

Understanding Fertility Transition: Back to Basics

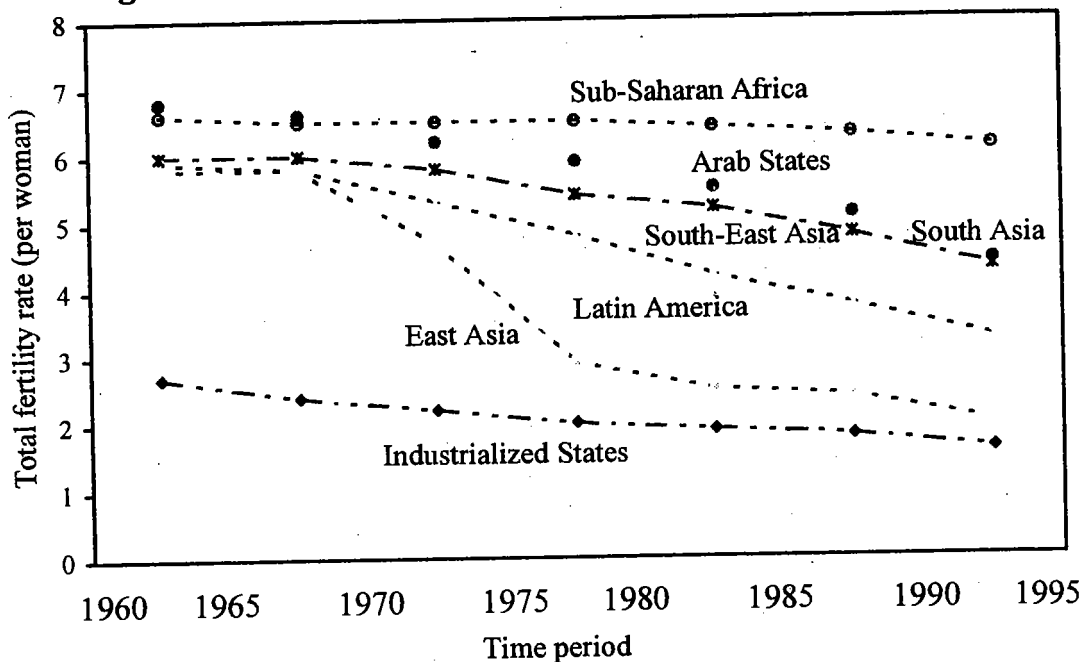
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Introduction

Despite a huge investment of research funds over the past 30 years, there has been remarkably little progress towards an agreed theory of fertility transition. As demographic trends unfold, the gulf between certain dominant explanatory models and the raw evidence widens. This attempt to present a framework within which some real progress can be made towards a fuller understanding of the shift from high to low fertility thus starts with a description of what has happened to levels of childbearing in developing countries over the past 35 years. As will be shown, there are many obvious lessons to be drawn from a straightforward description.

Fertility Trends in Developing Countries, 1960-1990

Figure 1 summarizes trends in fertility over the period 1960-1995 for major developing regions. The chosen indicator of fertility is the familiar total fertility rate, a conversion of period age specific rates into implied lifetime numbers of births per woman. The data source is the United Nations Population Division. Many of the fertility estimates published by the United Nations are based on defective data and, in other cases, amount to little more than informed guesswork. However, there exists no superior international compilation of relevant information and the broad picture is undoubtedly valid.

Figure 1 Trends in total fertility

The early 1960s is an appropriate starting point for a review of fertility trends in developing countries. Prior to 1960, falls in fertility were very uncommon, being confined to a few city states and more developed islands. In 1960, total fertility rates in all eight regions considered here were contained within a rather narrow span of 5.8 to 7.0 births per woman. These levels are considerably higher than estimates for historical populations, which typically range from 4.0 to 6.0 births. It appears probable that widespread increases in fertility may have occurred in the first half of this century, as argued, for instance, by Dyson and Murphy (1985). Fertility levels were highest in East Africa and the Arab states of North Africa and Western Asia, and lowest in East and South-east Asia, primarily because of late marriage ages. Fertility declined first in Latin America. Leaving aside Argentina and Uruguay, which rightly belong to the earlier European fertility transition, Guzman (1993) dates the onset of decline to be in the 1960s for all countries of continental Central and South America, except Bolivia and Mexico, where it occurred in the early 1970s. Despite this remarkable synchronicity, the pace of decline varied considerably and, by the early 1990s total fertility ranged from over 5.0 births in Guatemala, to less than 3.0 in Brazil, Panama, Argentina, Colombia, Chile and Uruguay. No state in Latin America has yet reached replacement level fertility.

The immense diversity of Asia precludes any simple generalization about fertility transition in that region. However, analysis in terms of three sub-regions, East, South-east and South, mitigates the problem. East Asian trends (excluding Japan) are dominated by China and Figure 1 clearly shows the steep decline of the 1970s, followed by the relative stability of the 1980s. A 1992 survey conducted by the State Family Planning Commission suggests that a further sharp decline in fertility may have started in 1989. Contrary to the expectations of most experts on China, there was a further tightening of population policy at this time with a renewed emphasis in rural areas on a 4-year gap between first and second births, followed by sterilization. In Sechuan province, with a population of over 100 million, a one-child policy is being strongly enforced in the more prosperous, densely settled rural areas. It is now possible that total fertility in China is about 2.0 births or even lower.

Fertility in South Korea has fallen even further than in China and has been below replacement level for about a decade, giving rise to concerns about a future shrinkage of the labor force and rapid population aging. Since the late 1960s, the government has had a strong population control policy. It developed an extensive network of services and made considerable use of financial inducements to couples to adopt contraception. By contrast the regime in North Korea, a more prosperous and heavily industrialized state at the time of partition, has been hostile or indifferent to family planning. The onset of the decline in North Korea is thought to have occurred about a decade later than in the South, but over the last 20 years, the speed of decline has been slightly greater in the North leading to a convergence at low levels. Government policies, it appears, have in this instance influenced the timing of transition but not its medium-term outcome.

In South-east Asia, the onset of fertility decline coincides with that in East Asia but the pace of change has been more modest and total fertility was around 3.4 births in the early 1990s. This regional average masks considerable inter-country variability. Not surprisingly perhaps, period fertility is below replacement level in Singapore and is fast approaching this level in Thailand. The Indonesian regime has shared with the Thai government a strong commitment to reducing population growth and now records a fertility level of about 3.0 births.

There follows a group of countries—the Philippines, Vietnam, Malaysia, Myanmar and Cambodia—where the current level of childbearing is thought to lie in the range of 3.5 to 4.5 births. This group encompasses a huge diversity in standards of living and variation in population policies. Fertility declines began early in the Philippines and

Malaysia, both rather advanced socially and economically in the 1960s compared to other countries in the region; but levels of childbearing almost plateaued for a decade or more before resuming a downwards path in the 1990s. In the Philippines, the strong opposition of the Roman Catholic church to 'artificial' means of birth control has prevented successive governments from creating comprehensive family planning services while, in Malaysia, policies of population containment were reversed in the mid-1980s towards a much more expansionist vision of future population size. Fertility among the Malays actually rose in the 1980s though that of the Chinese and Indian communities continued to decline.

Demographic analysis of South-east Asia thus demonstrates vividly that simple generalizations about the socioeconomic determinants of fertility are unwarranted. For instance, high material and educational standards in Malaysia and the Philippines have not yet been translated into small family sizes. In 1960, adult literacy in the Philippines was 72 percent in contrast to 39 percent in Indonesia, and income per head estimated to be US\$230 compared to \$121 in Indonesia. There was also a large difference in life expectancy: 51 compared to 41 years. Yet fertility in the early 1990s was nearly one birth higher in the Philippines than in Indonesia.

South Asia, comprising the Indian sub-continent and extending west as far as Iran, contains about 20 percent of the world's population and represents the greatest numerical concentration of poverty. Fertility estimation in this region remains a highly contentious matter. In Iran, for instance, the UN estimates fertility in the early 1990s to be about 5.0 births though a recent analysis puts it at 3.5 births in 1993, which would represent a fall of nearly 50 percent in a decade (Ladier-Fouladi, 1996). In Pakistan and Nepal, recent surveys show steadily rising levels of contraceptive use. Interpretation of Pakistan's demographic data is controversial, but it is probable that total fertility has fallen from about 7.0 births in the early 1980s to under 6.0 births in the mid-1990s. In Nepal, a much poorer and less urbanized country, the level of childbearing is markedly lower than in Pakistan. The 1996 Family Health Survey indicates a total fertility of 4.6 births.

No discussion of India's fertility can ignore variations between states. In the four largest northern states—Madhya Pradesh, Rajasthan, Bihar and Uttar Pradesh—which together comprise nearly 40 percent of India's population, fertility has declined modestly with births per woman still in the range of 3.6 to 4.8 according to the 1992/93 National Family Health Survey. At the other extreme are the southern states of

Kerala and Tamil Nadu, where fertility is almost at replacement level. This north-south divide in fertility has been attributed to a gradient in the status of women (Dyson and Moore, 1983). Certainly, there is a strong relationship between female literacy and fertility at the state level.

The most unexpected demographic development in South Asia has taken place in Bangladesh. This country possesses none of the features thought to be conducive to fertility transition. It is predominantly rural, has low levels of adult literacy and school enrollment and still has high child mortality. Nevertheless, fertility declined in the 1980s by at least 30 percent from traditional levels of about 7.0 births per woman. The UN estimate for 1990-95 is 4.7; the most recent survey, conducted in 1996/97, indicates that 49 percent of couples are practicing contraception and that fertility may be well under 3.5 births. This steep decline represents a serious challenge to most theories of transition. Indeed, a poverty-induced reproductive change appears more plausible than a development-induced one. Yet even this thesis can muster little empirical support. Fertility decline has been rather even across economic strata and there is thus no obvious link between reproductive behavior and extreme poverty of landlessness.

UN estimates for East, West and Central Africa show constant high fertility over the entire 30-year span. For West and Central Africa, this picture may be correct. However, there is evidence of incipient declines among younger women in Senegal, south-west and south-east Nigeria and Ghana. But other countries with recent relevant evidence still record unchanged levels. The latter include Togo, Mali, Liberia and Cameroon. The UN portrayal of East Africa, however, is somewhat misleading; the impression of constant high fertility is the result of upwards adjustments of estimates for Ethiopia and Uganda that offset declines in Kenya and Zimbabwe. The change in Kenya is remarkable. In the late 1970s, surveys in Kenya depicted a highly pronatalist society. Total fertility was about 8.0 births per women, only 16 percent of currently married women reported that they wanted to have no more children and only 7 percent were using contraception. Only ten year later, little short of a reproductive revolution had taken place. Fertility had fallen to about 5.5, over 30 percent were practicing contraception and, perhaps most significantly, the proportion claiming to want no more children had risen to 49 percent.

However, Kenya and Zimbabwe are not, as so often is claimed, in the forefront of fertility transition in sub-Saharan Africa. That label rightly belongs to the black population of South Africa. According to

the results of the most recent survey, total fertility among the black population was about 4.6 in the period 1987-1989 and about 50 percent of currently married women were practicing contraception. Moreover, the decline is a long-standing one that may have begun as early as the 1960s. Other countries in Southern Africa—Botswana, Swaziland, and Namibia—have also experienced declines though not on the scale of South Africa.

Table 1 shows estimates of contraceptive use in sub-Saharan Africa over the past 25 years. The overall impression is clear. The use of birth control is rising rapidly throughout East and Southern Africa

Table 1 Percentage of currently married women using any method of contraceptive

Region and Country	Period				
	1975-79	1980-84	1985-89	1990-94	1995-
East & Southern					
Eritrea					8
Ethiopia			4		
Kenya	7	17	27	33	
Uganda			5		15
Rwanda		10		21	
Burundi			9		
Malawi		7			22
Zimbabwe		38	43	48	
Zambia				15	26
Botswana		28	33		
Swaziland			21		
South Africa (Black population)			47		
Tanzania			10		18
Namibia				29	
Madagascar				17	
West & Central					
Mali			11		7
Niger				4	
Senegal	4		5	7	
Liberia			6		
Cote d'Ivoire		3		11	7
Ghana	10		13	20	
Togo			12		
Benin		9			
Nigeria		5		6	
Cameroon	2			16	
Guinea				5	
Burkina Faso				8	

but is rising much slower elsewhere in the continent. Until recently, many population experts were profoundly pessimistic about the prospects of fertility decline in sub-Saharan Africa and maintained that uniquely pronatalist features of culture and social organization in the region might buttress high fertility regimes until a relatively late stage of socioeconomic development. Events of the 1980s and 1990s have demonstrated that reproductive behavior in that region is not as immutable as previously thought. Indeed it appears likely that much more widespread decline will take place in the near future in East and Southern Africa and will begin to take root in Central and Western Africa.

The final developing region to be considered is North Africa and Western Asia, comprising most of the Arab states, plus Israel and Turkey. The range of living standards is very wide. At one extreme are the United Arab Emirates, Kuwait and Saudi Arabia—classified as high-income countries. At the other end are Sudan and Yemen with annual incomes per head of less than US\$500. In the region as a whole, fertility has fallen by about 30 percent over the last 30 years, from 6.8 to 4.7 births. The onset and depth of decline, however, has little obvious connection with wealth or degree of urbanization. Recent results from the Gulf Child Health Survey program confirm that total fertility remains high in Saudi Arabia (6.5), among the indigenous population of Kuwait (6.5) and in the United Arab Emirates (5.9) (Farid, 1993). Conversely, fertility decline started earlier and has advanced further in countries with modest standards of living such as Egypt, Tunisia and Morocco, where total fertility lies within the range of 3.4 to 4.4. In the Arab world, the imprint of divergent population policies is clearly evident. Egypt, Tunisia and Morocco are among the few Arab countries where support for family planning has been unequivocal. Conversely, many other Governments have welcomed the prospect of expanding population—in some cases, because it implies a lessening dependence on imported labor—and have been hostile to the promotion of family planning. This factor goes some way to explaining the persistence of high fertility in affluent, highly urbanized and increasingly educated countries.

This descriptive review of what has happened to fertility leads to a number of important conclusions:

1. There is clearly no economic or social threshold that societies have to cross before fertility levels start to decline. Family sizes have fallen in affluent and in very poor countries; in settings where the vast majority of the adult population has received formal schooling and

where most adults are illiterate; in countries where women participate in public life and paid employment and in those where women are still largely excluded from public life.

2. Equally, it appears true that fertility has already fallen or is about to fall regardless of religious or cultural features of societies. For instance neither Islam nor the distinctive characteristics of African social organization act as absolute barriers to fertility transition.

3. Public policies to curb rapid population growth clearly have not been a necessary precondition for fertility decline. The level of childbearing has fallen against a background of government hostility or indifference to the provision of family planning services (e.g., Myanmar, North Korea). More commonly, spontaneous declines were already underway before the initiation of government population policies (e.g., Thailand, many countries of South America). In other countries, however, family planning programs may have had a crucial influence on the timing and speed of decline.

4. Within the next decade, it seems highly probable that all countries of the world, without exception, will have entered the phase of fertility decline. Thus, over a span of 40 to 50 years, huge changes in childbearing behavior will have swept the entire developing world. To contemporary observers, impatient for evidence of change, this may seem an extended span. Seen against the context of human history, however, it is a remarkably short period of time.

Mortality-Fertility Links: A Brief Synopsis of Earlier Theory and Research

The last conclusion is the most important one because it implies that we should be searching for some underlying common cause for what is about to become a global phenomenon. As suggested earlier, the identification of a common economic, social or cultural condition (or set of conditions) that underlies fertility decline appears to be doomed. But one important feature that does unite all developing countries is the steep falls in mortality that have given rise to the present era of rapid population growth.

The link between mortality decline and fertility decline was an essential part of classical expositions of demographic transition. All visual representations of transition show a fall in the death rate preceding a fall in the birth rate. Essentially two interrelated ideas lie at the heart of this sequence. The first, which may be termed the modernization thesis, is that technological advance initially impinges on

mortality. No society seriously resists the prospect of higher survival and thus few barriers impede or deflect the impact of technological advance on this domain of human life. Reproduction, however, is a different matter. In all societies, procreation is subject to an array of moral beliefs and social sanctions. Many of these act to sustain high levels of childbearing. Hence, the impact of technological advance is initially blunted by opposing forces and there is a lag in its effect on fertility.

The second idea posits a more direct influence of mortality decline on fertility. In high mortality countries, it is argued, couples have to give birth to large numbers of children simply to ensure that a few will survive to form the next generation. When mortality declines, this reproductive imperative is undermined. After a lag, couples realize that fewer births are needed to achieve some specified desired number of surviving children and reproductive behavior is adjusted accordingly.

These basic ideas were subsequently elaborated at the individual and family level. As evidence about the effect of lactation on ovulation accumulated, it was realized that one pathway linking mortality to fertility was purely physiological. An early child death interrupted breastfeeding and thus allowed an earlier return of ovulation than otherwise would have been the case. A distinction was made between the replacement effect of child loss on family formation and the insurance effect. The first pathway represents the tendency of couples to react to child death by bearing an additional child to replace the dead one. The second pathway refers to the apparent need of parents to anticipate the possibility of death of their children by bearing more than they want.

Research interest in mortality-fertility links flourished in the 1960s and 1970s (e.g., Heer, 1966; Preston, 1978) but has attracted little attention in the past 15 years. There are several reasons for this lapse of interest:

1. The Princeton study of the European fertility transition demonstrated that the expected sequence of steep mortality declines followed by falls in fertility did not hold universally. In some countries (e.g., France), fertility decline appeared to precede the mortality transition. In others (e.g., Norway), there was an exceptionally long lag between improved survival and any fertility response. In yet others (e.g., England), declines in childhood mortality and fertility occurred in parallel.

2. Empirical research on the physiological and replacement links between child deaths and reproductive behavior revealed rather

modest effects. Table 2 illustrates the magnitude of the physiological effect of a neonatal death on the following birth interval length for a number of non-contracepting populations in the 1970s. While an appreciable impact of death on birth interval length is apparent, it is also clear that, given prevailing levels of infant mortality in the 1970s, the purely physiological effect is not of major significance. Similarly, in a

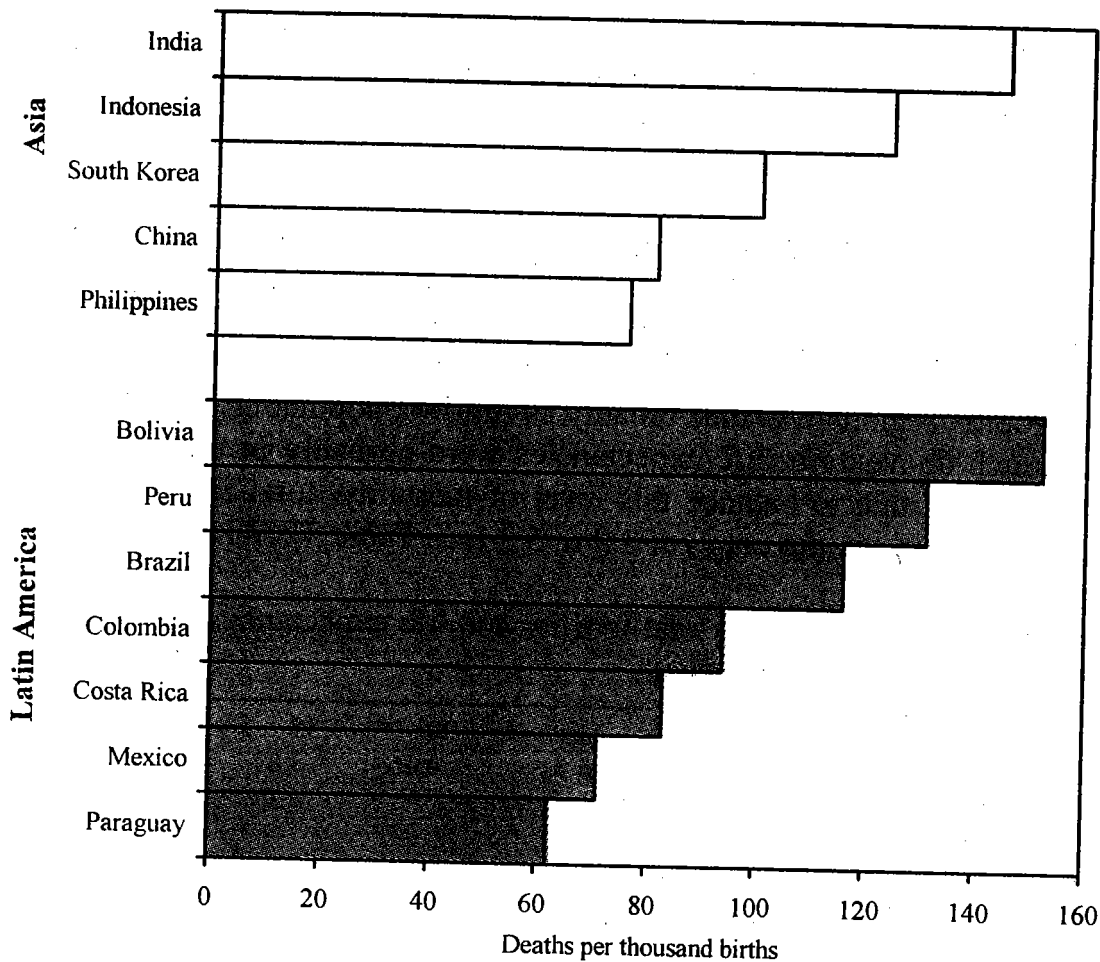
Table 2 Physiological effects of neonatal mortality on median interval between birth 3 and birth 4 (non-users of contraception)

Country	Survived		
	Died	12+ Months	Difference
Colombia	15.0	23.3	8.3
Indonesia	24.1	30.3	6.2
Malaysia	17.5	24.3	6.8
Pakistan	19.8	29.1	9.3
Peru	19.4	25.8	6.4
Sri Lanka	21.2	28.6	7.4

review of evidence concerning the replacement effect, Preston (1978) concluded that parents who had lost a child were only 20-30 percent more likely to proceed to the next parity than parents who had not lost a child. Again, the demographic significance of this type of replacement behavior was modest.

3. While aggregate or national-level studies have consistently found life expectancy, along with literacy levels or education, to be the strongest correlates of fertility level or fertility decline (e.g., Cutright, 1983), there is no straightforward or mechanical relationship between the two. Figure 2 derived from work by Casterline (1993) and Guzman (1993) illustrates this point for Asian and Latin American countries. At the onset of fertility transition, the level of infant mortality ranged from 150 deaths per 1000 births to 50.

4. Throughout much of the last 20 years, rather narrow economic theories of fertility decline held an intellectually dominant position. The following stereotype became entrenched. In traditional societies, parental demand for children was high because utility of children was high. Fertility decline was seen primarily as a response to structural forces that reduce the benefits of children to parents and raise their costs. Within this framework, there is no necessary link between mortality and fertility. Parents may continue to bear many children, even when child mortality is low, provided that the perceived cost-benefit calculation is still favorable to childbearing.

Figure 2 Infant mortality at start of fertility decline, 12 countries

Towards a Restatement of the Importance of Mortality

Decline in Fertility Transition Theories

The first step in this attempt to reappraise fertility transition theory and to reinstate the crucial underlying role of mortality decline is to clarify the nature of pre-transitional fertility. A valid understanding of pre-transitional fertility is essential for any attempt to explain the transition to low fertility.

As evidence about fertility in historical societies grows, the stereotype of high fertility buttressed by high demand for children is being steadily eroded. This evidence has been recently summarized by Wilson and Airey (1997). What emerges clearly from their review is that human fertility in historical societies for which evidence is available (e.g., China, Japan, many European countries) was moderate-typically in the range of 4.5 to 6.0 births per woman. Clearly there must

have been very powerful checks on fertility, either through restrictions on marriage (the prime mechanism in Western Europe) or via checks on childbearing within marriage (e.g., prolonged lactation, abstinence, abortion). Together with evidence that infanticide, child neglect and abandonment were common features of many traditional societies, the fact that fertility levels were so low over many centuries largely destroys the myth that pre-transitional societies were strongly pronatalist. Moreover, the very slow growth rates of most human populations until the modern era implies that human societies are adapted to no more than two surviving children on average per woman.

The demographic situation at the start of this century in developing regions was thus broadly as follows: population growth was not much above zero, life expectancies were probably in the range of 25-35 years and, to balance this level of mortality, total fertility rates must have been in the range of 3.9 to 5.3 (see Table 3). What happened

Table 3 Combinations of total fertility and life expectancy at birth that produce zero population growth

Life expectancy	20	25	30	35	40
Total Fertility	6.64	5.31	4.46	3.87	3.10

Source: Wilson and Airey (1997).

thereafter is familiar. Some developing countries experienced a gentle downwards drift in mortality in the first half of the century, but all countries saw dramatic improvements following the second world war. Table 4 illustrates this point. It shows percent distributions and mean numbers of surviving child for women aged 40-44 interviewed in 19 World Fertility Survey enquiries of the late 1970s. These women would have experienced their peak fertility some 20 years earlier, in the late 1950s.

Though of course some of the surviving children recorded in these surveys were destined to die subsequently, the vast majority survived because they had already passed through the high risk years of infancy and early childhood. The table shows that this cohort of women had averages of between four and six surviving children. The proportions childless are low, typically below five percent, but the proportions with at least six surviving children range from 40 to nearly 60 percent with only three exceptions. It should be stressed that this group of 19 countries includes some (e.g., Bangladesh, Nepal, Pakistan, Peru) that had exceptionally high childhood mortality in comparison with most developing countries at that time.

Table 4 Percent distribution of ever-married women aged 40-44 according to number of surviving children

Region and Country	Children Surviving				Mean
	0	1-2	3-5	6+	
Asia and Pacific*					
Bangladesh	4.4	12.0	40.4	43.2	5.1
Fiji	4.6	11.9	31.3	52.2	5.6
Indonesia	6.7	21.1	43.6	28.7	4.1
Jordan	2.7	4.9	16.4	76.0	7.2
Korea	1.8	11.9	59.2	27.1	4.5
Malaysia	3.2	12.8	35.1	48.8	5.4
Nepal	6.3	21.8	49.5	22.5	3.9
Pakistan	5.5	10.7	40.4	43.4	5.0
Philippines	2.7	9.4	31.0	57.0	6.0
Sri Lanka	5.0	16.7	37.8	40.6	4.9
Thailand	3.2	14.0	38.0	44.7	5.1
Caribbean and Latin America					
Colombia	3.9	13.8	31.8	50.6	5.7
Costa Rica	2.3	13.3	33.9	50.9	6.0
Dominican Republic	7.3	11.1	32.1	49.6	5.5
Guyana	8.3	11.2	27.1	53.2	5.7
Jamaica	8.1	20.7	27.6	43.8	4.9
Mexico	3.9	12.7	26.1	57.3	6.0
Panama	3.8	13.5	39.0	43.6	5.3
Peru	2.8	11.2	41.9	44.1	5.2

*Including West Asia.

These World Fertility Survey data demonstrate vividly that by the late 1950s a revolution in child survival had swept the developing world, doubling or trebling numbers of surviving children from the historical norm of two per family. Initially this improvement in survival may have been greeted with enthusiasm but sooner or later the negative consequences became apparent. Nearly all careful micro-economic studies have come to the conclusion that children consume more than they produce until at least the teenage years, even in agrarian societies (e.g., Mueller, 1976; Stecklov, 1997). Here surely is the underlying fundamental cause of the Third World fertility revolution and the origin of the latent demand for fertility regulation.

The steep mortality declines of the post second world era had another important consequence, rapid population growth, which in turn gave rise to massive international investment in the promotion of birth control. There is not space here to discuss the role of population policies and family planning programs in fertility transitions. As mentioned

earlier, they are clearly not a necessary or perhaps a sufficient cause of fertility decline. Nevertheless the balance of evidence suggests that they have played a key role in triggering demographic change in many Asian societies. More importantly but less often discussed is the role of government or official opposition to birth control in delaying the onset of fertility change.

Conclusion

The central message of this paper is that, in their search for explanations of fertility declines in developing countries, most population scientists have overlooked the obvious and have prematurely discarded classical theories that contain the key to a better understanding. In particular, the role of massive increases in life expectancy as a precondition for fertility transition in developing countries needs to be brought again to the forefront of explanatory frameworks. We need to return to basics.

Of course, I am not claiming that prior mortality declines offer a complete and satisfying explanation for the timing and course of fertility transition in particular countries. Some societies have been relatively quick to respond to the improved mortality regime; others very slow. Why these variations in the fertility response to mortality decline exist is an interesting but as yet unresolved question. I very much doubt, however, whether a standard or universal answer exists. It is much more likely that explanations of the precise timing, nature and speed of fertility transitions need to be sought on a country-by-country basis. In this search, the correct question to ask is not "Why did fertility fall?" but rather "What forces—economic, political, cultural, social—acted to delay the inevitable fertility response to improved survival?"

References

- Casterline, J. 1993. "Fertility transition in Asia." In *The Onset of Fertility Transition in Sub-Saharan Africa*. Eds. T. Loco and V. Hertrich. Liege: Ordina.
- Cutright, P. 1983. "The ingredients of recent fertility decline in developing countries." *International Family Planning Perspectives* 9: 101-109.
- Dyson, T. and M. Moore. 1983. "Kinship structure, female autonomy and demographic behavior." *Population and Development Review* 9: 35-60.
- Dyson, T. and M. Murphy. 1985. "The onset of the fertility transition." *Population and Development Review* 1: 399-440.

- Farid, S. 1993. "Family planning, health and family well-being in the Arab world." Paper presented at Arab Population Conference, Amman.
- Guzman, J. M. 1993. "The onset of fertility decline in Latin America." In *The Onset of Fertility Transition in Sub-Saharan Africa*. Eds. T. Loco and V. Hertrich. Liege: Ordina.
- Heer, D. M. 1966. "Economic development and fertility." *Demography* 3: 423-444.
- Ladier-Fouladi, M. 1996. "La transition de la fecondite en Iran." *Population* 6: 9101-1127.
- Mueller, E. 1976. "The economic value of children in peasant agriculture." In *Population and Development: The Search for Selective Interventions*. Ed. R. Ridker. Baltimore: The Johns Hopkins University Press.
- Preston, S. H. 1978. "Introduction." *The Effect of infant and Child Mortality on Fertility*. Ed. S. H. Preston. New York: Academic Press.
- Stecklov, G. 1997. "Intergenerational resource flows in Cote d'Ivoire." *Population and Development Review* 23: 525-554.
- Wilson, C. and P. Airey. 1997. "What can transition theory learn from the diversity of low-growth demographic regimes?" Paper presented at annual meeting of Population Association of America, Washington DC, March 27-29.