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FERTILITY TRANSITION IN THE DEVELOPING WORLD: PROGRESS OR STAGNATION?

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Abstract

Over the past quarter century fertility has declined rapidly in many developing countries. Projections typically assume that this trend will continue until the replacement level is reached. However, recent evidence suggests that ongoing declines may have slowed or stalled in a number of countries. This study examines the pace of recent fertility changes in the developing world to determine whether ongoing transitions are accelerating or decelerating. Levels and trends in six indicators of reproductive behavior are examined using data from DHS surveys. The main finding is that the average pace of decline in fertility is lower ca. 2000 than in the mid 1990s. A deceleration of the pace of decline is particularly evident in sub-Saharan Africa.

In recent decades fertility has declined at a rapid pace in a majority of developing countries. The total fertility rate of the developing world as a whole dropped from 6.0 births per woman in the late 1960s to 2.9 in 2000-2005 (United Nations, 2005). Declines have been most rapid in Asia, North Africa and Latin America where social and economic development has also been rapid. Sub-Saharan Africa has also experienced significant declines despite lagging development. On average, these changes occurred more rapidly than demographers expected at the time. This is evident from fertility projections made in the 1970s and 1980s which were generally higher than actual subsequent trends (National Research Council, 2000). The most recent projections assume that countries that are in transition will continue their declines until fertility reaches 2.1 births per woman or below. This assumption has been incorporated into population projections made by the United Nations (2005). However, fertility in the late 1990s declined less rapidly than projected earlier in a number of countries and in a few cases fertility stalled in mid-transition (Bongaarts, 2006).

The main objective of this study is to analyze recent trends in the pace of transition in fertility and reproductive behavior in developing countries to determine whether these transitions are accelerating or decelerating. After a description of the data sources, levels and trends in six indicators of reproductive behavior are examined using regional averages of estimates from DHS surveys. This is followed by a briefer look at country level differences in the same indicators. The paper concludes with a comment on the role of socio-economic development and family planning programs in explaining observed trends.

Data

This analysis relies on data from countries with multiple DHS surveys. For 39 countries at least two such surveys are available since 1990:

-*Sub-Saharan Africa*: Benin, Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Ethiopia, Ghana, Guinea, Kenya, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Senegal, Tanzania, Uganda, Zambia, Zimbabwe.

-*Latin America*: Bolivia, Colombia, Dominican Rep., Guatemala, Haiti, Nicaragua, Peru

-*Asia/Middle East*: Bangladesh, Egypt, India, Indonesia, Jordan, Morocco, Nepal, Philippines, Turkey, Vietnam, Yemen

The dates of the surveys vary somewhat, with the latest available survey taking place around 2002 and the next to last survey around 1996 yielding an average interval of 5.7 years between surveys.

In a subgroup of 24 countries a third survey was available and the years of the three successive surveys in this subgroup averaged 1992, 1997 and 2003, respectively. The abbreviations DHS0, DHS-1 and DHS-2 will be used to refer, respectively, to the last, next to last and second to last DHS surveys. The availability of three surveys permits the examination of trends during two successive periods: the first period from ca. 1992 to ca. 1997 (between DHS-2 and DHS-1) and the second period from ca. 1997 to ca. 2003 (between DHS-1 and DHS0).

DHS surveys use standardized procedures and questionnaires for collecting demographic and health data, and estimates of various measures from different surveys are therefore highly comparable. Nevertheless, two countries, Eritrea and Rwanda, are deliberately excluded here. The Eritrea 1999 survey was conducted shortly after a war with Ethiopia and the fertility rate derived from reported births in the three years before this survey was depressed by the separation of spouses during this conflict (Blanc, 2004). Rwanda also has a history of violent conflict from internal and external wars which introduces fluctuations in fertility and mortality indicators. In addition, the 1999 surveys in Nigeria and the Dominican Republic are not used. The first country report for the 1999 survey in Nigeria presents persuasive evidence of substantial underreporting of events resulting in underestimation of levels of fertility and child mortality (National Population Commission, Nigeria, 2000). The 1999 survey in the Dominican Republic had a much smaller sample size than is typical for DHS, resulting in unusually large sampling errors. Fortunately, trends in reproductive behavior in Nigeria and Dominican Republic are available from earlier and later DHS surveys in these two countries.

To document and explain developments in different dimensions of reproductive behavior, trends in six widely used indicators are examined below:

1) Fertility as measured by the total fertility rate in the three years before the survey (TFR),

2) Contraceptive use as measured by the prevalence rate of all methods among currently married women (U),

3) Demand for contraception among currently married women (D),

4) The percent of this demand that is satisfied (S),

5) Reproductive preferences as measured by the wanted total fertility rate (WTFR)

6) The rate of unwanted childbearing as measured by the unwanted total fertility rate (UTFR).

Estimates of these indictors are taken from DHS first country reports (http://www.measuredhs.com/).

Regional levels and trends in reproductive indicators

As a population moves through its fertility transition some reproductive indicators fall (e.g. fertility and fertility preferences) and others rise (e.g. contraceptive use and demand). Each of these trends will now be examined briefly.

Fertility

Figure 1 plots regional trends in the average total fertility rate based on data for the 24 countries with three surveys in sub-Saharan Africa (N=13), Asia/N.Africa (N=6), and Latin America (N=5)[1]. For each region three observations are plotted giving estimates from successive surveys conducted ca. 1992, ca. 1997 and ca. 2003 (DHS-2, DHS-1, and DHS0). All regional estimates are calculated as unweighted averages of country estimates.

Fertility is higher in sub-Saharan Africa than in Asia/N.Africa and Latin America throughout the observed period. Fertility declines are evident in all three regions, both in the most recent period (i.e., between DHS-1 and DHS0) and in the earlier period (i.e., between DHS-2 and DHS-1). In Asia/N.Africa the downward trend is quite steady throughout the two periods, but in Latin America and especially in sub-Saharan Africa the decline is slower in the later than in the earlier period.

Contraceptive use.

The prevalence of contraceptive use among currently married women is one of the most widely used indicators of reproductive behavior and it is the principal proximate determinant of fertility. Since there is a strong inverse correlation between country estimates of U and TFR (Ross et al., 2005; United Nations 2001) one would expect fertility declines to be associated with increases in contraceptive use. This is indeed the case. Figure 2 plots the average prevalence by region for countries with three successive surveys. Prevalence is lower in Sub-Saharan than in the Asia/N.Africa or Latin America, which is as expected from the observed fertility differences. All three regions show significant and fairly steady increases in prevalence but in sub-Saharan Africa the rise is slower in the more recent period. These findings are broadly consistent with the declines in fertility observed in Figure 1.

The observed correlation between trends in fertility and contraceptive prevalence is less than perfect because of measurement error and because there are proximate determinants other than contraception that also affect fertility. Among the most important of these are the marriage pattern, the duration of postpartum infecundability (which varies with duration of breastfeeding), the level of induced abortion and the mix and effectiveness of contraceptive methods (Bongaarts and Potter, 1983). The level of contraceptive use is the dominant proximate determinant of fertility, but trends in any of these other factors influence fertility, independent of the level of contraceptive prevalence. As a result it is possible for a country to have no change in fertility while prevalence is still rising if there are offsetting effects from the other proximate determinants. An analysis of this issue is beyond the scope of this study.

Demand for contraception and its satisfaction.

Changes over time in contraceptive prevalence are attributable to changes in two factors: the level of demand for contraception and the degree of implementation of this demand. In DHS reports the demand for contraception is defined as the level of contraceptive use that would prevail if every fecund woman who wants to avoid pregnancy is using contraception. Figure 3 presents trends in regional estimates of this demand. Demand (or potential use) is higher than the level of prevalence (or actual use) in all three regions and all three surveys. This difference between demand and actual use

implies the existence of a significant unmet demand/need for contraception (Casterline and Sinding, 2000; Westoff, 2001). Figure 4 plots the percentage of women with a demand who are current users. This measure of satisfaction of demand clearly falls short of 100% in all regions, but especially in sub-Saharan Africa.

These results permit the interpretation of variation in contraceptive prevalence levels by region:

-***Sub-Saharan Africa***: Low contraceptive prevalence is due to relatively low demand for contraception and to low implementation.

-***Asia/N.Africa***: Intermediate level of demand and relatively high implementation combine to give prevalence that is much higher than in sub-Saharan Africa, but slightly lower than in Latin America.

-***Latin America***: High demand and relatively high level of implementation combine to give the highest regional prevalence rate.

Reproductive preferences : wanted and unwanted fertility

Reproductive preferences are the next link in the chain of causal factors that determine fertility. The DHS collects data for a number of preference measures including the ideal family size, wanted total fertility rate, the wanted/mistimed status of the most recent birth and the proportion of women who want to space or limit childbearing. For present purposes the wanted fertility is used because it has no major limitations and is relatively easy to interpret. The WTFR is calculated in the same way as the conventional TFR, except that births occurring after the woman has reached her desired family size are excluded from the calculation. As expected this indicator is highly and inversely correlated with the level of demand for contraception (R^2=0.82).

Figure 5 plots the average level of wanted total fertility rate by region. At the time of the latest survey the highest wanted fertility is found in sub-Saharan Africa (4.6 births per woman) which is about double the level in Asia/N.Africa (2.2) and Latin America (2.3). A notable finding in Figure 5 is that this preference measure has changed little between the two most recent surveys in sub-Saharan Africa (from 4.8 in DHS-1 to 4.7 in DHS0). The implications of this finding will be discussed in the next section. (Estimates of desired family size show very similar trends and differentials, data not shown)

Observed fertility exceeds wanted fertility in all regions and in all three surveys. The reason for this difference is that women do not have full control over their reproductive lives, resulting in an unmet need for contraception and unwanted and mistimed pregnancies and births (Bankole and Westoff, 1995). Figure 6 presents estimates of the unwanted total fertility rates by region. Regions have similar levels of unwanted childbearing around 1 birth per woman. A modest downward trend in unwanted childbearing is evident in Asia/N.Africa and Latin America, but there is little change in sub-Saharan Africa.

These results indicate that levels and trends in various reproductive indicators are broadly in accord with expectations from conventional transition theory: in all regions fertility preferences have declined leading to a rise in the demand for contraception. This rising demand together with a rising level of implementation of demand results in a rise in contraceptive use. Higher prevalence of contraception in turn reduced fertility. However, the slower pace of the transition in the most recent period in sub-Saharan Africa and to a lesser extent in Latin America is unexpected and deserves further attention.

Pace of change in reproductive indicators

Trends in reproductive indicators can be studied in greater detail by calculating the pace of change in each indictor. The pace is defined as the absolute change per year between two successive observations. For indicators that decline over time (e.g., fertility) the pace is measured as the absolute annual *decline* between surveys, while for other indicators which tend to rise over time (e.g., contraceptive prevalence and demand) the pace is calculated as the absolute annual *increase* between surveys. As a result, the pace of indicators for most countries and most intervals is positive, which facilitates interpretation and comparisons.

Figure 7 plots the average pace of decline in the TFR for two successive time periods by region. For each region the first estimate is the pace during the interval between the second to last and the next to last surveys (i.e., DHS-2 ca. 1992 and DHS-1 ca. 1997) and the second plotted pace estimate is for the period between the two most recent surveys (i.e., DHS-1, ca. 1997 and DHS0, ca. 2002). In the first period the average

pace of the TFR decline for all 24 countries was 0.085 births per woman per year. It is noteworthy that this pace is not significantly different from the average pace of decline in the developing world as a whole (0.09) between 1965 and 1995 which is plotted as a dashed horizontal line in Figure 7 (United Nations, 2005). Moreover, all regions were fairly close to this average. These results for the earlier period are therefore unsurprising and consistent with the pace of fertility decline in the developing world as a whole in recent decades.

In contrast, the pace for the most recent inter-survey interval is much lower: just 0.049 births per woman per year for the group of 24 DHS countries. The largest change occurred in sub-Saharan Africa where the pace dropped by two thirds from 0.09 between the earlier period to 0.03 births per woman per year in the later period. The substantial decline in the pace in Latin America and the small rise in Asia/N. Africa are not statistically significant.

Trends in the average pace of all six indicators are plotted in Figure 8 for all countries for the two available inter-survey periods. The TFR, WTFR and UTFR are plotted along the left axis which measures births per woman and U, D and S are plotted along the right axis and are measured in percent (of married women or of demand). The main conclusions from these results is that the pace of change has declined over time for five of the six indicators (the exception is the demand for contraception which has a low pace during both periods). This implies that a significant declaration has occurred in the rate of progress through the transition in reproductive behavior.

Table 1 presents average pace of change in each of the six indicators by region for the two inter-survey periods. The most notable findings relate to sub-Saharan Africa. During the first period from DHS-2 to DHS-1 this region's pace was comparable to that of the of the other regions. In contrast during the most recent period between DHS-1 and DHS0 the pace in all but one indicator (D) was lower in sub-Saharan Africa than in the other regions. These findings are consistent with the trends discussed in the preceding section.

Decomposition of recent pace in fertility and contraceptive use

As noted, contraceptive prevalence is determined by the demand for contraception and by the level of satisfaction of this demand. This basic relationship makes possible a simple decomposition which estimates the proportion of the pace in U that is attributable to the pace in either D or S. Table 2 (Panel A) presents the results of this decomposition by region for the most recent period for the 39 countries with two surveys. In sub-Saharan Africa the pace of demand and the pace in satisfaction contribute about equally to the pace in contraceptive use. However, in Latin America and particularly in Asia/N.Africa, the recent pace is mostly driven by improvements in the satisfaction of demand.

Similarly the pace of decline in the total fertility rate can be decomposed in the contributions of the pace of change in wanted and unwanted fertility. The results of this decomposition are presented in panel B of Table 1. In all regions and in particularly in sub-Saharan Africa declines in wanted fertility are the dominant drivers of declines in overall fertility. This finding is consistent with the absence of a significant trend in unwanted fertility shown in Figure 6.

These decomposition results may appear to be inconsistent. Why is changing wanted fertility the dominant cause of declines in fertility while the demand for contraception only plays a secondary role in determining the pace of increase in contraceptive use? Two possible explanations (aside from measurement error) are available. First, levels and trends in wanted fertility do not reflect levels and trends in the desire for birth spacing while the demand for contraception includes both limiting and spacing components. Second, in the absence of changes in contraceptive use (and other proximate determinants) a decline in wanted fertility would result in a rise in unwanted fertility. The reason for this is that with a smaller desired family size women would reach the end of their desired childbearing at an earlier age, thus leaving a longer period afterwards during which they are at risk of having unwanted births. This implies that when fertility preferences are declining the level of satisfaction of demand has to go up just to prevent a rise in unwanted childbearing.

Country level variation

The preceding discussion focused on regional trends. Similar analyses at the country level are too voluminous to be presented here, but a brief comment on country level variations provides useful insights.

The averages presented in the preceding figures conceal wide variation in the levels and trends of fertility and other indicators among individual countries. For example, the most recent TFR ranges from a low of 1.9 in Vietnam to a high of 7.2 in Niger. Similar wide divergence in levels and trends exists for the other indicators. Since the deceleration of fertility trends is of special interest, country level variation in the pace will be examined at the country level.

Table 3 lists the 39 countries with at least two DHS surveys that have and have not experienced a significant decline in fertility in the most recent inter-survey period. Among this set of 39 countries 17 show no significant fertility decline. The most notable finding is that two thirds (14/21) of the sub-Saharan countries show no significant decline. This is a much larger proportion than in Asia and Latin America. Fertility declines occurred in all but one Asian/N.African country and in a majority of Latin American countries.

The absence of fertility decline is often observed in pre- and post- transitional countries but it has been a rare occurrence in countries that are in transition. The absence of a decline in countries in transition is usually referred to as a *stall* in fertility. A stall implies that an ongoing fertility transition is interrupted by a period of no significant change in fertility before the country reaches the end of the transition.

To identify the stallers among the 17 countries with no significant fertility decline in Table 3 it is necessary to eliminate pre- and post-transitional countries in which the absence of a decline is not a stall. Countries are generally considered post-transitional when their fertility reaches the replacement level or below. Only one country falls in this category: Vietnam, which had a TFR of 1.9 births per woman for the last survey. The identification of pre-transitional countries is less straightforward. Studies of historical populations often used a fertility decline of 10% from pre-transitional levels as an indication of the onset of the transition. Unfortunately, this approach cannot be used here because historical trends are lacking and the level of pre-transitional fertility cannot be

determined accurately. Instead, it will be assumed here that a country is pre-transitional if the contraceptive prevalence is ten percent or less. By this criterion, four countries are pre-transitional at the time of the last survey: Chad, Guinea, Mali, and Niger. (Pre- and post-transitional countries are in parentheses in Table 3.)

After excluding the pre- and post-transitional countries 34 of the 39 countries remain and these will be considered to be in transition. Among these transitional countries 13 (i.e., 38 percent) are in a stall, i.e., they did not experience a significant fertility decline between the two most recent surveys. More than half the sub-Saharan countries in transition are in a stall (10/17). It should be noted that by the definition of a stall used here, a few transitional countries with very small TFR declines (less than about 0.2 births per women) are considered to have stalled because these declines are too small to be statistically significant.

This examination of country level pace of fertility decline was repeated for the earlier interval between DHS-2 and DHS-1. During this period 8 of 23 countries had no significant decline: Bangladesh, Burkina Faso, Dominican Republic, Egypt, Indonesia, Madagascar, Senegal, and Tanzania. The proportion without a decline is lower in the earlier than in the later inter-survey interval. This is consistent with the earlier finding that the pace of fertility decline has slowed down. It is noteworthy that nearly all countries which failed to decline in the earlier period did have a decline in the next period. This is consistent with the finding that there is no significant correlation between the pace of decline during one interval and the pace in the next.

Why transitions in reproductive behavior are stalling

Still further back in the chain of causation are the background factors that drive fertility transitions. Two types of such factors can be distinguished: the first relate to socioeconomic development and the second to family planning programs. A detailed examination of the role of these ultimate determinants of reproductive behavior is beyond the scope of this study, but a brief comment is in order.

The transition towards small desired family size is conventionally considered to be largely driven by changes in social and economic conditions and mortality declines (Bulatao and Lee, 1983; Caldwell, 1982; Cleland 2001, Easterlin 1975, Notestein, 1953).

These changes lead to a reduction in fertility preferences as the cost of children rises and their benefits decline. The desire for smaller families in turn leads to a growing demand for contraception. Fertility falls when couples act to satisfy this demand and this decline is facilitated by family planning programs that reduce the costs of using contraception (broadly defined to include social and psychological costs). The preceding sections have documented trends in fertility, contraceptive use and preferences that are consistent with this theory.

The first problem encountered in any analysis of the impact of socio-economic factors is the lack of agreement on which dimension of development is the main cause of changes in reproductive behavior. GDP per capita, child mortality, urbanization, literacy, women's labor force participation, women's education, school enrolment are all examples of variables that have been proposed as explanatory variables. A widely used composite variable is the so-called human development index (HDI) which is derived from GDP per capita (PPP), life expectancy, and literacy and enrolment rates (UNDP, 2005). This variable is selected here largely as a matter of convenience to illustrate a few basic relationships. Estimate of the HDI in 2003 are available for all 39 countries used in this study (UNDP, 2005). As expected, it is highly correlated with the wanted total fertility rate (R^2=0.73) , the demand for contraception (R^2=0.71) and the level of satisfaction of demand (R^2=0.72) at the time of the most recent survey.

Given this association, which is probably in large part causal, it is plausible to assume that a rapid pace of change in the HDI is associated with a rapid pace of fertility change. Since it is also likely that socioeconomic change affects fertility with some lag it is not simple to examine this assumption at the country level. However, an examination of regional trends in the HDI provides some useful insights. Figure 9 plots the average HDI of countries for which this index is available from 1980 by region (unweighted average). Throughout this period the average HDI is highest for Latin America, and lowest for sub-Saharan Africa. Since 1980 the average HDI has risen steadily in Latin America and Asia/N.Africa. In contrast the HDI in sub-Saharan Africa grew at only a slow pace until the around 1990 and then stalled. It is likely that this lack of recent progress in development in sub-Saharan Africa is partly responsible for the very slow pace of reproductive change in the most recent inter-survey interval.

The second background factor is the presence and strength of a family planning program. The aim of this intervention is to reduce the unmet need for contraception by providing access to and information about contraceptive options. Some family planning programs also advocate wider birth spacing and smaller families which may accelerate the rise in demand for contraception. Since the 1960's many governments have implemented family planning programs with the active assistance and encouragement of the international community. The precise contribution of these programs cannot be measured, but there is no doubt that they have helped raise contraceptive use and lower fertility (Bongaarts 1997, Caldwell et al., Cleland et al, 2006). Unfortunately, since the mid-1990s attention and resources allocated to these programs have declined in many countries. This reversal may be attributed to several factors (Blanc and Tsui. 2005, Cleland et.al 2006). First, the steep fertility declines documented in the 1970s and 1980s in many developing countries, including poor ones such as Bangladesh, encouraged policy makers to believe that further efforts were no longer urgent and that the completion of transitions would happen without active intervention. Second, the demand for the provision of a broad range of reproductive health services advocated by the ICPD appears to have lowered the priority assigned to family planning. Third, the resources needed to address the AIDS epidemic in sub-Saharan Africa compete with the resources available for family planning. Moreover some government officials consider a higher birth rate desirable to compensate for the high AIDS death rate.

Conclusion

Nearly all developing countries had high fertility in the 1950s. Since then most of these countries have experienced substantial declines and a growing number have reached replacement fertility. The record of fertility trends in the developing world suggests that once a fertility decline is underway it often continues without significant interruption until the replacement level of around two births per woman is reached. Stalls in mid-transition before the 1990s have been rare (e.g., in Argentina, Chile and Costa Rica). As a result many analysts assume that the same pattern of uninterrupted transition will be observed in developing countries in which the transition is still underway.

To shed light on these trends this study examined trends in fertility and other reproductive indicators since the early 1990s based on data from the most recent DHS surveys. The following conclusions emerged:

First, the direction of average trends in various reproductive indicators for regions (but not necessarily for individual countries) are broadly in accord with expectations from conventional transition theory. In all regions fertility and family size preferences declined and the use of and demand for contraception rose.

Second, the average pace of fertility decline slowed significantly from the first (ca, 1992 to ca 1997) to second (ca 1997 to ca 2002) observed interval between surveys. This deceleration is most evident in sub-Saharan Africa, relatively small in Latin America and non existent in Asia/N.Africa.

Third, the average pace of change in four other reproductive indicators also decelerated (contraceptive use, satisfaction of demand, and wanted and unwanted fertility) These decelerations in pace were also most evident in sub-Saharan Africa. The average pace of change in demand for contraception did not change significantly, but it was low throughout.

Fourth, an examination of the fertility trend in individual countries in the most recent inter-survey period showed that fertility declined significantly in most countries in Asia/N.Africa and in Latin America. In contrast, two thirds of countries in sub-Saharan Africa experienced no significant decline and half of the countries in transition are in a stall.

Fifth, the level of socio-economic development as measured by the Human Development Index for Asia/N.Africa and Latin America improved steadily and substantially since the 1980s. In contrasts, the HDI in sub-Saharan Africa grew only slowly until around 1990 and then stalled. The recent absence of improvements in average socio-economic development is a plausible contributing factor to the deceleration and stalling of the fertility transition in many sub-Saharan countries.

Six, the stalls are likely attributable in part to the lower priority assigned to family planning programs in recent years. Reinvigorating these programs is a concrete and effective way to restart fertility declines in countries with stalled transitions.

The unexpected substantial deceleration of the pace of fertility decline in sub-Saharan Africa has implications for future demographic trends, because minor variations in fertility trends have large effects on the future size and age structure of populations (Casterline, 2001). For example, according to the medium variant of the United Nations (2004) the population of sub-Saharan Africa is expected to more than double in size from 751 million in 2005 to 1.69 billion in 2050 (this projection takes into account the large impact of the AIDS epidemic). The UN's high variant projection estimates a population of 1.94 billion in 2050 because it assumes a slightly slower pace of fertility decline than the medium variant (reaching a TFR of 3.1 instead of 2.6 births per woman in 2050). If the slower recent pace of fertility transition persists it is quite possible that the continent's population size could approach or even exceed the high variant. This trend will undoubtedly have adverse effects on the prospects for social and economic development, political stability and the sustainability of natural resources.

Footnotes

1. The distances between data points for successive surveys plotted in all figures 1-6 are proportional to the time elapsed between the surveys.

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Table 1: Pace of change in six indicators of reproductive behavior between DHS-2 and DHS-1 compared to the pace of change between DHS-1 and DHS0, by region				
	Sub-Saharan Africa	Asia/ N.Africa	Latin America	All
Total fertility rate				
DHS-2 to DHS-1	0.09	0.07	0.10	0.09
DHS-1 to DHS 0	0.03	0.08	0.06	0.05
Contraceptive prevalence				
DHS-2 to DHS-1	1.18	1.42	1.07	1.22
DHS-1 to DHS 0	0.70	0.80	1.13	0.82
Demand for contraception				
DHS-2 to DHS-1	0.67	0.66	0.39	0.61
DHS-1 to DHS 0	0.91	0.25	0.72	0.70
Satisfaction of demand				
DHS-2 to DHS-1	2.11	1.58	0.64	1.65
DHS-1 to DHS 0	0.72	0.73	0.82	0.75
Wanted total fertility rate				
DHS-2 to DHS-1	0.07	0.03	0.06	0.06
DHS-1 to DHS 0	0.03	0.07	0.04	0.04
Unwanted total fertility rate				
DHS-2 to DHS-1	0.02	0.04	0.04	0.03
DHS-1 to DHS 0	0.00	0.02	0.02	0.01

Source: DHS surveys

Table 2: Decomposition (%) of pace of change in fertility and contraceptive prevalence between DHS-1 and DHS0, by region				
	Sub-Saharan Africa	Asia/ N.Africa	Latin America	All
A. Components of pace in U	%	%	%	%
Pace in Demand	51	27	47	44
Pace in Satisfaction	49	73	53	56
Total	100	100	100	100
B. Components of pace in TFR				
Pace in wanted TFR	94	76	69	79
Pace in unwanted TFR	6	24	31	21
Total	100	100	100	100

Source: DHS surveys

Table 3: Countries by pace of fertility decline between the last two DHS surveys.			
Pace of decline	Sub Saharan Africa	Asia/N.Africa	Latin America
No significant decline	Cameroon (Chad) Cote d'Ivoire Ethiopia Ghana Guinea Kenya (Mali) Mozambique (Niger) Nigeria Tanzania (Uganda) Zambia	Turkey	Guatemala Haiti
Significant decline*	Benin Burkina Faso Madagascar Malawi Namibia Senegal Zimbabwe	Bangladesh Egypt India Indonesia Jordan Morocco Nepal Philippines Yemen (Vietnam)	Bolivia Colombia Dominican Rep. Nicaragua Peru

Source: DHS surveys

Parentheses indicate pre- or post-transitional societies (see text)

Figure 1: Average of country specific total fertility rates for three successive DHS surveys by region

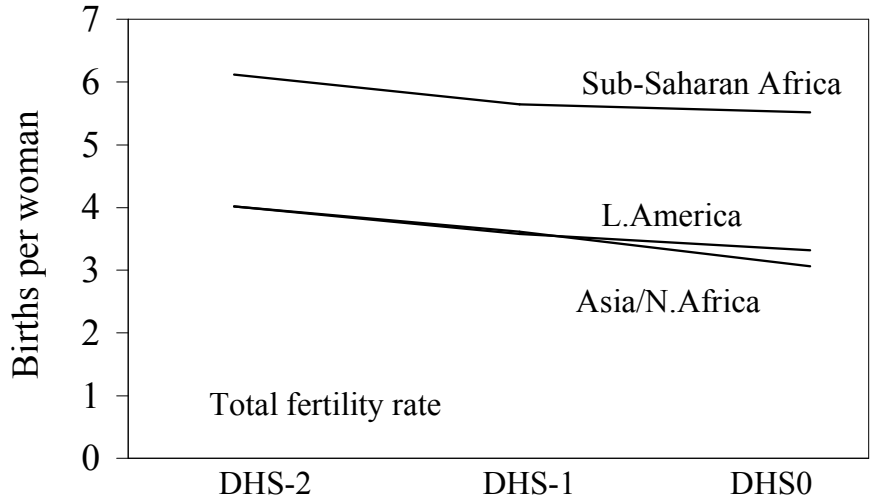

Figure 2: Average of country specific contraceptive prevalence rates for three successive DHS surveys by region

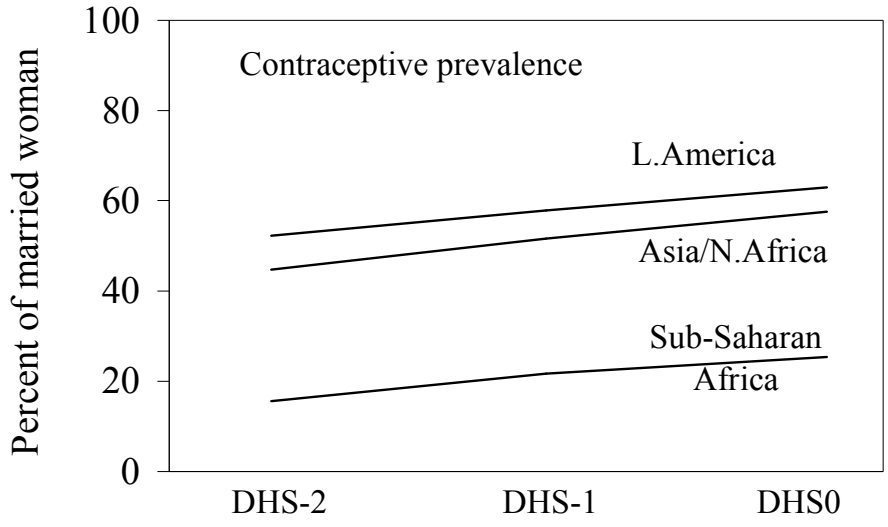

Figure 3: Average of country specific demand for contraception for three successive DHS surveys by region

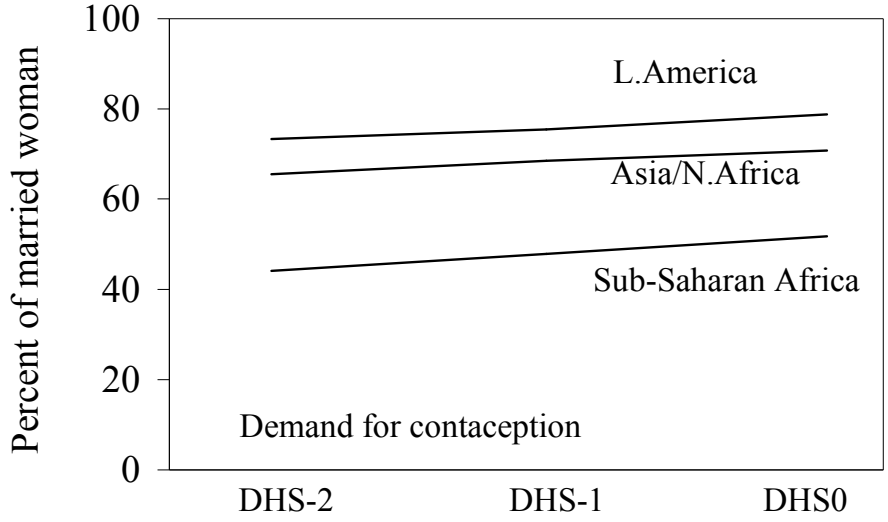

Figure 4: Average of country specific percentage of demand satisfied for three successive DHS surveys by region

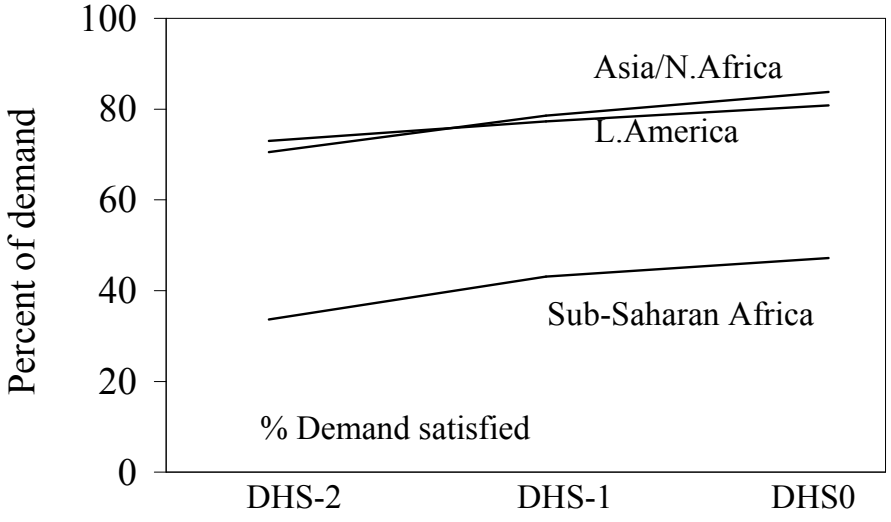

Figure 5: Average of country specific wanted total fertility rates for three successive DHS surveys by region

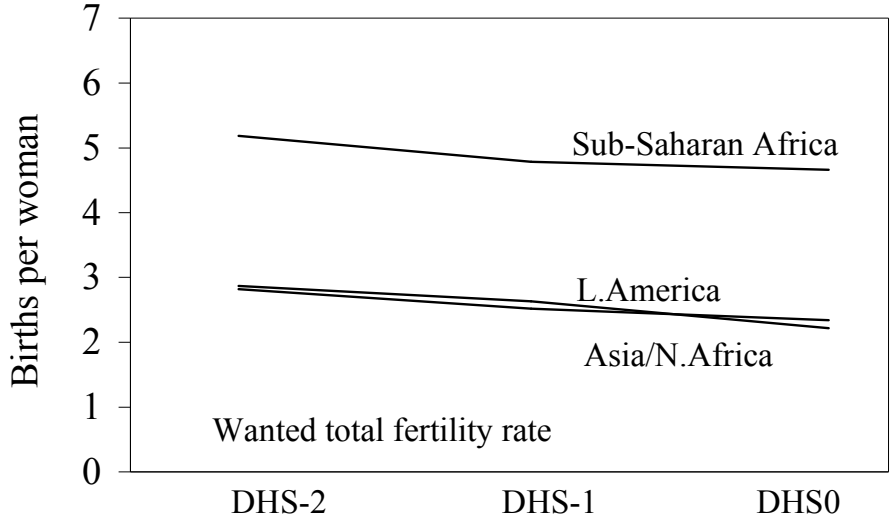

Figure 6: Average of country specific unwanted total fertility rates for three successive DHS surveys by region

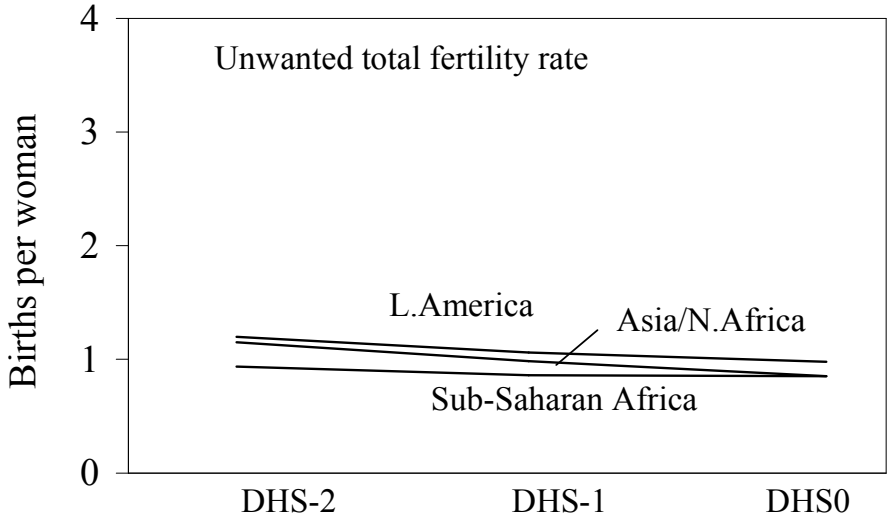

Figure 7: Average of country specific pace of decline in total fertility rates for period between DHS-2 and DHS-1 and period between DHS-1 and DHS0 by region

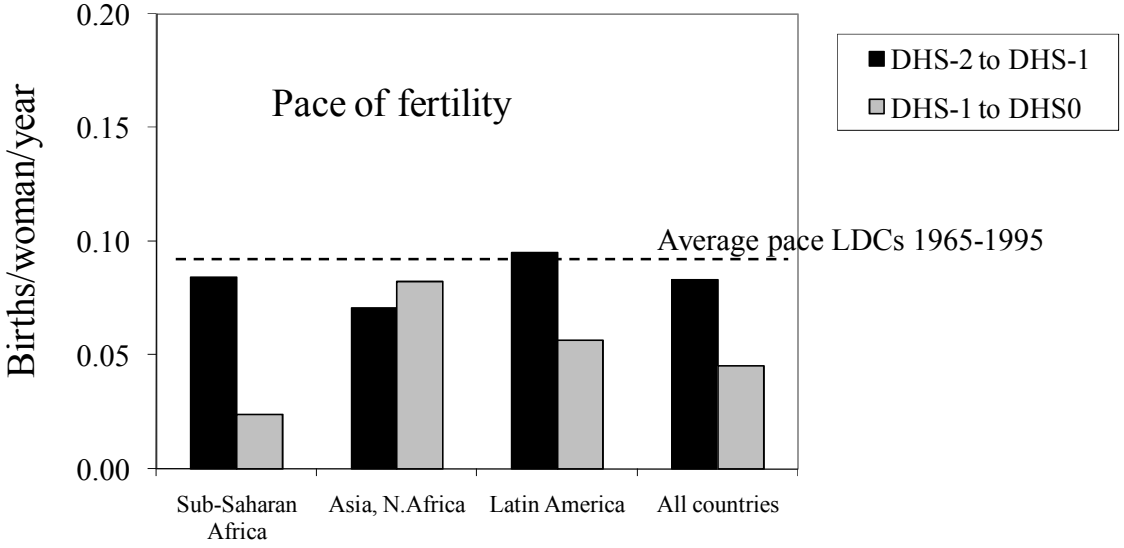

Figure 8: Average pace of change in six reproductive indicators in two successive inter-survey periods

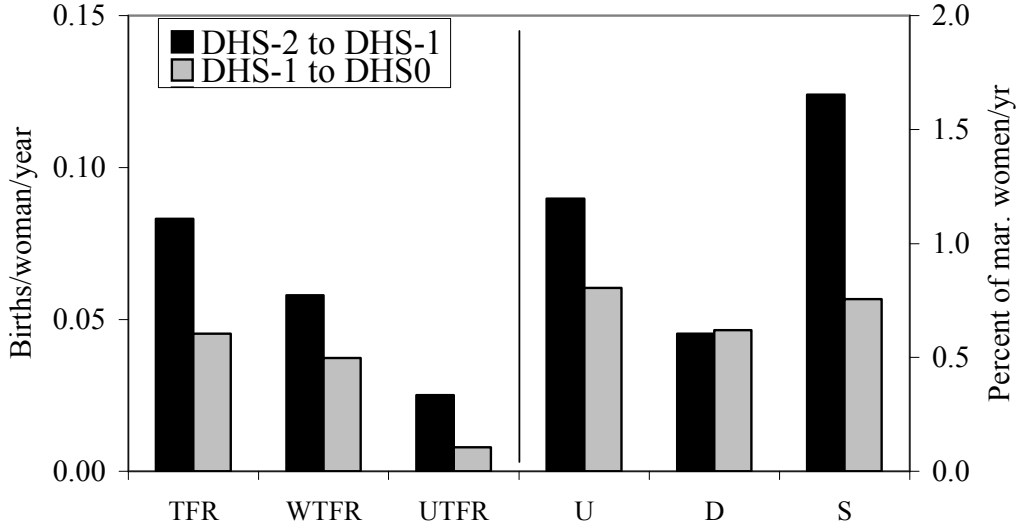

Figure 9: Average Human Development Index for 32 countries by region