization, removal of trade barriers (it speaks of “noxious cereal export bans”), and participation in WTO rule-making. It gives due policy attention to health (the AIDS catastrophe in particular) and to poverty and income inequality.

Given the scope and auspices of the document, a somewhat notable feature of it is the triviality of its treatment of population concerns—and the total absence of population policy, even family planning, in the agenda it puts forward. The population of sub-Saharan Africa, by current UN projections, is set to rise from 640 million to 1.5 billion in the next 50 years, with fertility dropping to replacement level by that time. With a slightly slower rate of fertility decline (the high-variant scenario), there are an additional 300 million people in 2050. But the report merely remarks that Africa’s demographic transition is lagging behind the rest of the world, giving it an unfavorable age distribution for saving. Then it moves on to “investing in people” through better education and health. It would be hard to find a better instance of the penetration into agency thinking of the “Cairo consensus,” with fertility decline seen as a socially and economically incidental byproduct of those investments.—G.McN.
Globalization and Inequality: A Norwegian Report

Is global inequality increasing? Some authoritative voices—for example, from the United Nations Development Programme—assert unequivocally that it is, and have carried popular belief with them. Others see a more nuanced and on balance a positive picture. Any attempt to answer the question must grapple with many conceptual and measurement difficulties. These are not wholly eliminated even if the inequality in question is narrowed to that among the per capita incomes of countries, ignoring intra-country differences in income.

Disagreement about the empirical record has not impeded argument over causes. Globalization—the expansion of trade, investment, and technology flows among states that is making for a more integrated world economy—is invoked on both sides: seen by some as further marginalizing the world’s poor, by others as offering a route out of poverty. The starkly different positions surface in the heated debates that have surrounded the World Trade Organization and the proposal for a Multilateral Agreement on Investment.

The nature of trends in international inequality and the role in them of globalization are explored in a recent report issued by the Norwegian Ministry of Foreign Affairs, Globalisation and Inequality: World Income Distribution and Living Standards, 1960–1998 (October 2000), the summary from which is reproduced below. The report finds that global inequality between countries has decreased over the last four decades. Globalization may or may not have contributed to that outcome, but at least does not appear to work against it. In sum, “not everything has turned out badly; in fact there has—in spite of the setbacks in some regions and in spite of population growth—been considerable global progress during the last decades.”

Given the chosen focus on inequality, there is little discussion in the report of that other dimension of global progress: changes in absolute income levels. But in assessing the implications of development for human welfare, the issue of economic growth and its relationship to globalization is clearly pertinent. Footnote 4 offers a passing glimpse of that dimension, referring to changes in absolute poverty. The World Bank’s World Development Report 2000/2001 estimates that the number of people in absolute poverty (living on less than $1 a day) changed little between 1987 and 1998: it went from 1.18 billion to 1.20 billion. As the population grew, this meant a modest reduction in the proportion in absolute poverty in the world population (excluding the rich countries): from 28.3 percent to 24.0 percent. But in the East Asia and Pacific region—a region characterized by both rapid overall economic growth and increasing integration into the global economy—the number of poor dropped from 418 million to 278 million during the same period, with the proportion dropping from 26.6 percent to 15.3 percent.

The report was commissioned from the Norwegian Institute of International Affairs (NUPI), and prepared by Arne Melchior, Kjetil Telle, and Henrik Wiig. It is available online...
Has globalisation led to more inequality in the world economy? Does international trade and investment make the industrial countries richer, and the developing countries poorer? Such statements are frequently heard in the public debate on globalisation and international trade policy. In the debate about the World Trade Organisation (WTO), some critics maintain that free trade causes inequality to rise.¹ When the OECD tried to negotiate the Multilateral Agreement on Investment (MAI), some sceptics argued that international investment had a negative impact on developing countries. Attitudes concerning globalisation and inequality thus play an important role in debates on international policy.

In order to find out whether globalisation has led to more inequality, we should first find out whether inequality has increased or not. Next, we must analyse the causal links between globalisation and inequality. The extent of inequality is obviously influenced by other forces than globalisation. This report answers the first question; i.e. on whether global inequality has increased or not, and sketches out possible links between globalisation and inequality. The main purpose of the report is to present a thorough examination of how inequality has developed over a long time period (1960–1998), comparing different measures and methods. The report summarises the main findings in Melchior et al. (2000), which contains (in Norwegian) a more detailed examination of the issues.

An important source for those who maintain that inequality has increased during the last decades is the United Nations Development Programme (UNDP): In their Human Development Report (UNDP 1999, 3) they state that income inequality between rich and poor countries has widened continuously towards the end of the 20th century. In our report, we argue that the UNDP applies an inappropriate measure. With a more reasonable method, the conclusion is that inequality between countries in the world has been reduced since the mid-1960s. And even with the measure used by the UNDP, inequality across countries has decreased during parts of the 1990s.

There is widespread agreement—including the UNDP—that if the purpose is to compare living standards in different countries, one should apply income figures that are adjusted for differences in purchasing power. In recent years, substantial effort has been made in order to provide such data. The data set used in the report includes such figures for 115 countries for the period 1965–98. The analysis based on these data reveals that, with some minor variations, international income inequality has decreased continuously from the last part of the 1960s until 1997. This conclusion applies if we compare incomes in the countries comprising the richest and poorest quintile of the world population, and it applies when we use statistical measures of inequality, e.g. the Gini coefficient.²

What, then, is the basis for UNDP’s statements on increased international inequality? In UNDP (1999), only a few scattered (and sparsely documented) figures are provided, based on income figures that are not adjusted for purchasing power differences. These figures show the ratio between the income of the quintile of the world population living in the richest countries, and the income of the quintile living in the poorest countries. According to UNDP (1999, 3 and 36), this ratio increased from 30:1 in 1960 to 60:1 in 1990 and 72:1 in 1997. In the Human Development Report 1998 (UNDP 1998), the ratio for 1995 was said to be 82:1. According to this, inequality decreased since the 1960s.

¹Some examples are mentioned in Dollar and Kraay (2000).

²A reservation is that satisfactory income data that adjust for purchasing power differences do not exist for the former Soviet republics, and these are not included. The impact of this omission has been checked by deriving measures of inequality based on data that are not adjusted for purchasing power, and which include these countries. This check suggests that the omission of former Soviet republics has a modest impact on our results concerning changes in inequality over time.
during 1995–97. This was, however, not mentioned in UNDP (1999)—where globalisation and inequality was a main theme. As our own analysis based on similar figures for 1980–98 reveals, inequality increased during 1985–93 but fell during the period 1993–98. As noted above, such results are less relevant since—for the purpose of analysing international inequality—one should use data that are adjusted for purchasing power differences.

UNDP has defended its method by referring to quality problems related to purchasing power–adjusted data, and with some less clear arguments telling that the dollar value of a country’s income is more relevant for studying the marginalisation of poor countries in world trade and their power in international negotiations. There are certainly problems with purchasing power–adjusted income data, and they exist for fewer countries than those that are not adjusted for price differences. In spite of this, there is widespread agreement that adjusted figures should be used when comparing international income differences. Such figures are also used by the UNDP when they construct their Human Development Index (HDI).

Our results are in line with some other research contributions (that have analysed the development until ca. 1990). Research in the area suggests that international inequality increased until the 1960s, but this long-term trend was broken towards the end of the century. An important reason for this change has been growth in parts of Asia, and especially in China. If China is removed from our sample, the degree of international inequality has hardly changed over the period studied. China is a populous country, and it therefore has a considerable impact on the world average, as is reasonable.

International measures of inequality will necessarily hide important differences between the regions of the world economy. While the newly industrialised countries in East and South East Asia have experienced enormous economic growth and partly caught up with the richer countries, Sub-Saharan Africa has stagnated—especially after 1980. The collapse in Eastern Europe after 1980 has also been an economic tragedy in some countries. In spite of reduced international inequality, the gap between rich and poor countries is still enormous. Our purpose is not to underestimate this gap, but to examine its development in an unbiased way, as a point of departure for discussing how the gap may be reduced. In this context, it is encouraging that the trend towards more inequality until the 1960s has been reversed towards the end of the century.

Our conclusion on international inequality is based on a comparison across countries, and thus neglects inequality within countries. If we take inequality inside countries into account, and calculate an index of global inequality between persons, the results might be different. Some unpublished results of this type suggest that global inequality increased from 1988 until 1993. Such studies face considerable challenges in terms of data and methodology, and more research covering a longer time period is needed in order to obtain a reliable assessment of trends over time. Other results suggest that 80–90 per cent of global inequality is captured by income differences across countries. For this reason, comparisons across countries make sense when measuring international inequality.

Nevertheless, a possible objection to our analysis is that it gives a rosy picture since intra-country inequality is neglected. Research on inequality in countries reveals that rich countries have less inequality. For changes over time, however, the examination in this report shows that the relationship between economic growth and inequality within countries is complex. From the 1970s until the 1990s, inequality increased in approximately half the 80 countries covered by the data, and decreased in the other half. There were fluctuations over time, with more inequality towards the end of the period.

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3See UNDP (2000), Response to Mr. Castles’ Room Document on Human Development Report 1999, accessible on www.undp.org. Here (page 5), wages and hotel prices in Geneva are even referred to as arguments for using income data that are not adjusted for purchasing power differences. This would certainly be relevant for an analysis of negotiation capacity in the WTO, but hardly for international comparisons of welfare.

4Problems of poverty are thus still huge. We do not present new results on this, but refer to available evidence. Results from the World Bank suggest that the number of poor people (living on less than one purchasing power–adjusted dollar per day), was at the same level in 1998 as in 1987, but with some reduction after 1993.
Except for Eastern Europe, where inequality has generally increased, there is considerable variation between countries within the same regions. Such variation is also present among rich as well as poor countries. Some results suggest that economic decline is more likely to cause increased inequality. It is in accordance with this hypothesis that inequality has increased in Eastern Europe and Sub-Saharan Africa after 1980. Research in the field also suggests that there is no simple link between economic growth and inequality; high-growth countries experience less inequality in some cases and more in other cases. This lack of a clear link between growth and inequality also reduces the risk that comparisons across countries may give a biased picture of global inequality. A recent World Bank study (Dollar and Kraay 2000) suggests that economic growth benefits the rich and the poor in each country to the same extent.

Since measures of international inequality are strongly influenced by the development in China, it is of special interest whether growth in China has benefited the poor Chinese or not. Studies of this (World Bank 1997) reveal that economic growth in China has been particularly strong in urban areas and in the coastal regions, and this has contributed to more inequality within China after 1978. In spite of this, inequality in China is still below the high levels of Latin America and Sub-Saharan Africa. Income growth in China has also benefited the poor; particularly during 1980–84 and 1990–95, there was substantial income growth also among poor Chinese. Due to this, the number of poor people in China in 1995 was 250 millions below what it would have been without income growth for the poor.

Another possible objection to our conclusion on international inequality is that income is a too limited measure of living standards, and that other indicators of welfare should be taken into account. For this reason, the report examines the development of other aspects of living standards, with focus particularly on life expectancy and education. Average world life expectancy increased from 55 years in 1962 to 67 years in 1997. The improvement was considerable for a number of poor countries. Part of the improvement can be attributed to economic growth, but a substantial part of the increase was unrelated to income changes, and could be caused by global progress in medical technology and knowledge about diseases. In the former Soviet Union and in Sub-Saharan Africa, some countries have experienced a reduction in life expectancy after 1987, due to economic decline, conflicts or AIDS. On the whole, however, the trend during 1962–97 has been towards more global equality with respect to life expectancy.

For education, substantial progress in school participation occurred between 1960 and 1995. While developing countries still lag considerably behind rich countries for higher education, the relative difference in combined school participation (primary, secondary and tertiary education) has been narrowed during the period. An exception to this trend is Sub-Saharan Africa after 1980, where combined school participation did not increase. Our analysis of education does not take into account quality differences in schooling, which are also important if we want to obtain a more precise picture of the education gap between rich and poor countries.

Life expectancy and school participation increase with the income of each country. Together with income and literacy, these variables enter into the calculation of the so-called Human Development Index (HDI), reported annually by the UNDP. Calculations of such indexes over time (undertaken by the UNDP and other researchers) indicate that poor countries are catching up with the rich ones. In fact, the HDI provides a picture of trends in international inequality that is even more positive than the one we have obtained based on income data alone. This, together with our analysis of education and life expectancy, supports our conclusion concerning reduced global inequality during the last decades. It also indicates that the picture derived from purchasing power–adjusted income data is not “too positive”.

The analysis of income and living standards thus points in the same direction. Since income, life expectancy and education are also correlated, it is also the case that the HDI index itself is strongly correlated with income. For 1997, variations in income statistically explain 84% of the variation in the HDI. We therefore conclude that the HDI makes us a little—but not too much—wiser. In order to draw attention to the analysis of living standards, however, the HDI has been a success.
The empirical analysis of the report thus indicates that during the last decades of the 20th century, international inequality has been reduced, while inequality within countries follows a mixed pattern. The next question is then: How can these changes be explained by "globalisation"? The analysis falsifies simplified allegations about globalisation and inequality. On the other hand, the analysis does not allow us to conclude that "globalisation reduces inequality". Such a statement would also be far too simple. Globalisation is a complex process where some mechanisms may contribute to greater equality, while others may promote more inequality. Furthermore, globalisation occurs simultaneously with other important phenomena that may affect the extent of inequality, e.g. technological and political changes. In order to derive causal links, such other influences have to be taken into account. An analysis of the causal links between globalisation and inequality is thus a large-scale project beyond the limits of this report. We sketch out possible links between globalisation and inequality as a framework for the interpretation of empirical facts, and as an indication of important issues for further research. The survey is based on theory as well as empirical research. In some cases, the theories are supported by empirical research; in many cases, however, research is still not able to give precise answers.

Globalisation is a process with faster changes in the global division of labour. "Low-cost imports"—especially from East and South East Asia—have already replaced some of the OECD countries' own production of e.g. clothing and electronics. The integration of poor and populous countries like China into the world economy pushes the process further: When China takes over larger shares of the world market for e.g. clothing, other Asian countries have to move into other industries, and the challenges are increased for other developing countries that want to enter this market. Increased trade is a two-way process; when China sells clothing to rich countries, the rich countries may sell more machinery to China. Increased trade thus leads to restructuring within each country: While textile workers in the OECD lose their jobs, thousands of new textile workers are hired in China. While the machinery industry in the OECD grows, inefficient plants in China are closed. Trade may be to the advantage of both rich and poor countries, but some groups inside each country may lose. According to the theory, trade may reduce the income gap between rich and poor countries, while leading to more inequality within rich countries and less in poor countries.

If the textile workers in the West get new jobs or they are educated to other professions, restructuring may take place without losers. In the West, however, it has been observed that the gap (in terms of income or unemployment) between skilled and unskilled workers has increased during the last two decades. Is globalisation the cause of this? Research in the field suggests that globalisation is partly to blame, but that an even more important reason for the gap is technological change that increases the demand for skilled labour in most industries. A substantial amount of research has been undertaken for the OECD, but surprisingly little on the impact on developing countries. Furthermore, there is too little research that sheds light on how the entry of China (and gradually India) into the world economy may affect other developing countries.

Research on the impact of globalisation on low-skilled workers in rich countries illustrates that globalisation occurs together with radical changes in technology that may reshape the world economy. Recent research on economic growth focuses particularly on innovation as a source of economic growth, and the spread of technology as an important determinant for the extent of inequality between countries. The development in electronics since 1960 illustrates that while innovation has primarily taken place in rich countries, some poor countries have developed through copying technology, and gradually became major exporters. Globalisation increases the potential for the spread of technology through trade (especially imports of capital equipment) and international investment. The slicing up of the value added chain within multinational corporations allows poor countries to produce some of the goods with a limited technological base. Research in the area suggests that multinationals contribute positively to the international diffusion of technology; but only under the precondition that the receiving country has a certain minimum standard in terms of education and technology, or a certain "absorptive capacity" or "social capacity". An important issue is whether...
information and communication technology raises the threshold for poor countries. The spread of such technology so far reveals a considerable gap between rich and poor countries, but things change rapidly, and countries like India and Taiwan have already demonstrated that information technology is not reserved for the rich.

The term “social capacity” in research on technology has relevance in other fields as well. If e.g. countries have too weak institutions to handle structural adjustment and social change, they may be losers in the global competition. Such “institutional failure” may be a part of the explanation of the weak development in Sub-Saharan Africa and parts of Eastern Europe after 1980.

Another possible explanation why some regions develop favourably while others stagnate may be that both are part of a common process that creates winners and losers. Recent research on economic geography and growth tells us some such stories about globalisation creating agglomeration or “industrial clusters” in some places, and decline in other areas. Economies of scale of various kinds, or “cumulative causation” (good or bad circles), may lead to such asymmetries. So far, however, there is no empirical research that suggests e.g. that “growth in Asia and stagnation in Africa are two sides of the same coin”. Research in the area has not confirmed that such a global link is present. A more plausible hypothesis is that agglomeration or regional integration in parts of the world economy may cause local “damage”, e.g. that regional integration may hurt surrounding countries that do not participate. More research is needed in order to confirm whether this is true—or theoretical speculation only.

For inequality within countries, the public sector is important. In the debate on globalisation, some critics have warned that global competition may erode the tax base and lead to a “race to the bottom” that undermines public welfare policy. The literature in the field shows, however, that internationalisation in the West has been accompanied by a continuous expansion of the public sector, and that open economies have a larger public sector than closed ones. Research also suggests that public income has been maintained, and that the state’s room of manoeuvre for redistributive policies has not been substantially reduced. Public expenditure that is directly related to the production system (education, infrastructure etc.) is better for growth than pure redistribution. In spite of this, it is not necessarily true that competition leads to cuts in welfare expenditure: Some researchers have argued that globalisation may create more demand for redistribution and lead to an expansion of public expenditures. Concerning state income, some reallocation has taken place from capital taxation to taxation of labour. Increased international capital mobility is a possible explanation of this.

It would be pure guesswork if—based on our result about reduced global inequality—we concluded that “globalisation leads to more equality”. In order to draw such conclusions, more specific analyses are needed. We hope to be able to undertake such research in the future.

References


An Italian Statement on International Migration

Increasing realization of the implications of persisting below-replacement fertility in Europe—shrinking absolute numbers combined with a rising proportion of the elderly—is giving new salience to policy considerations regarding immigration in the countries most affected by low fertility. The recent United Nations report on “replacement migration” (see the Documents section in the June 2000 PDR) highlighted the issue through illustrative calculations showing the size of immigrant streams that would be needed for achieving specified demographic targets in selected low-fertility countries, given continuation of present fertility and mortality trends. For example, the UN report suggested that in Italy—which has one of the lowest fertility rates in the world—maintaining a constant population over time would require a net influx of some 12.6 million immigrants during the next 50 years, and maintaining a constant labor force-age population (ages 15–64) would require a net inflow of 18.6 million. Yet immigration policy in Western Europe has become increasingly restrictive during the last quarter-century, and the official policy stance that regulating immigration is strictly within the domain of a country’s sovereign right has been assiduously maintained. (International treaty obligations qualify that right in the case of bona fide asylum seekers; however, the definition of that category is also subject to the discretion of the receiving countries.) Thus, although within the European Union national borders are open to EU citizens, the power of regulating immigration from outside the EU is retained by the individual countries rather than subject to EU-wide decisions. Suggestions coming from the developing countries to follow up the 1994 International Conference on Population and Development with an intergovernmental conference on international migration and development were set aside by the potential immigrant-receiving countries as overly contentious.

A statement by the Minister of Foreign Affairs of Italy, Lamberto Dini, delivered at the 55th General Assembly of the United Nations, 13 September 2000, may be a sign of a notable shift in official approaches to immigration policy by at least one EU member state. The statement, in a departure from the practice of touching lightly upon a wide range of issues in international affairs, typical in high-level ministerial speeches given at that UN forum, is devoted essentially to a single topic: international migration. It characterizes migration “between or within continents” as an international problem and advocates “coordinated and integrated” instruments in seeking a solution. It suggests that “today, with a declining birth rate and an aging population, Europe needs a strategy that embraces the complex process of integrating people from different regions of the world.” The rules for international migration, the statement claims, should be set in a global framework, such as provided by the United Nations. In the “age of globalization,” “a solidarity pact is needed to find the best and most effective way of balancing the supply and demand of labor.” With the omission of opening and closing ceremonial passages and a brief comment on the problem of debt relief, the statement is reproduced below.
2001 will be the United Nations Year for Dialogue among Civilizations. By unanimously adopting the relevant Resolution in its 53rd Session, the General Assembly demonstrated its great sensitivity and attention to the profound structural changes underway in our national societies. It thereby sent a strong signal on a number of themes that the Secretary-General has put forth in his report on the role of the Organization in the 21st century. These themes cannot fail to include the new face of international migration, whose gravest aspects include illegal immigration and the trampling of human dignity.

Dialogue among civilizations should not be addressed in the abstract, academically. It demands real contact, a bond between individuals and peoples. To ensure that these contacts, this bond, do not mutate into tensions and strife, the community of states must try to understand and manage migratory phenomena. We must work together to prevent migration flows from plunging into chaos, a chaos for which the human person ultimately has to pay the highest price.

Migration needs to be governed by fixed transparent rules. The source, the rationale of these rules is the United Nations, to which the San Francisco Charter entrusts the fundamental role, “To achieve international cooperation in solving international problems of an economic, social, cultural and humanitarian character.” I submit to you that today migration between or within continents has become an international problem with an economic, social, cultural and humanitarian character.

Any solution to the problems connected with migration must come to terms with the globalization process. Globalization has reduced distance and time. To an unprecedented degree it has linked countries at opposite ends of the Earth. There are even those who speak, perhaps not wrongly, of “the end of geography.”

The paradox facing us stems from the real difficulties of globalization extending not only to the economy, finance and information but also to the movements of peoples. Most of these difficulties can be ascribed to the complex transition of many advanced countries to multi-ethnic and multicultural societies.

Human beings are not commodities. When individuals move, they preserve their roots, their specificity and their experience, even when they come into permanent contact with societies different from their own. Hence the need for mutual tolerance, to safeguard our respective customs and traditions.

The growing dimensions of migration have widened the gap between individual government’s management capabilities and the individual person’s ability to move, which is heavily influenced by progress in communications. All too often this gap is filled by organized crime, by ruthless criminals who in some cases traffic in human beings, in what amounts to a modern form of slavery.

We need to ask how we can safeguard freedom while impeding slavery; how we can prevent global economic development from sparking social tensions; how we can ensure that the growing contact between different civilizations will produce dialogue rather than intolerance. It will take a strong, determined commitment from all of us to draft rules that, if applied, can have a positive impact on international migration flows, to the benefit of both home and host countries.

Improving millions of human lives is the fundamental challenge of development: We need a clear, explicit and effective commitment to eradicate poverty. We must realize that in a globalized world, migration can gradually impoverish areas that are already economically and socially disadvantaged.

The fears that immigration sometimes generates should not lead industrialized countries to build new walls and fences. Such fears reject contact with diversity and make some feel as if they were strangers in their own country. A Europe built on fear, for example, would ultimately cast immigrants as the imaginary enemy, as a race apart. Any effort to overcome such negative stereotyping should be applauded, such as the Conference on Racism, scheduled for 2001 in Pretoria.

The European Union has a great capacity to take in people, and already has large immigrant communities. But only now is it developing a common approach to immigration. The EU's strategy relies on cooperation with other countries, since the issue cannot be addressed solely through border patrols.
and tougher repression of illegal immigration, regardless of the cost.

For many years Europe did not have to worry about the long-term consequences of immigration. But today, with a declining birth rate and an aging population, Europe needs a strategy that embraces the complex process of integrating people from different regions of the world.

Then there is the tragic, heinous trafficking in human beings. As U.S. Secretary of State Madeleine Albright stated before this Assembly yesterday, we must put a stop to this trafficking, a stop to boats being cast into the sea, filled with sadness and desperation, driven by hopes in a promised land. The pictures of these illegal crossings have become unbearable. They epitomize a state of affairs governed by the black market, where there is an overabundance of illegal labor. This new form of piracy would be impossible if those involved knew that they could not count on collusion, safe havens, and all too often, impunity.

For example, the Mediterranean Sea, around which great civilizations have prospered, is being crossed by people who pay ruthless exploiters and sometimes become their victims. In many cases, illegal immigrants find it hard to gain access to the rule-of-law society, and end up being treated as commodities. Immigration has various causes: poverty, ethnic and religious strife, the repression of totalitarian regimes, and the demands of more affluent economies. Today, as never before, immigration is driven by broadcast images that often distort honest hopes for a better life. Moreover, it has reached unprecedented proportions. In fact, since the early Eighties the number of countries that receive immigrants has risen from 39 to 67, while the number of countries of emigration has risen from 29 to 55. We would be fooling ourselves to think that a phenomenon of such proportions could be brought under control solely through bilateral agreements.

The European Union has made cooperation between national governments a priority since the European Council of October 1999. But recent experience points to the need for an approach on which only the United Nations can confer the indispensable character of universality.

Italy has much to share in this regard. Until a few decades ago, large sections of our population were forced to seek work in distant lands with different languages and traditions. Their lives were often marked by hardship, want and family separation. This chapter of social history had points of light and of darkness, but on the whole it was a source of great moral and spiritual wealth.

Starting in the early Seventies Italy became a land of immigration, although it could not yet provide full employment for all of its people. As a land of both emigration and immigration, Italy is well situated to address in a constructive manner global migration today. Italian domestic law is based on the principle of "soft integration," designed to provide permanent residents with an opportunity that does not force them to renounce the rich heritage of their native cultures.

It is on these grounds that, here before the General Assembly, I urge the United Nations to raise the awareness of the community of states and introduce appropriate instruments. Three instruments deserve to be coordinated and integrated.

First: assistance to the developing countries. Assistance in preventing and quelling the tensions that, at least in part, give rise to migration flows, as well as assistance in easing the integration of their economies with those of the more advanced countries. As we all know, this is a priority that the United Nations is pursuing through various committees and an enhanced role of UNDP. We must strive to improve the instruments already available to us, responding to the visionary proposals of Secretary-General Kofi Annan.

Second: as a deterrent to illegal entry, stricter and more consistent law enforcement. Success depends on effective cooperation between the countries of origin, the countries of transit, and the countries of arrival. Such efforts should also aim to prevent the spread of pockets of illegality and organized crime by promoting greater stability, moral authority and control in fledgling democracies. This would be invaluable to securing the support of public opinion in industrialized countries for cooperation policies.

Third: management of migration so that it is a source of stability and wealth, to the benefit of all. For this to happen, migration
must take place legally. If everyone complies with the law, immigrants will be welcomed in their host countries and become fully integrated into society.

These three guidelines must be set within a global framework. There are plenty of organizations that deal with migration at the international level. Yet while they provide praiseworthy services, their sectorial nature means that they cannot have the kind of overall vision that only effective coordination can guarantee.

A solidarity pact is needed to find the best and most effective way of balancing the supply and demand of labor, while fully respecting the diversity of the people concerned. The greatest challenge in the age of globalization is to design new forms of cooperation between governments that will enable each to see that their interests are reflected in international policy decisions. The United Nations continues to be the most natural forum for adopting such decisions and ensuring their implementation.
Population and Resources: An Exploration of Reproductive and Environmental Externalities

PARTHA DASGUPTA

This article identifies four types of social externalities associated with fertility behavior. Three are shown to be pronatalist in their effects. These three are exemplified by the way theories of economic growth treat fertility and natural resources, the way population growth and economic stress in poor countries are seen by environmental and resource economists, and the way development economists accommodate environmental stress in their analysis of poverty. It is shown that the fourth type of externality, in which children are regarded as an end in themselves, can even provide an invidious link between fertility decisions and the use of the local natural-resource base among poor rural households in poor countries. The fourth type is used to develop a theory of fertility transitions in the contemporary world; the theory views such transitions as disequilibrium phenomena.

Unmet Need for Family Planning in Developing Countries and Implications for Population Policy

JOHN B. CASTERLINE
STEVEN W. SINDING

Unmet need for family planning has been a core concept in international population discourse for several decades. This article reviews the history of unmet need and the development of increasingly refined methods of its empirical measurement and delineates the main questions that have been raised about unmet need during the past decade, some of which concern the validity of the concept and others its role in policy debates. The discussion draws heavily on empirical research conducted during the 1990s, much of it localized, in-depth studies combining quantitative and qualitative methodologies. Of the causes of unmet need other than those related to access to services, three emerge as especially salient: lack of necessary knowledge about contraceptive methods, social opposition to their use, and health concerns about possible side effects. The article argues that the concept of unmet need for family planning, by joining together contraceptive behavior and fertility preferences, encourages an integration of family planning programs and broader development approaches to population policy. By focusing on the fulfillment of individual aspirations, unmet need remains a defensible rationale for the formulation of population policy and a sensible guide to the design of family planning programs.

Local and Foreign Models of Reproduction in Nyanza Province, Kenya

SUSAN COTTS WATKINS

This article uses colonial archival records, surveys conducted in the 1960s, and surveys and focus group discussions in the 1990s to describe three distinct but temporally overlapping cultural models of reproduction in a rural community in Kenya between the 1930s and the present. The first model, “large families are rich,” was slowly undermined by developments brought about by the integration of Kenya into the British empire. This provoked the collective formulation of a second local model, “small families are progressive,” which retained the same goal of wealth but viewed a smaller family as a better strategy for achieving it. The third model, introduced by the global networks of the international population movement in the 1960s, augmented the second model with the deliberate control of fertility using clinic-provided methods of family planning. By the 1990s this global model had begun to be domesticated as local clinics routinely promoted family planning and as men and women in
Nyanza began to use family planning and to tell others of their motivations and experiences.

Conditioning Factors for Fertility Decline in Bengal: History, Language Identity, and Openness to Innovations

ALAKA MALWADE BASU
SAJEDA AMIN

This article argues that looking solely for the immediate causes of reproductive change may distort our understanding of policy options by failing to take into account the historical and cultural factors that affect not only the impact of policies and programs but their very nature and existence. The article examines the historical origins and spread of “modern” ideas in Bangladesh and the state of West Bengal in India. It concludes that a colonial history in which education and modernization processes took hold very early among the elites in the larger Bengal region was paradoxically accompanied by a strong allegiance to the Bengali language. This strong sense of language identity has facilitated and reinforced the diffusion of modern ideas both within and between the two Bengali-speaking regions. Thus, to understand the fertility decline in Bangladesh, for example, one needs to look also at cultural boundaries. In this case, the cultural commonality through language facilitates the spread of new ideas across the two Bengals. In turn, the strong sense of language identity has facilitated mass mobilization more easily and intensely within the two Bengals. Shaped by these processes, Bangladesh and West Bengal today are more amenable to social change than many other parts of South Asia and the Middle East.

Perceiving Mortality Decline

MARK R. MONTGOMERY

In the demographic literature on developing countries, studies of mortality perceptions are conspicuous by their absence. Perhaps it has been assumed that when mortality declines, the decline will be quickly recognized by individuals and will then influence their demographic decisions. The possibility of substantial lags and biases in risk perception, which cause individual perceptions to diverge from the changing empirical realities, has not been much considered. Yet studies in cognitive and social psychology indicate that individual mortality perceptions are likely to be diffuse and may well be biased upward in relation to the declining empirical risks. If individuals are poorly equipped to recognize mortality decline, so too may be social groups—social learning will not necessarily correct individual misapprehensions. This note discusses the perceptual limitations that may delay recognition of mortality decline and examines the implications for demographic behavior in three areas: modern health care, fertility control, and children’s schooling.
damentales locales parmi les ménages pauvres des régions rurales du tiers monde. Ce quatrième type est utilisé pour élaborer une théorie de transitions en matière de fécondité dans le monde contemporain, théorie qui considère ces transitions comme un phénomène de déséquilibre.

Besoin non satisfait en planification familiale dans les pays en développement et les répercussions sur les politiques démographiques

JOHN B. CASTERLINE
STEVEN W. SINDING

Le besoin non satisfait en planification familiale est un concept fondamental du discours international sur la population depuis plusieurs décennies. Le présent article examine l'histoire du besoin non satisfait et l'élaboration de méthodes de plus en plus raffinées pour son évaluation empirique. En outre, il délimite les questions principales qui ont été soulevées sur le besoin non satisfait au cours de la dernière décennie, questions dont certaines ont trait à la validité du concept et d'autres au rôle dudit concept dans les débats d'orientation de politique. La discussion puise abondamment dans la recherche empirique menée au cours des années 1990, dont une grande partie sont des études approfondies et localisées combinant les méthodologies quantitative et qualitative. Trois causes du besoin non satisfait—à l'exclusion des causes liées à l'accès aux services—sont particulièrement importantes : le manque de connaissances fondamentales sur les méthodes contraceptives, l'opposition sociale à leur utilisation et les préoccupations de santé sur les effets secondaires. Le présent article allègue que le concept du besoin non satisfait en planification familiale, en reliant le comportement ayant trait à la contraception et les préférences liées à la fécondité, favorise l'intégration des programmes de planification familiale et des méthodes d'élaboration de politique démographique plus élargies. En s'articulant autour de la satisfaction optimale des aspirations individuelles, le besoin non satisfait demeure une justification valable dans la formulation d'une politique démographique et un guide rationnel pour la conception de programmes de planification familiale.

Modèles de reproduction locaux et étrangers dans la province de Nyanza au Kenya

SUSAN COTTS WATKINS

Le présent article s'appuie sur des archives coloniales, des enquêtes menées dans les années 1960 ainsi que des enquêtes et des discussions de groupe dans les années 1990 pour décrire trois modèles de reproduction culturels qui, quoique distincts, se recoupent dans le temps, dans une communauté rurale du Kenya, depuis les années 1930 jusqu'à présent. Le premier modèle—les familles nombreuses sont riches—a été érodé graduellement par les développements qui ont suivi l'intégration du Kenya au sein de l'Empire britannique. En conséquence, le second modèle local—les familles peu nombreuses sont progressives—conservait le même objectif de richesse, mais considérait la famille moins nombreuse comme une stratégie plus efficace pour l'atteindre. Le troisième modèle, qui a été apporté par les réseaux mondiaux du mouvement international de populations dans les années 1960, complétait le second modèle en y ajoutant le contrôle intentionnel de la fécondité au moyen des méthodes de planification familiale fournies en clinique. Dans les années 1990, ce modèle mondial était déjà en voie d'être adopté car les cliniques locales promouvaient couramment la planification familiale et les hommes et les femmes de la province de Nyanza avaient commencé à utiliser la planification familiale et discutaient avec d'autres membres de leur communauté de leurs motivations et leurs expériences.

Facteurs de conditionnement pour la baisse de la fécondité au Bengale : histoire, identité linguistique et ouverture à l’innovation

ALAKA MALWADE BASU
SAJEDA AMIN

Le présent article allègue que si l'on ne recherche que les causes immédiates de changement procréateur, notre compréhension des options politiques risque d'être déformée si l'on ne tient pas compte des facteurs historiques et culturels qui influent non seulement sur les répercussions des programmes de planification familiale.
Perception de la baisse de la mortalité

MARK R. MONTGOMERY

Dans la documentation démographique sur les pays en développement, les études sur les perceptions de la mortalité sont pratiquement introuvables. Il se peut que l'on ait assumé que lorsque le taux de mortalité baisse, ce déclin est rapidement perçu par les individus et influence leurs décisions en matière de population. La possibilité de décalages et de gauchissements importants dans la perception du risque susceptibles de faire diverger les perceptions individuelles des nouvelles réalités pragmatiques, n’a pas été vraiment examinée. Cependant, les études de psychologie cognitive et sociale indiquent que les perceptions individuelles de la mortalité risquent d’être diffuses voire même gauchies vers le haut en ce qui a trait aux risques empiriques en régression. Lorsque les individus ne sont pas à même de reconnaître le déclin du taux de mortalité, il peut en être de même pour les groupes sociaux — l’apprentissage social ne corrige pas nécessairement les opinions erronées individuelles. Le présent article discute des limites perceptuelles qui peuvent retarder la constatation du déclin de la mortalité et en examine les répercussions au niveau du comportement démographique dans trois domaines : les soins de santé modernes, le contrôle de la fécondité et le niveau scolaire des enfants.

Población y recursos: Una exploración de exterioridades reproductivas y ambientales

PARTHA DASGUPTA

Se identifican en este artículo cuatro tipos de exterioridades sociales asociados con el comportamiento de la fecundidad. Tres demuestran ser pronatalistas en sus efectos. Estos tres son ilustrados por la manera en que las teorías de crecimiento económico tratan la fecundidad y los recursos naturales; por la manera que el crecimiento poblacional y la presión económica en los países pobres son considerados por los economistas de ambiente y recursos, y por la manera que los economistas de desarrollo acomodan la presión ambiental en sus análisis de la pobreza. Se demuestra que el cuarto tipo de exterioridad, en el cual se considera a los hijos como un fin en sí mismo, puede incluso proveer un vínculo odioso entre las decisiones de fecundidad y el uso de la base local de recursos naturales en hogares rurales pobres en países pobres. Se usa el cuarto tipo para desarrollar una teoría de transiciones de la fecundidad en el mundo contemporáneo; la teoría considera tales transiciones como fenómenos de desequilibrio.
Necesidad de planificación familiar no satisfecha en los países en desarrollo y consecuencias para políticas

JOHN B. CASTERLINE
STEVEN W. SINDING

Por varias décadas la necesidad de planificación familiar no satisfecha ha sido un concepto central en las discusiones internacionales de población. Este artículo examina la historia de la necesidad no satisfecha y el desarrollo de métodos cada vez más refinados de su medición empírica y esboza las interrogantes principales que durante la última década se han formulado sobre la necesidad no satisfecha, algunas de las cuales se relacionan con la validez del concepto y otras en su función en los debates de políticas. La discusión se basa fuertemente en las investigaciones empíricas llevadas a cabo durante los años noventa, muchas de ellas de índole local, estudios de profundidad que combinan metodologías cuantitativas y cualitativas. De las causas de la necesidad no satisfecha, a excepción de aquellas relacionadas al acceso a los servicios, tres se destacan en especial: una falta de conocimiento necesario acerca de los métodos anticonceptivos, oposición social a su uso, e inquietudes de salud acerca de posibles efectos secundarios. Se sostiene en el artículo que el concepto de necesidad de planificación familiar no satisfecha, al combinar el comportamiento anticonceptivo y las preferencias de fecundidad, fomenta la integración de los programas de planificación familiar y criterios más amplios para el desarrollo de políticas de población. Al enfocar en las aspiraciones individuales, la necesidad no satisfecha continua como una razón fundamental para la formulación de políticas de población y como una guía razonable para el diseño de programas de planificación familiar.

Modelos locales y extranjeros de reproducción en la Provincia de Nyanza, Kenya

SUSAN COTTS WATKINS

Este artículo usa registros de archivos coloniales, encuestas llevadas a cabo en los años sesenta, y encuestas y discusiones de grupos focales en los años noventa para describir tres modelos culturales distintos pero superpuestos en el tiempo en una comunidad rural de Kenya, abarcando de 1930 hasta el presente. El primer modelo, “las familias grandes son ricas”, fue lentamente debilitado por los acontecimientos que resultaron de la integración de Kenya dentro del imperio británico. Esto provocó la formulación colectiva de un segundo modelo local, “las familias pequeñas son progresivas”, guardando los mismos objetivos de riqueza pero considerando que la familia más pequeña es una estrategia mejor para lograrlo. El tercer modelo, introducido por las redes globales del movimiento internacional de población en los años sesenta, incrementó el segundo modelo con el control deliberado de la fecundidad usando métodos de planificación familiar provenientes de clínicas. Alrededor de los años noventa este modelo global había cobrado un carácter doméstico a medida que las clínicas locales fomentaban la planificación familiar en forma rutinaria y a medida que los hombres y las mujeres en Nyanza comenzaban a hacer uso de la planificación familiar y compartir con los demás sus motivaciones y experiencias.

Factores que condicionan el descenso de la fecundidad en Bengala: Historia, identidad lingüística, y receptividad a innovaciones

ALAKA MALWADE BASU
SAJEDA AMIN

El artículo sostiene que si se buscan tan sólo las causas inmediatas del cambio reproductivo esto puede crear una distorsión en nuestra manera de entender las opciones de políticas al ignorar los factores históricos y culturales que afectan no sólo al impacto de las políticas y programas pero su esencial naturaleza y existencia. El artículo examina los orígenes históricos y la extensión de las ideas “modernas” en Bangladesh y el estado de Bengala Occidental en la India. Se concluye que una historia colonial en la cual los procesos de educación y modernización fueron incorporados tempranamente entre las élites de la región que cubría la gran Bengal se vió acompañada, paradójicamente,
por una fuerte lealtad al idioma bengali. Este fuerte sentido de identidad lingüística ha facilitado y reforzado la difusión de ideas modernas tanto dentro como entre las dos regiones de habla bengali. Por lo tanto, para entender el descenso de la fecundidad en Bangladesh, por ejemplo, es necesario también ver los límites culturales. En este caso, la comunidad cultural a través del idioma ha facilitado la difusión de ideas nuevas a través de las dos Bengalas. A su vez, el fuerte sentido de identidad lingüística ha facilitado la mobilización masiva de una manera más fácil e intensa dentro de las dos Bengalas. Forjados por estos procesos, Bangladesh y Bengala Occidental hoy en día tienen una mayor receptividad para los cambios sociales que muchas otras partes de Asia Meridional y del Oriente Medio.

Percepción de la mortalidad en descenso

MARK R. MONTGOMERY

En la literatura demográfica sobre los países en desarrollo, estudios de percepción de la mortalidad se lucen por su ausencia. Quizás se ha pensado que al bajar la mortalidad, el descenso sería rápidamente reconocido por las personas y que éste entonces influenciaría sus decisiones demográficas. La posibilidad de que importantes rezagos y sesgos en la percepción de riesgos resulten en que las percepciones individuales se aparten de la realidad empírica cambiante, no ha sido mayormente considerado. Sin embargo, estudios en psicología cognitiva y social dan a entender que las percepciones individuales de mortalidad probablemente sean difusas y bien pueden tener sesgos aumentados en relación a los riesgos que empíricamente muestran un descenso. Si los individuos están mal equipados para reconocer un descenso de la mortalidad, igualmente pueden serlo los grupos sociales—los conocimientos sociales no corregirán necesariamente los malentendidos individuales. Esta nota habla de las limitaciones perceptuales que pueden atrasar el reconocimiento de la mortalidad en descenso y examina las consecuencias para el comportamiento demográfico en tres áreas: la atención de salud moderna, el control de la fecundidad, y la escolaridad infantil.
SAJEDA AMIN is Associate, Policy Research Division, Population Council.

ALAKA MALWADE BASU is Senior Research Associate, Cornell University, Ithaca.

JOHN B. CASTERLINE is Senior Associate, Policy Research Division, Population Council.

PARTHA DASGUPTA is Frank Ramsey Professor of Economics and Chairman, Faculty of Economics and Politics, University of Cambridge; and Fellow, St. John’s College, Cambridge. He is a member of the Advisory Board, Beijer International Institute of Ecological Economics, Stockholm.

MARK R. MONTGOMERY is Senior Associate, Policy Research Division, Population Council, and Professor of Economics, State University of New York at Stony Brook.

STEVEN W. SINDING is Professor of Clinical Public Health, Heilbrunn Center for Population and Family Health, Mailman School of Public Health, Columbia University.

SUSAN COTTS WATKINS is Professor of Sociology and Associate, Population Studies Center, University of Pennsylvania.
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Richard E. Bilsborrow
Ann Blanc
John Bongaarts
Martin Brockerhoff
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Rodolfo A. Bulatao
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William P. Butz
Mayra Buvinic
Bruce Caldwell
John C. Caldwell
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