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TRENDS IN BIRTH SPACING

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MEASURE DHS assists countries worldwide in the collection and use of data to monitor and evaluate population, health, and nutrition programs. Additional information about the MEASURE DHS project can be obtained by contacting Demographic and Health Research Division, ICF Macro, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705 (telephone: 301-572-0200; fax: 301-572-0999; e-mail: reports@measuredhs.com; internet: www.measuredhs.com).

The main objectives of the MEASURE DHS project are:

- to provide decisionmakers in survey countries with information useful for informed policy choices;
- to expand the international population and health database;
- to advance survey methodology; and
- to develop in participating countries the skills and resources necessary to conduct high-quality demographic and health surveys.

DHS Comparative Reports No. 28

Trends in Birth Spacing

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Preface

One of the most significant contributions of the MEASURE DHS program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries. The DHS *Comparative Reports* series examines these data across countries in a comparative framework. The DHS *Analytical Studies* series focuses on specific topics. The principal objectives of both series are to provide information for policy formulation at the international level and to examine individual country results in an international context. Whereas *Comparative Reports* are primarily descriptive, *Analytical Studies* have a more analytical approach.

The *Comparative Reports* series covers a variable number of countries, depending on the availability of data sets. Where possible, data from previous DHS surveys are used to evaluate trends over time. Each report provides detailed tables and graphs organized by region. Survey-related issues such as questionnaire comparability, survey procedures, data quality, and methodological approaches are addressed as needed.

The topics covered in *Comparative Reports* are selected by MEASURE DHS staff in conjunction with the U.S. Agency for International Development. Some reports are updates of previously published reports.

It is anticipated that the availability of comparable information for a large number of developing countries will enhance the understanding of important issues in the fields of international population and health by analysts and policymakers.

Ann Way
Project Director

Executive Summary

The purpose of this comparative report is to examine the levels and trends of birth intervals as documented in the Demographic and Health Surveys (DHS). The interval between births has been shown in numerous studies to substantially affect the mortality, birth size and weight, and nutritional status of children, and the risk of pregnancy complications for mothers. This report presents information on the lengths of actual and preferred birth intervals, trends in actual and preferred birth intervals, the difference between actual and preferred birth intervals, and trends in the difference. Additionally, the report gives information on the desire for more children and met and unmet need for contraception for spacing births, at the time of the survey.

Using the birth history information from the DHS woman's questionnaire, the study calculates the number of months between births, based on the birth date. This report covers 72 countries with DHS surveys representing 371,768 birth intervals. The latest surveys range in date from 1985 to 2008. Overall, the median birth interval is 32.1 months.

Children born after intervals of less than 24 months are considered at a higher risk for child mortality and undernutrition, and mothers with those intervals are at a higher risk of birth complications. Overall, almost one in four births occurred after an interval of less than 24 months. Children born after intervals of less than 36 months are also considered to have an elevated risk of mortality and malnutrition. More than half (57 percent) of children are born after such intervals. Long birth intervals also entail increased risk for perinatal and neonatal mortality and for pregnancy complications. Overall, 12 percent of children were born after an interval of 60 or more months. Birth intervals between 36 and 59 months entail lower risk. No country has more than half of births occurring in this lower-risk category. Among the most recent DHS surveys in each country, the average percentage of births in the lower-risk interval is 31 percent. Thus more than two-thirds of non-first births occur in a higher-risk category.

Forty-six countries have more than one DHS survey, which allows for the examination of trends in birth intervals. The trends are based on comparing the first DHS survey for a country with the latest survey. For the 46 countries together, the median length of the birth interval increased by 3.1 months between the first and last surveys. On a per year basis, this increase was one-quarter of a month. The increases in median interval length are accompanied by decreases in the proportions of children born after intervals of less than 24 months and less than 36 months, and increases in the proportions born after intervals of 60 or more months. For the 46 countries combined, the rate of change in the proportion of intervals of less than 24 months is -0.38 percentage points per year, -0.69 percentage points per year for intervals shorter than 36 months, and +0.40 percentage points per year for intervals of 60 or more months.

In the DHS, to ascertain preferred birth intervals, women were asked at the time of the survey whether they wanted another birth. Women who did want another birth were asked how long they would want to wait until they had the next birth. Women who were pregnant at the time of interview were asked how long after the birth of the child of the current pregnancy they would want to wait to have another birth. For all the countries together, the most recent surveys indicate that mothers would prefer a median birth interval of 41.5 months, over 9 months longer than their actual median interval in the five years preceding the surveys. Only 16 percent of mothers prefer an interval shorter than 24 months, but 9 percentage points more of them have such a short interval. Overall, only 14 percent of mothers had their latest birth within 3 months of their preference. More than 6 of 10 mothers preferred a birth interval longer by 4 or more months than their actual interval but about one in four women preferred an interval shorter than their actual interval.

The length of birth intervals that women prefer has not changed much over time. On average, the median preferred interval increased by 0.15 months implying an average increase of 1.5 months per decade.

The demand for contraception for spacing births includes current use of contraception by married women who want another birth in two or more years from the date of the survey, plus women with an unmet need for spacing. Over all the surveys, about one-quarter (25.5 percent) of currently married women have a demand for contraception in order to space the next birth. The demand for contraception for spacing has increased at an annual average rate of 0.22 percentage points (+2.2 points per decade). While almost half of the demand is unsatisfied (46.3 percent), the percentage unsatisfied has declined at a per decade rate of 12.1 percentage points.

While substantial proportions of births still occur after intervals that are too short for the health of infants and their mothers and more than half of births occur less than three years after the mother's previous birth, this proportion has decreased over time, at a rate of about 7 percentage points per decade. Preferred birth intervals are still much longer than actual intervals, but the rate of increase in the length of actual intervals exceeds the increase in preferred intervals, so the gap between the two is shrinking.

Family planning and contraceptive use are the principal ways that women can delay the next birth until the recommended period of time has passed since the last birth. While postpartum amenorrhea due to breastfeeding and postpartum abstinence do delay the next conception, by themselves they are not enough to ensure a birth interval of 24 months, let alone 36 months. About one-quarter of women want to use contraception to space their next birth. Unfortunately, for almost half of the women who have a need for contraception for spacing births, that need is unsatisfied. Over time, the demand for contraception for spacing has risen and the percentage of demand that is unsatisfied has fallen. These trends suggest that women are receiving the message that short birth intervals should be avoided and that family planning programs are increasing the supply of contraception to these women. While there are variations by residence, wealth, and education, all groups appear to be participating in these two positive outcomes.

1 Introduction

1.1 Purpose

The purpose of this comparative report is to examine the levels and trends of birth intervals as documented in the Demographic and Health Surveys (DHS). The interval between births has been shown in numerous studies to substantially affect the mortality, birth size and weight, and nutritional status of children, and the risk of pregnancy complications for mothers (Rutstein et al., 2004; Rutstein, 2005). Birth intervals shorter than 36 months have been shown to increase the risk of mortality, undernutrition, and pregnancy morbidity (Gribble et al., 2008; Rutstein, 2008). Moreover, intervals of more than 60 months are also related to increased risk of pregnancy complications for mothers and to increased neonatal and perinatal mortality (Conde-Agudelo et al., 2006). Changes in birth intervals have been studied at least since the 1960s in the United States (Whelpton, 1964), and the gap between preferences and actual birth intervals and its implication on level of fertility were investigated for sub-Saharan Africa using DHS data from about a decade ago (Rafalimanana and Westoff, 2001).

This report presents information on the lengths of actual and preferred birth intervals, trends in actual and preferred birth intervals, the difference between actual and preferred birth intervals, and trends in the difference. The information on birth intervals is tabulated for national totals, urban and rural areas, quintiles of the DHS wealth index, maternal education level, maternal age at birth, mother's birth cohort, birth order of the child, the number of living sons and daughters, the number of dead sons and daughters, the number of dead children of either sex, the type of contraception known, ever used, and currently used, and current pregnancy status. Tables showing these and other differentials are in the Appendix (*CR28App.pdf*) available at *www.measuredhs.com/publications/publication-cr28-comparative-reports.cfm*).

Additionally, the report gives information on the desire for more children and met and unmet need for contraception for spacing births, at the time of the survey.

1.2 Methodology

Actual Birth Intervals

Using the birth history information from the DHS woman's questionnaire, the study calculates the number of months between births, based on the birth date. Birth dates in the DHS are recorded in century-month code, which is the date of birth by month starting in January, 1900, which is recorded with a value of 1. Thus a birth that occurred in January, 2000 is recorded as 12*(2000-1900)+1 = 1201. Birth intervals are treated as preceding intervals so that the interval between the first and second child of a woman is calculated as the century-month code birth date of the first birth subtracted from that of the second birth. Thus there is one less birth interval than the number of children ever born, and the first birth has no preceding interval. Multiple births from the same pregnancy are treated in this report as being a single interval.

For the tables, four indicators are calculated: the percentage of births with a preceding interval of less than 24 months, the percentage with an interval of less than 36 months, the percentage with an interval of 60 or more months, and the median length of the preceding birth intervals. First births are not considered in the tabulations.

Preferred Birth Intervals

Since this report covers birth intervals, only women who have had a birth are included in the calculation of preferred intervals. Women were asked at the time of the survey whether they wanted

another birth. Sterilized women were not asked this question. For pregnant women, the question referred to whether they wanted another birth after the current pregnancy.

Women who responded that they did want another birth were then asked how long they would want to wait until they had the next birth. Women who were pregnant at the time of interview were asked how long after the birth of the child of the current pregnancy they would want to wait to have another birth. The answers to this second question were coded in months and years. The latter codes (years) were transformed into months by multiplying by 12.

To calculate the preferred birth interval, for non-pregnant women, the number of months since the last birth was added to the number of months from the date of the survey they would like to wait from then until the next birth. Some women responded that they wanted the birth soon or now. For these women, a value of 9 (duration of pregnancy) was added to the number of months since the last birth. Sterilized women, non-sterilized women who said they were unable to have a child or were unsure whether to have another or when to have another child, and women who gave non-numeric answers were excluded from the tabulation of the preferred interval. Note that, due to the way the questions were asked, the preferred birth interval cannot be shorter than the time since the last birth, for non-pregnant women.

For the tables, again, four indicators are calculated: the percentage of births with a preferred interval of less than 24 months, the percentage with a preferred interval of less than 36 months, the percentage with a preferred interval of 60 or more months, and the median length of the preferred birth intervals. Women with one birth are considered in the tabulations, but women with no births are not considered.

Met and Unmet Need for Contraception for Spacing

The need for contraception is measured for currently married women. Women who stated that they wanted to delay having another birth and who are exposed to the risk of pregnancy are considered to have a need for contraception for spacing. Currently married women who stated that they cannot get pregnant, have had a hysterectomy, are menopausic, have not had a birth in the last five years even though married and not using contraception, and pregnant women and amenorrheic women whose birth occurred less than 6 months prior to the interview are considered as not exposed to the risk of pregnancy[1]. Women with a need of contraception and using a contraceptive method have a met need. Women with a need but not using a contraceptive method have an unmet need. See Rutstein S. and G. Rojas (2006) for more information on the construction of met and unmet need for contraception.

1.3 Data

The data for this study come from all unrestricted national Demographic and Health Surveys (DHS) conducted since the inception of the program, from 1985 through 2008, a total of 179 surveys. A few surveys whose data are restricted for public use are not included, nor is the survey of Ondo State, Nigeria. Specialized surveys including Malaria Indicator Surveys (MIS), AIDS Indictor Surveys (AIS), and other surveys without a full birth history or lacking other essential data also are not included here.

The DHS includes personal interviews with women age 15-49 who are members of households and were in the household the night before the interview, or were overnight visitors to the household. In most surveys, women eligible for interview are of any marital status; however, in several surveys where non-marital fertility is considered to be non-existent or extremely low, only ever-married women were interviewed. Information on actual birth intervals is obtained from a full birth history asked of the

[1] Women who are sterilized are considered to have a met need of contraception for limiting births.

interviewed women. Intervals that ended with a birth in the five years preceding the interview are considered in this study, a weighted total of 951,205 intervals.

For the last child born in the five years preceding the interview, women were asked whether they wanted the child then, would have liked to have had the child later, or did not want any more children. Women who said they would have liked to have had the child later were asked how much longer they would have wanted to wait. The answer given in months or years is converted to months. The study uses a total of 634,882 women who wanted another child and gave a preferred interval.

Information on the desire for more children is available from 179 surveys including 1,464,635 currently married women.

Information on need for contraception is available from 152 surveys including 1,342,699 currently married women.

2 Actual Birth Intervals

2.1 Latest DHS Surveys

Table 2.1 (a and b) covers the most recent DHS survey in each country. Among the surveys in this study, there are 72 countries represented covering 371,768 birth intervals. The surveys range in date from 1985 (El Salvador) to 2008. Overall, the median birth interval is 32.1 months. Yemen had the shortest intervals, with a median of 25.3 months, and Ukraine had the longest, with a median of 44.1 months. By region, however, the Central Asian States had the shortest intervals (29.2 months) and South and Southeast Asia had the longest (33.6 months) (Figure 2.1).

Table 2.1 (a and b) also shows the percentages of intervals of less than 24 months, less than 36 months, and more than 60 months. Children born after intervals of less than 24 months are considered at a high risk for child mortality and undernutrition, and mothers with those intervals are at a higher risk of birth complications. Overall, almost one in four births occurred after an interval of less than 24 months. The region with the highest percentage of births with an interval of less than 24 months is the Central Asian States (33 percent), and the region with the lowest percentage is sub-Saharan Africa (20 percent). By country, Yemen had the highest percentage of births with an interval of less than 24 months (42 percent), and Zimbabwe had the lowest (11 percent).

Children born after intervals of less than 36 months are also considered to have an elevated risk of mortality and malnutrition. More than half (57 percent) of children are born after such intervals. There is not much variation by region, but there is substantial variation by country, from 40 percent or less of births in Indonesia, Ukraine, South Africa, and Lesotho to over 70 percent in Comoros, Guatemala, Uganda, Yemen, and Tunisia.

Figure 2.1. Median Length of Birth Intervals

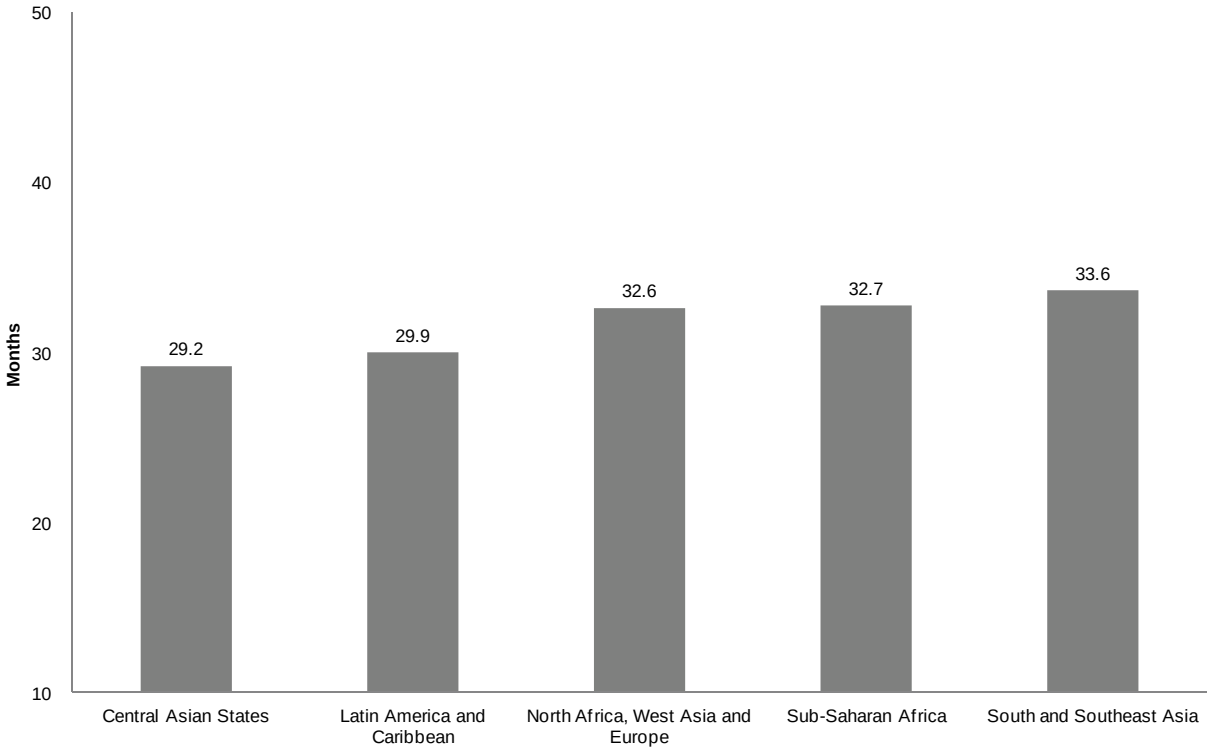


Table 2.1.a. Length of Actual Birth Intervals by Country, for Most Recent Survey

Percentage of birth intervals less than 24 months, less than 36 months, and 60 months or more, and median length of birth intervals, for intervals ending in the 5 years prior to the survey, by country

Survey	<24 mos	<36 mos	35-59	60+ mos	Median interval	Number of intervals[1]
Central Asian States						
Kazakhstan, 1999	36.7	58.5	24.4	17.1	29.1	797
Kyrgyz Republic, 1997	31.6	62.3	24.8	12.9	29.8	1,287
Uzbekistan, 1996	30.8	65.6	25.9	8.5	28.7	1,615
Latin America and Caribbean						
Bolivia, 2003	29.8	66.1	24.3	9.6	28.3	7,113
Brazil, 1996	32.3	55.9	27.6	16.5	31.3	2,783
Colombia, 2005	24.7	51.4	29.5	19.1	34.3	7,083
Dominican Republic, 2007	26.2	54.3	30.2	15.5	32.5	6,101
Ecuador, 1987	36.7	67.6	23.2	9.2	26.8	2,143
El Salvador, 1985	36.5	68.4	25.0	6.6	27.1	2,469
Guatemala, 1999	33.1	70.4	22.8	6.8	27.1	3,358
Haiti, 2005	21.8	58.7	29.9	11.4	31.2	3,863
Honduras, 2005	21.7	54.0	30.7	15.3	33.1	6,525
Mexico, 1987	35.6	65.6	24.4	10.0	27.4	4,041
Nicaragua, 2001	29.0	58.2	28.2	13.6	30.7	4,041
Paraguay, 1990	39.9	69.7	22.3	8.0	25.8	2,788
Peru, 2004-2008	16.7	45.5	33.6	20.9	37.4	8,203
Trinidad and Tobago, 1987	41.5	65.6	23.9	10.5	26.2	1,261
North Africa, West Asia and Europe						
Armenia, 2005	36.9	56.1	29.2	14.7	29.9	672
Azerbaijan, 2006	39.1	65.6	21.5	12.9	27.1	1,163
Egypt, 2008	19.6	50.1	35.6	14.3	35.0	6,440
Jordan, 2007	34.6	62.2	27.6	10.2	28.8	7,157
Moldova, 2005	21.5	43.2	29.1	27.7	41.3	577
Morocco, 2003	18.9	44.7	36.8	18.5	37.3	3,831
Tunisia, 1988	37.4	71.6	23.4	5.0	26.2	3,424
Turkey, 2003	30.3	57.0	27.5	15.5	31.2	2,389
Ukraine, 2007	20.3	38.9	28.4	32.7	44.1	319
Yemen, 1991	42.3	71.4	23.5	5.1	25.3	6,428
Sub-Saharan Africa						
Benin, 2006	14.7	55.4	37.0	7.6	33.5	12,040
Burkina Faso, 2003	13.6	52.1	41.2	6.7	34.5	8,429
Burundi, 1987	22.1	67.1	29.2	3.7	29.9	3,183
Cameroon, 2004	22.9	63.9	29.4	6.7	30.1	5,755
Central African Republic, 1994	26.4	67.9	26.6	5.5	29.2	3,597
Chad, 2004	25.9	67.4	27.7	4.9	28.9	4,789
Comoros, 1996	35.4	70.0	24.2	5.8	27.2	1,546
Congo Brazzaville, 2005	14.5	45.9	40.2	13.9	36.4	3,273
Congo, Democratic Republic, 2007	26.6	67.0	28.0	5.0	29.0	6,803
Cote D'Ivoire, 1998	17.1	54.1	35.9	10.0	33.4	1,584
Ethiopia, 2005	22.0	57.6	35.7	6.7	32.3	8,914
Gabon, 2000	22.9	58.9	30.0	11.1	31.7	2,683
Ghana, 2008	15.2	45.0	41.0	14.0	37.1	1,999

(Cont'd)

Table 2.1.a. – cont'd

Survey	<24 mos	<36 mos	36-59	60+ mos	Median interval	Number of intervals[1]
Guinea, 2005	11.8	45.6	44.2	10.2	36.0	4,921
Kenya, 2003	24.3	63.1	27.3	9.6	30.5	4,273
Lesotho, 2004	11.9	39.6	41.2	19.2	38.7	2,045
Liberia, 2007	19.1	52.6	34.2	13.2	34.0	3,936
Madagascar, 2004	25.0	59.6	31.9	8.5	30.8	4,600
Malawi, 2004	15.5	52.2	38.3	9.5	34.3	7,756
Mali, 2006	22.3	64.3	29.7	6.0	30.6	11,389
Mozambique, 2003	17.1	57.6	33.5	8.9	32.8	7,835
Namibia, 2006-2007	15.4	44.7	36.2	19.1	37.4	2,918
Niger, 2006	21.2	61.9	31.9	6.2	31.3	8,075
Nigeria, 2008	24.6	64.2	29.3	6.5	29.8	21,589
Rwanda, 2005	23.9	65.8	28.0	6.2	29.8	6,801
Senegal, 2005	20.0	59.8	32.2	8.0	31.9	7,765
Sierra Leone, 2008	18.8	52.7	33.7	13.6	34.1	4,310
South Africa, 1998	16.2	39.5	37.1	23.4	40.3	2,741
Sudan, 1990	29.2	68.2	26.8	5.0	28.0	5,252
Swaziland, 2006	17.2	50.2	34.2	15.6	34.9	1,739
Tanzania, 2004	16.7	59.1	31.4	9.5	31.8	6,387
Togo, 1998	14.9	51.9	40.5	7.6	34.5	5,073
Uganda, 2006	25.9	70.7	24.6	4.7	28.4	6,678
Zambia, 2007	15.8	57.2	35.6	7.2	32.8	4,846
Zimbabwe, 2005	11.2	40.5	42.9	16.6	38.9	3,223
South and Southeast Asia						
Bangladesh, 2007	16.7	40.8	39.6	19.6	39.4	3,579
Cambodia, 2005	19.7	51.9	34.2	13.9	34.2	5,141
India, 2006	28.7	63.4	29.1	7.5	29.4	37,648
Indonesia, 2007	16.3	37.7	32.7	29.6	43.7	8,285
Nepal, 2006	22.8	57.9	33.1	9.0	31.8	3,686
Pakistan, 2006	34.5	68.7	24.7	6.6	27.4	6,980
Philippines, 2008	32.3	60.8	26.7	12.5	29.6	4,054
Sri Lanka, 1987	30.3	63.2	26.1	10.7	29.4	2,586
Thailand, 1987	26.4	52.6	31.8	15.6	33.7	2,088
Vietnam, 2002	18.9	46.2	30.4	23.4	37.6	1,103

[1] Weighted number of intervals

Table 2.1.b. Length of Actual Birth Intervals by Region, for Most Recent Survey

Percentage of birth intervals less than 24 months, less than 36 months, and 60 months or more, and median length of birth intervals, for intervals ending in the 5 years prior to the survey, by region

Averages	<24 mos	<36 mos	36-59	60+ mos	Median interval	Number of intervals[1]
Total	**24.6**	**57.4**	**30.7**	**11.8**	**32.1**	**371,768**
Central Asian States	33.0	62.1	25.0	12.8	29.2	3,699
Latin America and Caribbean	30.4	60.8	26.8	12.4	29.9	61,772
North Africa, West Asia and Europe	30.1	56.1	28.3	15.7	32.6	32,400
Sub-Saharan Africa	19.9	57.0	33.5	9.6	32.7	198,747
South and Southeast Asia	24.7	54.3	30.8	14.8	33.6	75,150

[1] Weighted number of intervals

Long birth intervals also entail increased risk for perinatal and neonatal mortality and for pregnancy complications. Overall, 12 percent of children were born after an interval of 60 or more months. By region, the percentages born after long intervals vary from 10 percent of births in sub-Saharan Africa to 16 percent in North Africa, West Asia and Europe. By individual country, in Burundi, Uganda, Chad, Democratic Republic of the Congo, Sudan, Tunisia and Yemen, 5 percent or less of births occur after long intervals. In three countries—Moldova, Indonesia, and Ukraine—more than one-quarter of births occur after long intervals.

Birth intervals between 36 and 59 months entail lower risk. No country has more than half of births occurring in this lower-risk category. Among the most recent DHS surveys in each country, the average percentage of births in the lower-risk interval is 31 percent. Thus more than two-thirds of non-first births occur in a higher-risk category. The seven countries with the highest percentages of births in the lower-risk interval are all in sub-Saharan Africa—Guinea (44 percent), Zimbabwe (43), Lesotho, Burkina Faso, Ghana and Togo (41 percent) and Congo Brazzaville (40 percent). Fourteen of the 72 countries have less than one in four of their births occurring after a 36-59 month interval. By region, the highest percentage with births after an interval of 36-59 months is sub-Saharan Africa (34 percent), and the region with the lowest percentage is the Central Asian States.

Differentials

The median lengths and the risk category percentages of actual birth intervals have been tabulated for urban-rural residence, wealth quintile of the household, level of maternal education, maternal age, and birth order or parity. Since this amount of information is too great to discuss and read succinctly, only a few of the tabulated differentials are discussed in the text, and the tables are included in the appendices.

Figure 2.2 shows the median length of preceding birth intervals by urban-rural area, according to world region. In all regions, urban areas have longer intervals: the difference in the median length is greatest in the Central Asian States (4.4 months) and least in sub-Saharan Africa and South and Southeast Asia (both about 1.5 months). The median length of the birth interval increases with wealth, from an overall average of 30.5 months for the lowest quintile in each survey to 36.1 months for the highest quintile (Figure 2.3). Maternal education shows a large differential in actual birth interval. Women with no education and women with primary education have an overall median birth interval of 30.8 months and 30.9 months, respectively; women with secondary education have a median interval of 32.2 months and women with higher education have a median interval of 35.1 months (Figure 2.4). The length of the preceding birth interval also increases with maternal age, from 23.4 months for women age 15-19 to 35.6 months for women age 40-49. In contrast, there is little difference in median birth-interval length by birth order (Figure 2.5)**.**

Figure 2.2. Median Birth-Interval Length by Residence

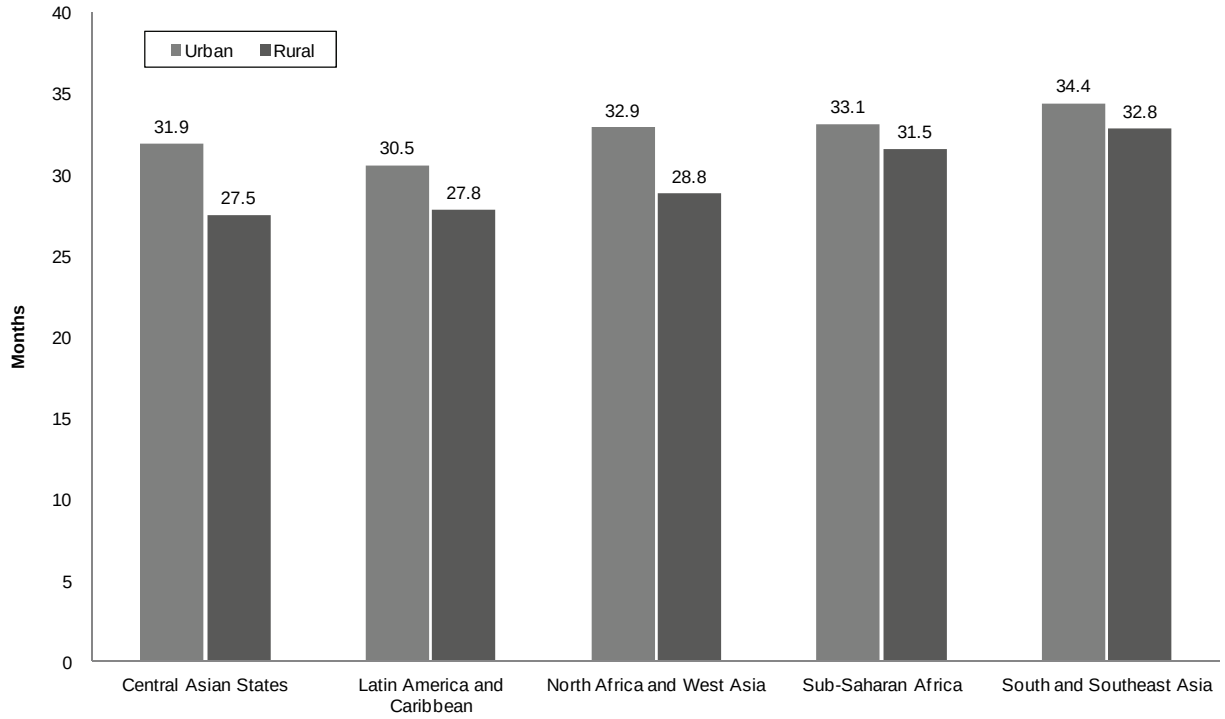


Figure 2.3. Median Birth-Interval Length by Household Wealth Quintile

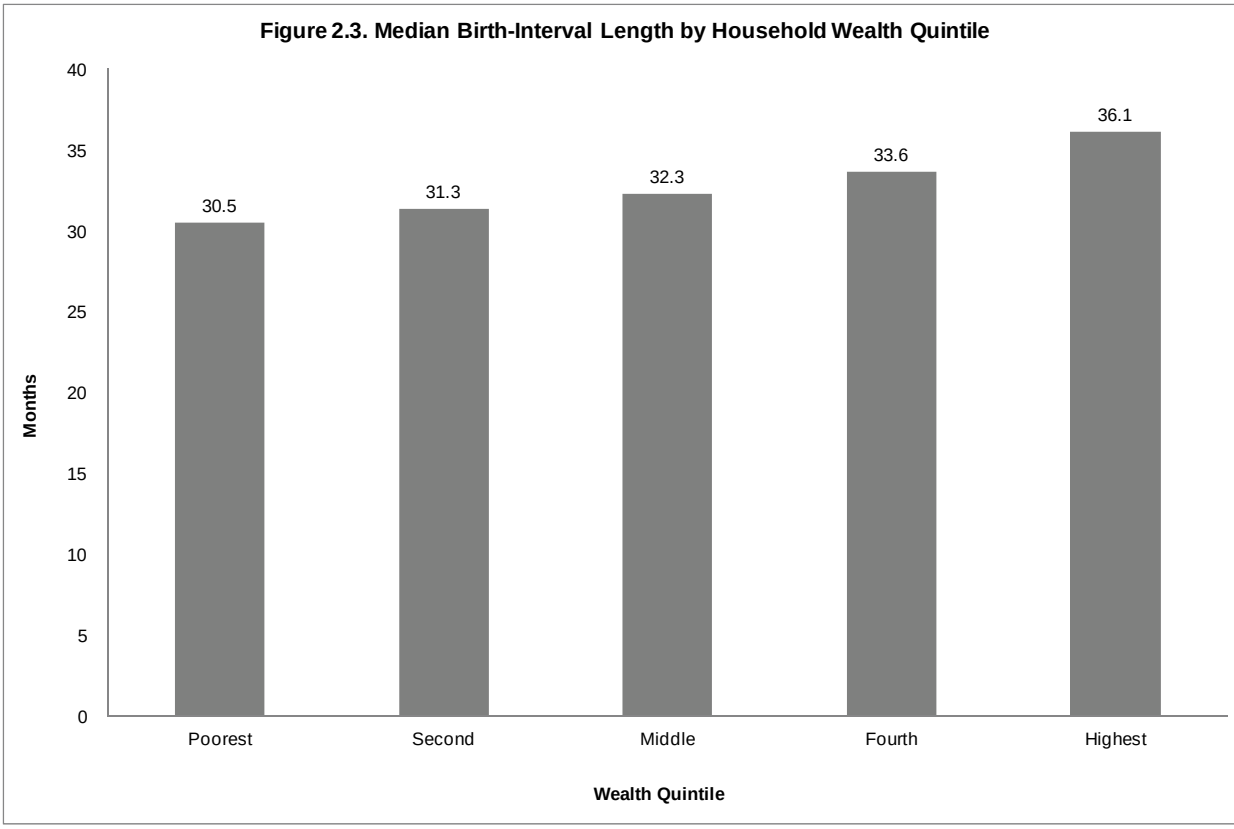


Figure 2.4. Median Birth-Interval Length by Level of Maternal Education

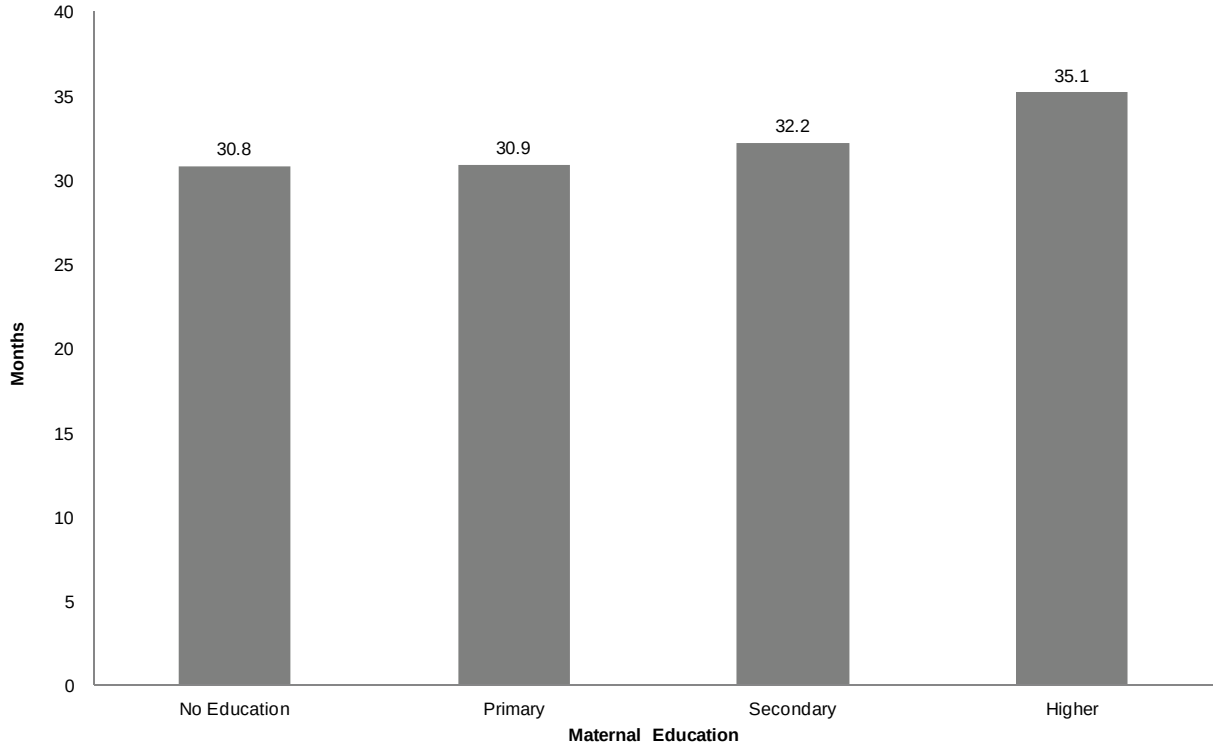
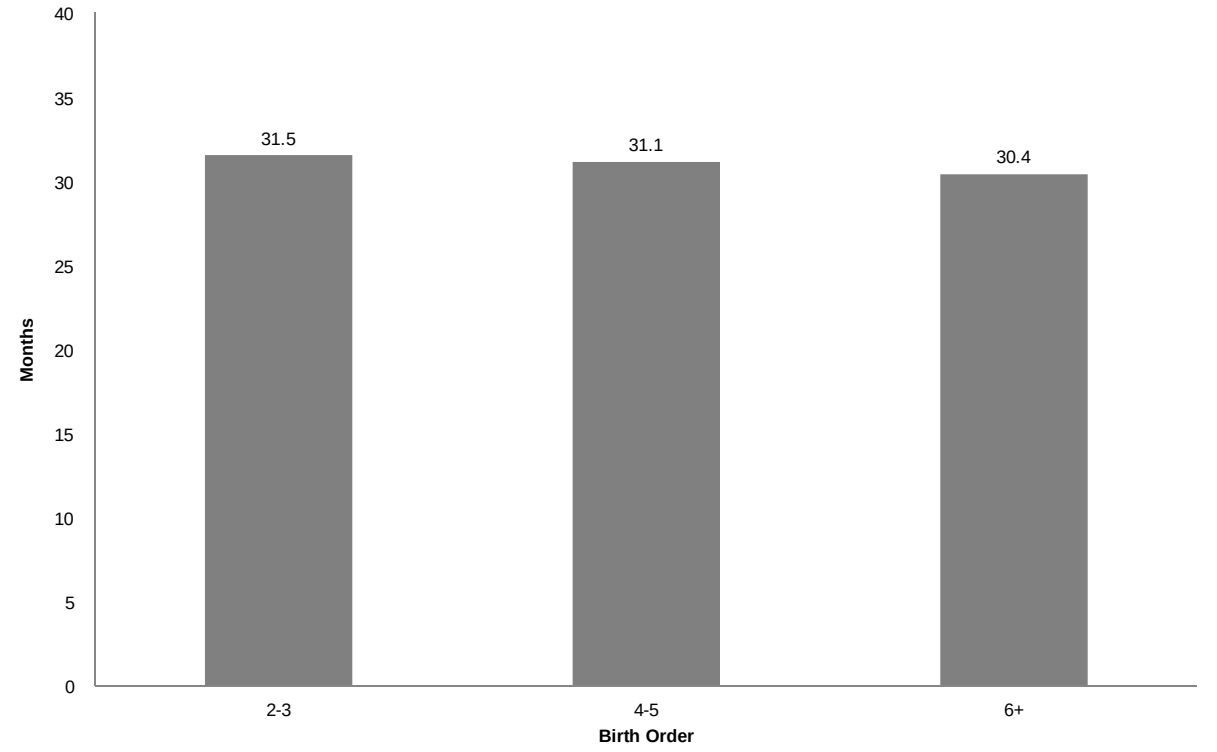


Figure 2.5. Median Birth-Interval Length by Birth Order



2.2 Trends in Actual Birth Intervals

Forty-six countries have more than one DHS survey, which allows for the examination of trends in birth intervals. The trends are based on comparing the first DHS survey for a country with the latest survey. Since the number of years between surveys varies by country, two sets of statistics are shown for trends in Table 2.2 (a and b). The first set is the difference between the first and the latest surveys, and the second is the average change per year, derived by dividing the first set of indicators by the number of years between the surveys. The second set is more comparable across countries but assumes a linear change over time. The average number of years between the first and latest surveys is a little over 12 years.

Table 2.2.a. Trends in Length of Actual Birth Intervals, by Country

Percentage point changes between the earliest and latest surveys and average percentage point change per year in the percentage of birth intervals less than 24 months, less than 36 months, and 60 months or more, and in median length of birth intervals in months, for intervals ending in the 5 years prior to the survey, by country

	Total									
	Trend (Last-First)					Change per year				
Survey	<24 mos	<36 mos	36-59 mos	60+ mos	Median interval	<24 mos	<36 mos	36-59 mos	60+ mos	Median interval
Central Asian States										
Kazakhstan, 1995 to 1999	-1.3	-5.3	0.4	4.9	1.3	-0.32	-1.33	0.10	1.23	0.33
Latin America and Caribbean										
Bolivia, 1989 to 2003	-0.3	0.0	-1.3	1.3	-0.2	-0.02	0.00	-0.09	0.09	-0.01
Brazil, 1986 to 1996	-9.6	-11.7	3.7	8.0	5.2	-0.96	-1.17	0.37	0.80	0.52
Colombia, 1986 to 2005	-14.0	-14.8	5.8	9.0	7.4	-0.74	-0.78	0.31	0.47	0.39
Dominican Republic, 1986 to 2007	-17.5	-16.9	8.3	8.6	7.4	-0.83	-0.80	0.40	0.41	0.35
Guatemala, 1987 to 1999	2.0	-0.1	-1.4	1.5	-0.3	0.17	-0.01	-0.12	0.13	-0.02
Haiti, 1994 to 2005	-4.5	-8.1	3.1	5.0	2.4	-0.41	-0.74	0.28	0.45	0.22
Nicaragua, 1998 to 2001	-5.3	-6.4	2.8	3.6	2.6	-1.77	-2.13	0.93	1.20	0.87
Peru, 1986 to 2004	-20.4	-24.6	10.2	14.4	11.1	-1.02	-1.23	0.51	0.72	0.56
North Africa, West Asia and Europe										
Armenia, 2000 to 2005	-1.2	-6.2	2.9	3.3	2.3	-0.24	-1.24	0.58	0.66	0.46
Egypt, 1988 to 2008	-16.6	-18.8	11.2	7.6	7.7	-0.83	-0.94	0.56	0.38	0.39
Jordan, 1990 to 2007	-16.1	-19.1	12.4	6.7	6.0	-0.95	-1.12	0.73	0.39	0.35
Morocco, 1987 to 2003	-11.3	-24.1	11.6	12.5	9.3	-0.71	-1.51	0.73	0.78	0.58
Turkey, 1993 to 2003	-1.4	-0.8	-1.5	2.3	0.5	-0.14	-0.08	-0.15	0.23	0.05
Sub-Saharan Africa										
Benin, 1996 to 2006	-2.3	-4.7	2.0	2.7	1.2	-0.23	-0.47	0.20	0.27	0.12
Burkina Faso, 1993 to 2003	-1.5	-4.7	3.0	1.7	1.1	-0.15	-0.47	0.30	0.17	0.11
Cameroon, 1991 to 2004	-0.4	-3.5	2.5	1.0	1.2	-0.03	-0.27	0.19	0.08	0.09
Chad, 1997 to 2004	1.8	0.5	-0.8	0.3	-1.0	0.26	0.07	-0.11	0.04	-0.14
Cote D'Ivoire, 1994 to 1998	-3.9	-6.7	3.4	3.3	1.7	-0.98	-1.68	0.85	0.83	0.43
Ethiopia, 2000 to 2005	1.9	-1.2	0.6	0.6	0.1	0.38	-0.24	0.12	0.12	0.02
Ghana, 1988 to 2008	-3.3	-10.7	4.0	6.7	3.8	-0.17	-0.54	0.20	0.34	0.19
Guinea, 1999 to 2005	-5.5	-8.9	5.7	3.2	2.0	-0.92	-1.48	0.95	0.53	0.33
Kenya, 1989 to 2003	-4.6	-6.8	2.7	4.1	2.9	-0.33	-0.49	0.19	0.29	0.21
Liberia, 1986 to 2007	-11.2	-14.0	8.2	5.8	5.6	-0.53	-0.67	0.39	0.28	0.27

(Cont'd)

Table 2.2.a. – cont'd

	Total									
	Trend (Last-First)					Change per year				
Survey	<24 mos	<36 mos	36-59 mos	60+ mos	Median interval	<24 mos	<36 mos	36-59 mos	60+ mos	Median interval
Madagascar, 1992 to 2004	-6.1	-11.3	8.4	2.9	3.3	-0.51	-0.94	0.70	0.24	0.28
Mali, 1987 to 2006	-4.2	0.8	0.3	-1.1	0.3	-0.22	0.04	0.02	-0.06	0.02
Mozambique, 1997 to 2003	-2.4	1.0	-2.0	1.0	0.2	-0.40	0.17	-0.33	0.17	0.03
Namibia, 1992 to 2007	-7.8	-14.7	6.3	8.4	5.9	-0.52	-0.98	0.42	0.56	0.39
Niger, 1992 to 2006	-6.1	-8.5	5.9	2.6	2.5	-0.44	-0.61	0.42	0.19	0.18
Nigeria, 1990 to 2008	-3.4	-3.3	3.2	0.1	1.1	-0.19	-0.18	0.18	0.01	0.06
Rwanda, 1992 to 2005	2.8	-0.6	-2.1	2.7	-0.6	0.22	-0.05	-0.16	0.21	-0.05
Senegal, 1986 to 2005	-0.3	-8.3	4.3	4.0	2.2	-0.02	-0.44	0.23	0.21	0.12
Tanzania, 1992 to 2004	-1.6	-1.5	-0.8	2.3	0.0	-0.13	-0.13	-0.07	0.19	0.00
Togo, 1988 to 1998	-1.7	-5.0	4.8	0.2	1.3	-0.17	-0.50	0.48	0.02	0.13
Uganda, 1988 to 2006	-3.2	-1.5	1.6	-0.1	0.8	-0.18	-0.08	0.09	-0.01	0.04
Zambia, 1992 to 2007	-3.5	-8.4	7.2	1.2	2.8	-0.23	-0.56	0.48	0.08	0.19
Zimbabwe, 1988 to 2005	-7.8	-21.9	11.4	10.5	7.9	-0.46	-1.29	0.67	0.62	0.46
South and Southeast Asia										
Bangladesh, 1994 to 2007	-4.3	-14.9	4.6	10.3	6.4	-0.33	-1.15	0.35	0.79	0.49
Cambodia, 2000 to 2005	-2.4	-4.9	0.8	4.1	1.8	-0.48	-0.98	0.16	0.82	0.36
India, 1993 to 2006	1.2	1.3	-2.0	0.7	-0.7	0.09	0.10	-0.15	0.05	-0.05
Indonesia, 1987 to 2007	-9.5	-20.4	1.2	19.2	12.1	-0.48	-1.02	0.06	0.96	0.61
Nepal, 1996 to 2006	-1.8	-4.1	0.9	3.2	1.2	-0.18	-0.41	0.09	0.32	0.12
Pakistan, 1991 to 2006	0.4	0.5	0.1	-0.6	-0.3	0.03	0.03	0.01	-0.04	-0.02
Philippines, 1993 to 2008	-6.1	-9.8	5.0	4.8	3.3	-0.41	-0.65	0.33	0.32	0.22
Vietnam, 1997 to 2002	-1.9	-9.3	1.5	7.8	5.0	-0.38	-1.86	0.30	1.56	1.00

Table 2.2.b. Trends in Length of Actual Birth Intervals, by Region

Percentage point changes between the earliest and latest surveys and average percentage point change per year in the percentage of birth intervals less than 24 months, less than 36 months, and 60 months or more, and in median length of birth intervals in months, for intervals ending in the 5 years prior to the survey, by region

	Total									
	Trend (Last-First)					Change per year				
Averages	<24 mos	<36 mos	36-59 mos	60+ mos	Median interval	<24 mos	<36 mos	36-59 mos	60+ mos	Median interval
Total	**-4.8**	**-8.1**	**3.7**	**4.4**	**3.1**	**-0.38**	**-0.69**	**0.29**	**0.40**	**0.25**
Central Asian States	-1.3	-5.3	0.4	4.9	1.3	-0.32	-1.33	0.10	1.23	0.33
Latin America and Caribbean	-8.7	-10.3	3.9	6.4	4.5	-0.70	-0.86	0.32	0.53	0.36
North Africa, West Asia and Europe	-9.3	-13.8	7.3	6.5	5.2	-0.57	-0.98	0.49	0.49	0.37
Sub-Saharan Africa	-3.4	-6.4	3.7	2.8	2.1	-0.27	-0.53	0.30	0.23	0.16
South and Southeast Asia	-3.1	-7.7	1.5	6.2	3.6	-0.27	-0.74	0.14	0.60	0.34

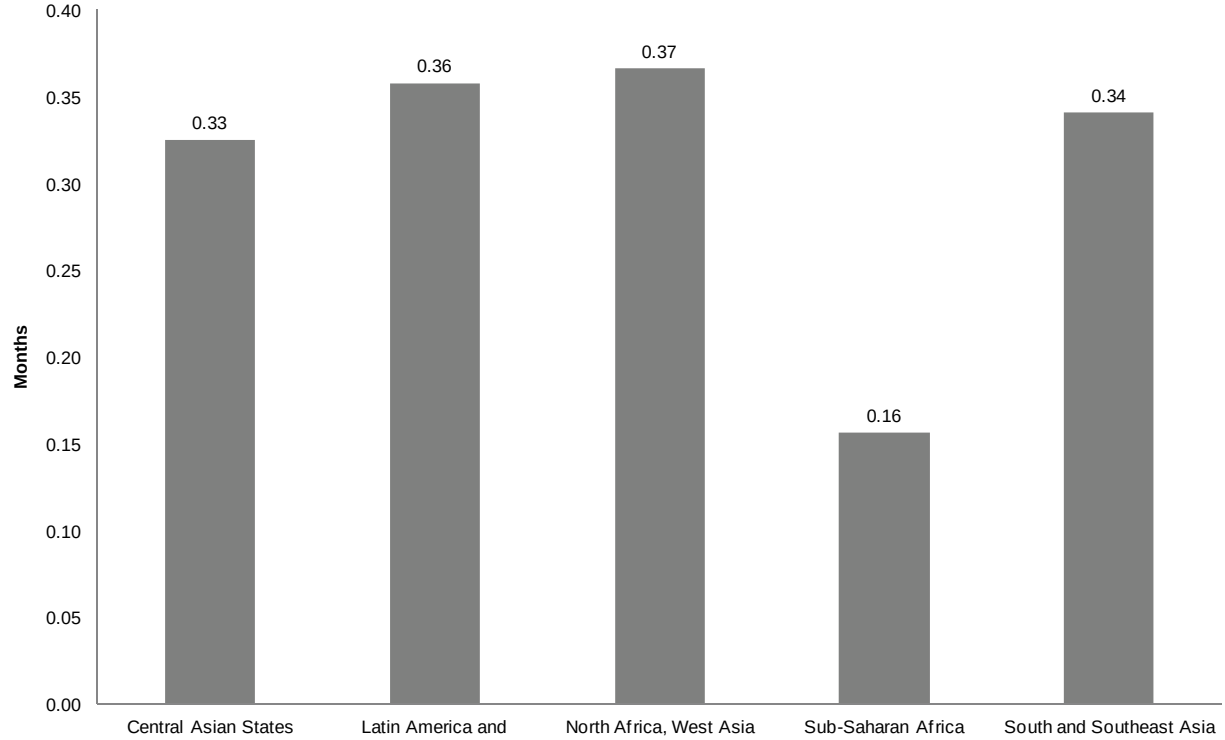
For the 46 countries together, the median length of the birth interval increased by 3.1 months between the first and last surveys. On a per year basis, this increase was one-quarter of a month. Aside from sub-Saharan Africa, the annual rate of increase in median interval length was similar by world

region, from 0.33 months per year in Central Asia to 0.37 months in North Africa, West Asia and Europe (Figure 2.6). The average per year change in sub-Saharan Africa was only 0.16 months. Given that the latest surveys have similar regional median lengths of birth intervals, other regions appear to be catching up to the length of birth intervals that sub-Saharan Africa had some while ago. Only one country, Chad, shows a mild rate of decline in median interval length (-0.14 months per year). However, 13 countries show very little change in median length (between -0.05 to +0.09 months per year). The largest increases in median interval length occurred in Vietnam (+1.00 month per year), Nicaragua (+0.87), and Indonesia (+0.61).

The increases in median interval length are accompanied by decreases in the proportions of children born after intervals of less than 24 months and less than 36 months, and increases in the proportions born after intervals of 60 or more months. For the 46 countries combined, the rate of change in the proportion of intervals of less than 24 months is -0.38 percentage points per year, -0.69 percentage points per year for intervals shorter than 36 months, and +0.40 percentage points per year for intervals of 60 or more months.

By region, the largest rate of decrease in the percentage of births after a birth interval of less than 24 months is in Latin America and the Caribbean (-0.70 percentage points per year), and the smallest rate is in sub-Saharan Africa and South and Southeast Asia (both -0.27). Considering birth intervals of less than 36 months, the greatest rate of decline is in the Central Asian States, -1.33 percentage points per year, and the smallest is in sub-Saharan Africa, -0.53 points per year. For the rate of increase in births after a 60 month interval, the same two regions have the greatest and least rate of increase, +1.23 and +0.23 percentage points, respectively.

Figure 2.6. Annual Average Change in Median Birth-Interval Length by Region



Nicaragua and Peru have the greatest rate of decline in the percentage of birth intervals of less than 24 months, both exceeding a rate of decline of 1 percentage point or more per year. Five countries have more than a negligible rate of increase in the percentage of <24 month intervals: India, Guatemala, Rwanda, Chad, and Ethiopia, from +0.09 to +0.38 percentage points per year. A greater number of countries, 13, have a rate of decrease of intervals of less than 36 months of 1 percentage point per year or more. The highest is again Nicaragua with more than a 2 percentage point decline per year. Chad, India, and Mozambique are the only countries with a non-negligible increase in the percentage of intervals of less than 36 months; however, five counties show little change per year.

Ten countries show little change per year in the percentage of long birth intervals, but in three countries the percentage increased at a rate of more than 1 percentage point per year (Nicaragua, Kazakhstan, and Vietnam).

Due to decreases in the percentages of births with preceding intervals of less than 36 months and increases at 60 months and more, there is little change in the percentage of births in the 36-59 month interval category, rising at an annual average rate of about 0.3 percentage points, with the highest increase in the North African and West Asian region (+0.5 percentage points per year) and lowest in the Central Asian States (+0.1 percentage points per year). The country with the greatest rate of increase of births following the 36-59 month interval is Guinea (+0.95 percentage points per year), and the country with greatest rate of decrease is Rwanda (-0.16 percentage points per year).

Differentials

Figure 2.7 shows that birth intervals have lengthened at much greater annual average rates in urban areas than rural areas in all regions except North Africa, West Asia and Europe, where the rate of increase was a little higher in rural areas. The rate of change in the length of birth intervals is related to relative wealth. Figure 2.8 shows that the annual average change in the median birth interval is over five times as high in the wealthiest quintile as in the poorest quintile. This differential is also reflected in maternal education (Figure 2.9), in that for women with higher education the median length of birth intervals increased by five times the annual change among women with no education. While there has been practically no change in the median birth intervals of women age 15-19, women age 30-39 had the greatest change per year (0.36 months per year), followed by women age 40-49 (0.29 months per year). As noted above, there was little difference in the length of birth intervals by birth order of the child. However, the change in interval length is much greater for birth orders below six than for six or higher (Figure 2.10).

Figure 2.7. Annual Average Change in Median Birth-Interval Length by Residence

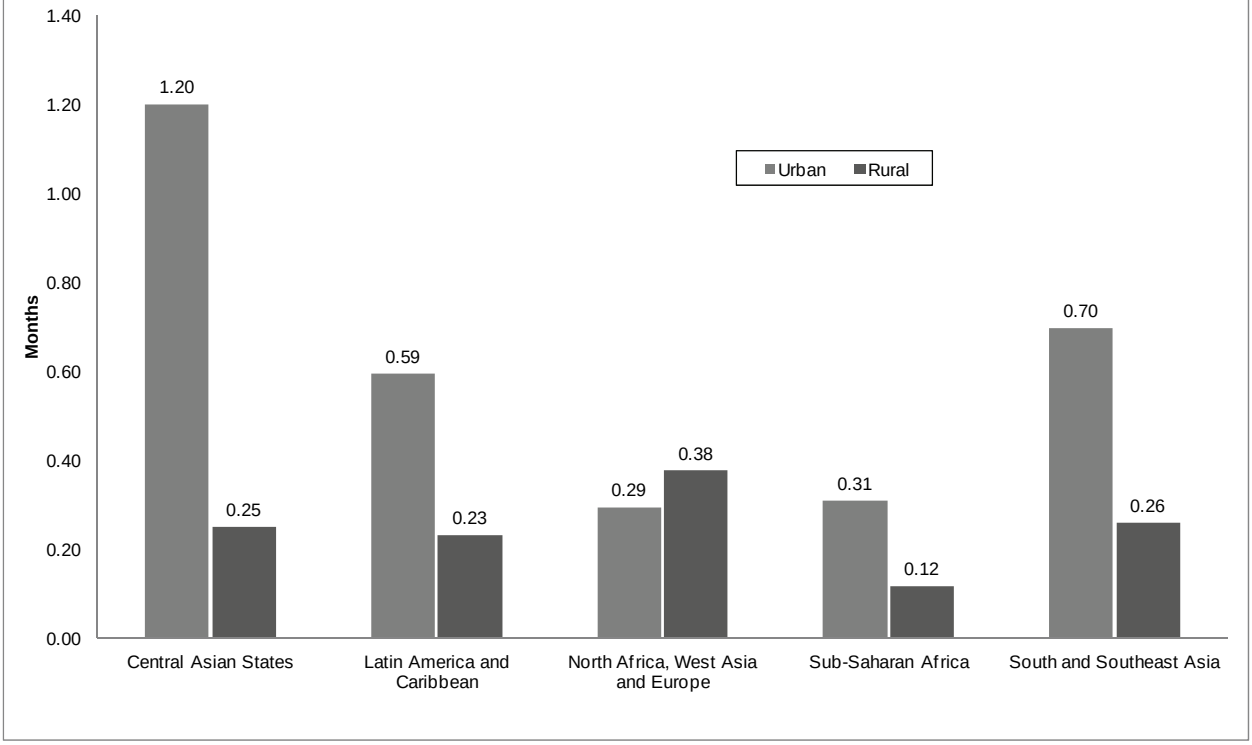


Figure 2.8. Annual Average Change in Median Birth-Interval Length by Household Wealth Quintile

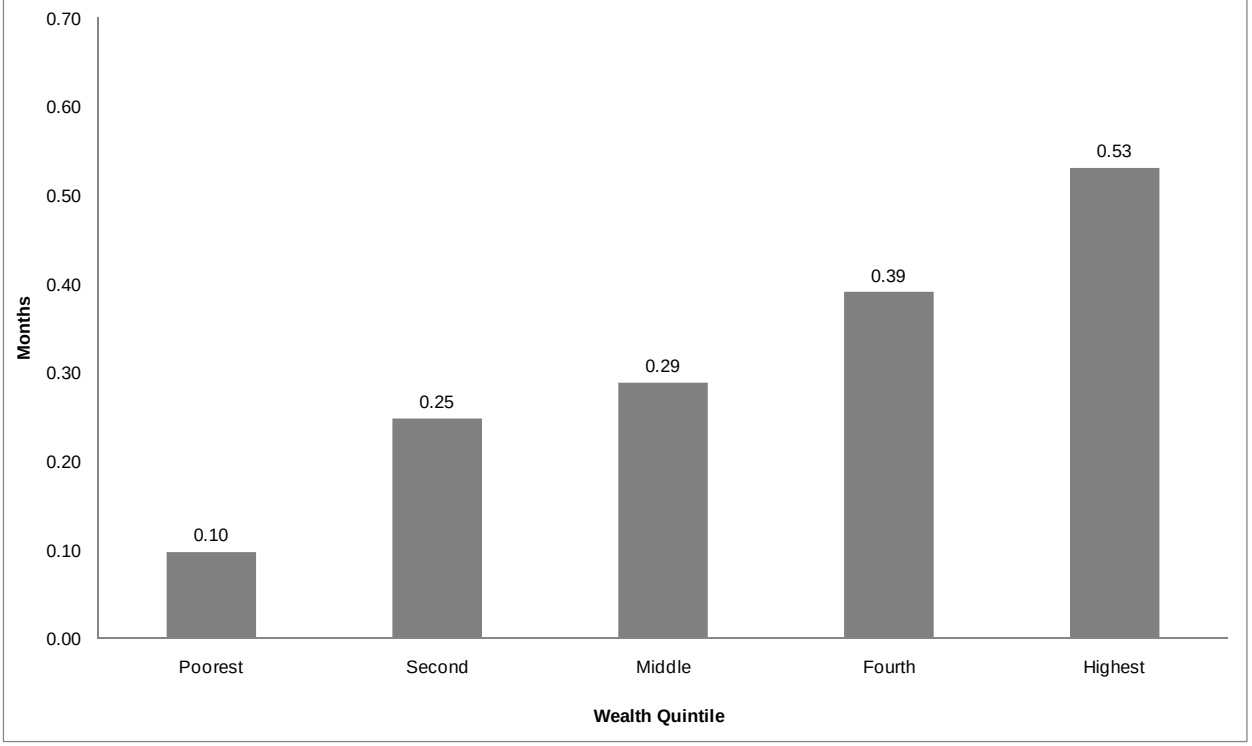


Figure 2.9. Annual Average Change in Median Birth-Interval Length by Level of Maternal Education

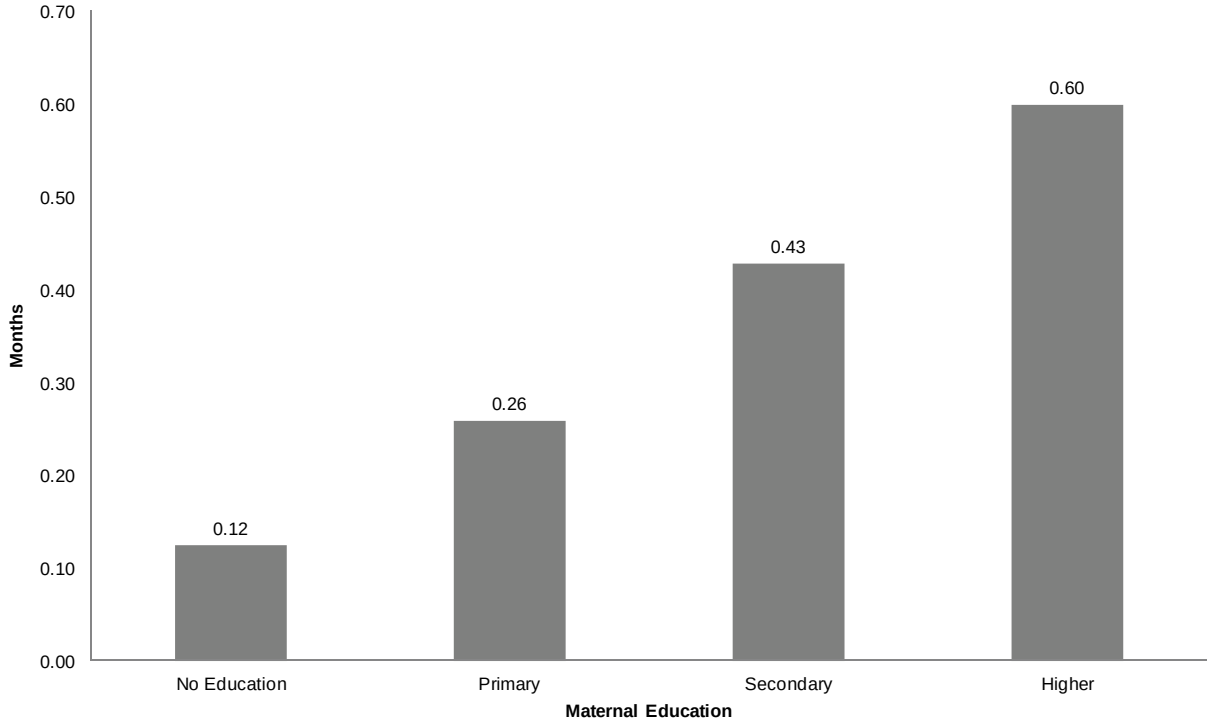
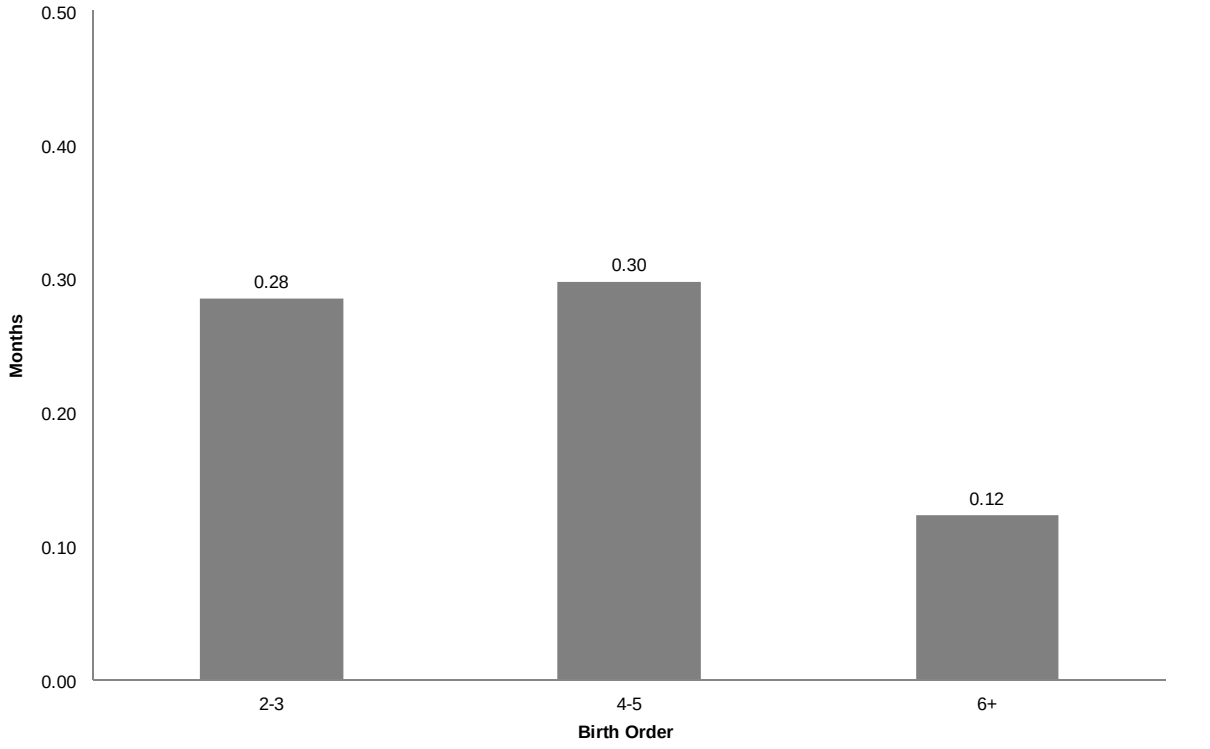


Figure 2.10. Annual Average Change in Median Birth-Interval Length by Birth Order



3 Preferred Birth Intervals

3.1 Preferred Intervals and Differences with Actual Intervals

Information on mothers' preferred birth interval is provided in Table 3.1 (a and b). For all the countries together, the most recent surveys indicate that mothers would prefer a median birth interval of 41.5 months, over 9 months longer than their actual median interval in the five years preceding the surveys (Table 3.1.b, Table 3.1.c, and Figure 3.1). The Latin America and Caribbean region and the South and Southeast Asia region have the longest preferred birth intervals, at 47.3 and 45.8 months, respectively. These two regions also have the greatest differences between actual and preferred birth intervals, at 17.4 and 12.2 months, respectively.

Table 3.1.a. Length of Preferred Birth Intervals by Country, for Most Recent Survey

Percentage of preferred birth intervals less than 24 months, less than 36 months, and 60 months or more, and median length of birth intervals, for intervals ending in the 5 years prior to the survey, by country

Survey	<24 mos	<36 mos	60+ mos	Median interval	Number of intervals[1]
Central Asian States					
Kazakhstan, 1999	32.3	50.1	26.7	34.5	686
Kyrgyz Republic, 1997	18.0	37.2	29.6	42.9	656
Uzbekistan, 1996	20.5	44.7	9.7	37.3	750
Latin America and Caribbean					
Bolivia, 2003	18.9	38.4	38.3	44.1	3,637
Brazil, 1996	23.0	40.2	30.4	41.6	1,739
Colombia, 2005	13.5	27.5	46.9	52.8	5,094
Dominican Republic, 2007	14.6	30.0	43.5	50.3	5,372
Ecuador, 1987	5.1	20.3	44.3	54.1	508
El Salvador, 1985	2.7	22.9	33.5	47.9	604
Guatemala, 1999	26.1	57.9	14.0	31.0	2,470
Haiti, 2005	15.8	36.4	41.3	41.9	2,869
Honduras, 2005	10.7	25.2	46.3	54.1	4,898
Mexico, 1987	6.1	21.7	33.7	48.6	836
Nicaragua, 2001	17.1	34.0	39.9	48.0	2,859
Paraguay, 1990	31.2	54.3	17.2	31.5	2,248
Peru, 2004	8.1	20.3	57.9	60.8	6,159
Trinidad and Tobago, 1987	3.4	16.0	46.1	56.1	388
North Africa, West Asia and Europe					
Armenia, 2005	24.7	47.2	17.9	36.6	736
Azerbaijan, 2006	40.4	67.5	8.3	26.4	997
Egypt, 2008	20.7	54.0	8.4	33.3	5,154
Jordan, 2007	29.1	53.1	15.9	32.6	5,885
Moldova, 2005	12.4	26.2	41.0	51.9	707
Morocco, 2003	13.7	30.8	37.0	47.3	3,126
Tunisia, 1988	7.6	26.8	35.9	48.4	866
Turkey, 2003	30.7	54.2	22.5	32.1	1,215
Ukraine, 2007	15.9	34.2	29.9	45.5	409
Yemen, 1991	na	na	na	na	na
Sub-Saharan Africa					
Benin, 2006	12.5	46.7	10.9	36.0	10,976

(Cont'd)

Table 3.1.a. – cont'd

Survey	<24 mos	<36 mos	60+ mos	Median interval	Number of intervals[1]
Burkina Faso, 2003	8.0	30.6	20.2	41.7	7,854
Burundi, 1987	2.4	22.7	13.0	42.3	1,330
Cameroon, 2004	18.5	56.2	12.6	32.3	5,343
Central African Republic, 1994	20.2	57.1	10.5	31.6	1,601
Chad, 2004	20.2	58.8	5.4	31.2	4,407
Comoros, 1996	18.1	39.6	25.3	40.3	656
Congo Brazzaville, 2005	9.5	30.1	34.8	45.6	3,107
Congo, Democratic Republic, 2007	21.9	57.2	11.0	31.8	5,955
Cote D'Ivoire, 1998	14.6	41.4	21.8	38.4	1,546
Ethiopia, 2005	17.3	40.0	25.1	39.6	6,628
Gabon, 2000	15.6	34.8	37.4	45.1	2,441
Ghana, 2008	8.3	27.0	34.5	48.3	1,771
Guinea, 2005	12.5	46.4	7.6	35.8	4,495
Kenya, 2003	19.0	44.2	26.8	38.3	3,373
Lesotho, 2004	10.8	30.3	37.8	44.1	1,416
Liberia, 2007	15.8	40.0	32.9	40.3	3,421
Madagascar, 2004	20.8	50.0	16.4	34.9	3,809
Malawi, 2004	10.9	37.0	21.1	40.0	6,227
Mali, 2006	22.0	57.4	7.3	32.0	10,063
Mozambique, 2003	14.9	50.5	10.7	34.7	7,293
Namibia, 2006-2007	12.8	33.9	35.6	44.5	1,818
Niger, 2006	16.2	55.8	5.3	32.7	7,849
Nigeria, 2008	23.8	61.6	6.3	30.3	19,273
Rwanda, 2005	16.9	44.9	20.0	37.0	5,118
Senegal, 2005	14.2	46.4	13.2	36.3	7,346
Sierra Leone, 2008	19.5	49.4	15.9	34.8	3,408
South Africa, 1998	12.4	29.2	42.2	47.3	1,617
Sudan, 1990	8.7	39.9	14.5	37.9	1,920
Swaziland, 2006	13.6	31.9	46.3	49.9	882
Tanzania, 2004	12.4	44.3	21.0	37.0	6,071
Togo, 1998	5.8	22.8	32.6	47.2	2,156
Uganda, 2006	18.1	49.9	17.3	34.9	5,230
Zambia, 2007	12.3	42.7	21.5	37.4	3,888
Zimbabwe, 2005	8.6	27.1	39.5	48.9	2,793
South and Southeast Asia					
Bangladesh, 2007	14.4	31.1	42.2	49.6	2,869
Cambodia, 2005	15.2	37.3	32.5	42.3	3,555
India, 2006	27.3	58.5	9.7	30.9	27,070
Indonesia, 2007	10.8	23.2	54.8	61.3	8,000
Nepal, 2006	21.1	49.7	15.8	35.1	2,435
Pakistan, 2006	31.9	62.8	8.3	28.6	5,292
Philippines, 2008	25.3	45.0	30.7	37.8	2,601
Sri Lanka, 1987	2.8	12.9	46.7	56.4	908
Thailand, 1987	4.1	16.5	48.2	55.0	878
Vietnam, 2002	11.7	19.8	56.0	60.8	541

[1]Weighted number of intervals

na: not ascertained

Table 3.1.b. Length of Preferred Birth Intervals by Region, for Most Recent Survey

Percentage of preferred birth intervals less than 24 months, less than 36 months, and 60 months or more, and median length of birth intervals, for intervals ending in the 5 years prior to the survey, by region

Averages	<24 mos	<36 mos	60+ mos	Median interval	Number of intervals[1]
Total	**16.0**	**39.5**	**27.0**	**41.5**	**278,098**
Central Asian States	23.6	44.0	22.0	38.2	2,092
Latin America and Caribbean	14.0	31.8	38.1	47.3	39,681
North Africa, West Asia and Europe	21.7	43.8	24.1	39.3	19,095
Sub-Saharan Africa	14.5	42.2	21.6	38.9	163,081
South and Southeast Asia	16.5	35.7	34.5	45.8	54,149

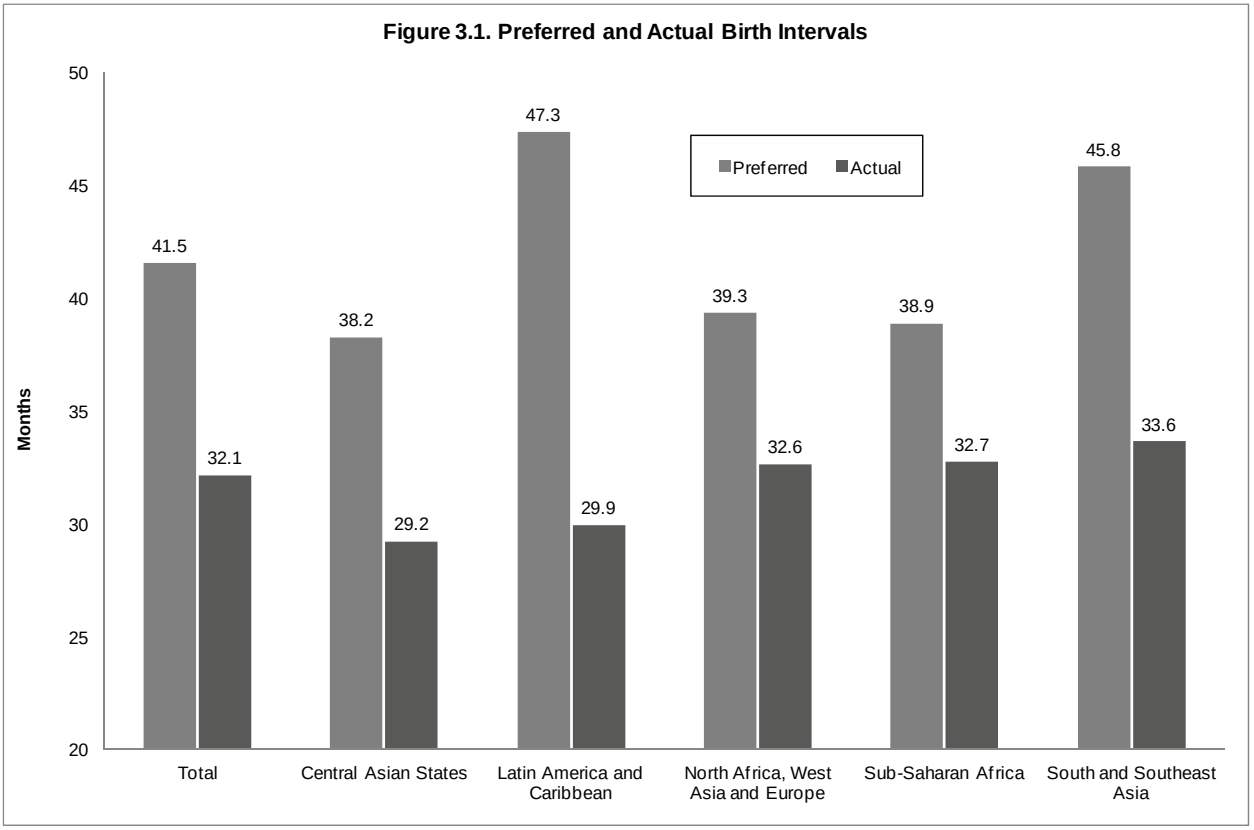
[1]Weighted number of intervals

Table 3.1.c. Differences between Lengths of Preferred and Actual Birth Intervals, by Region

Preferred minus actual birth intervals less than 24 months, less than 36 months, and 60 months or more, and median length of birth intervals, for intervals ending in the 5 years prior to the survey, by region

Averages	<24 mos	<36 mos	60+ mos	Median interval
Total	**-8.6**	**-17.9**	**(3.8)**	**9.4**
Central Asian States	-9.4	-18.1	(3.0)	9.0
Latin America and Caribbean	-16.4	-29.0	11.3	17.4
North Africa, West Asia and Europe	-8.4	-12.3	(4.2)	6.7
Sub-Saharan Africa	-5.4	-14.7	(11.9)	6.2
South and Southeast Asia	-8.2	-18.6	3.7	12.2

Figure 3.1. Preferred and Actual Birth Intervals



Only 16 percent of mothers prefer an interval shorter than 24 months, but 9 percentage points more of them have such a short interval. By far, preferences and reality diverge most in Latin America and the Caribbean, where 14 percent of mothers prefer an interval less than 24 months but 30 percent of birth intervals are less than 24 months.

For intervals shorter than 36 months, again the Latin America and Caribbean region has the greatest divergence between actual and preferred intervals: only 32 percent of mothers wanted an interval shorter than 36 months but 61 percent of intervals are shorter than 36 months, a difference of 29 percentage points. By country, the percentage of mothers wanting an interval shorter than 36 months varies from 13 percent in Sri Lanka (in 1987) to 68 percent in Azerbaijan (in 2006).

For intervals of 60 or more months, the divergence is also greatest for Latin America and the Caribbean, with 26 percent of mothers wanting to wait longer between births than they actually waited.

Table 3.2 (a and b) presents the difference between preferred and actual birth-interval length in another way. In this table, mothers are grouped into three categories by comparing the length of the intervals: preferred is more than 3 months shorter than actual; preferred is within 3 months of actual; and preferred is more than 3 months longer than actual. Overall, only 14 percent of mothers had their latest birth within 3 months of their preference. By region, the smallest percentage is in the Central Asian States (10 percent) and the greatest in North Africa, West Asia and Europe (16 percent).

More than 6 of 10 mothers preferred a birth interval longer by 4 or more months than their actual interval. In no region is this proportion less than half, and it reaches 7 in 10 mothers in the Central Asian States. Again, Sri Lanka has the largest percentage of mothers who wanted an interval of 4 or more months longer than they actually had, at 79 percent, and Guinea has the smallest percentage, at 38 percent.

Overall, about one in four women preferred an interval shorter than their actual interval.

Table 3.2.a. Preferred versus Actual Birth Intervals by Country, for Most Recent Survey

Percentage of preferred birth intervals less than actual intervals[1], percentage of preferred intervals within 3 months of actual intervals, and percentage of preferred intervals greater than actual intervals[2], for actual intervals ending within five years prior to the survey, by country

Survey	Preferred < Actual	Preferred within 3 months of Actual	Preferred > Actual	Number of intervals[3]
Central Asian States				
Kazakhstan, 1999	22.3	14.0	63.7	203
Kyrgyz Republic, 1997	20.1	8.0	71.9	525
Uzbekistan, 1996	19.6	9.5	70.9	596
Latin America and Caribbean				
Bolivia, 2003	19.6	12.8	67.6	902
Brazil, 1996	19.1	16.7	64.1	312
Colombia, 2005	20.0	12.9	67.0	984
Dominican Republic, 2007	22.5	10.2	67.3	1,537
Ecuador, 1987	21.7	5.7	72.6	318
El Salvador, 1985	20.7	8.4	70.9	449
Guatemala, 1999	22.6	22.9	54.6	731
Haiti, 2005	14.2	15.9	69.9	845
Honduras, 2005	19.3	11.1	69.6	1,661
Mexico, 1987	17.3	6.2	76.5	506
Nicaragua, 2001	17.0	10.3	72.7	803
Paraguay, 1990	19.3	20.0	60.7	807
Peru, 2004	22.4	7.4	70.2	1,586
Trinidad and Tobago, 1987	17.9	4.1	78.0	218
North Africa, West Asia and Europe				
Armenia, 2005	15.7	8.2	76.1	140
Azerbaijan, 2006	25.7	20.4	54.0	156
Egypt, 2008	22.9	20.9	56.2	1,362
Jordan, 2007	18.1	17.5	64.4	2,622
Moldova, 2005	33.7	14.0	52.3	101
Morocco, 2003	16.1	10.4	73.5	1,250
Tunisia, 1988	14.1	8.9	76.9	693
Turkey, 2003	20.0	22.3	57.7	213
Ukraine, 2007	43.5	8.0	48.5	56
Yemen, 1991	na	na	na	na
Sub-Saharan Africa				
Benin, 2006	29.7	19.4	50.9	5,486
Burkina Faso, 2003	21.0	16.6	62.4	4,187
Burundi, 1987	20.1	12.6	67.4	1,298
Cameroon, 2004	31.8	21.6	46.6	2,482
Central African Republic, 1994	35.6	14.7	49.7	1,389
Chad, 2004	35.0	25.0	40.0	2,326
Comoros, 1996	22.3	11.5	66.2	557
Congo Brazzaville, 2005	25.4	13.7	60.9	1,562
Congo, Democratic Republic, 2007	28.6	20.3	51.1	2,719
Cote D'Ivoire, 1998	28.9	15.2	55.9	792
Ethiopia, 2005	21.8	15.8	62.4	3,035
Gabon, 2000	22.1	14.2	63.7	1,005

(Cont'd)

Table 3.2.a. – cont'd

Survey	Preferred < Actual	Preferred within 3 months of Actual	Preferred > Actual	Number of intervals[3]
Ghana, 2008	23.5	10.1	66.4	847
Guinea, 2005	44.8	16.8	38.3	2,563
Kenya, 2003	21.3	14.6	64.1	1,292
Lesotho, 2004	25.9	10.5	63.6	510
Liberia, 2007	25.5	15.0	59.5	1,656
Madagascar, 2004	21.5	18.8	59.7	1,529
Malawi, 2004	19.2	15.3	65.6	2,760
Mali, 2006	33.2	21.2	45.6	5,228
Mozambique, 2003	34.9	19.5	45.6	3,567
Namibia, 2006-2007	35.9	10.9	53.2	611
Niger, 2006	36.9	20.4	42.8	4,568
Nigeria, 2008	35.1	21.6	43.3	9,371
Rwanda, 2005	14.5	15.9	69.5	2,094
Senegal, 2005	27.6	16.7	55.8	3,715
Sierra Leone, 2008	42.4	11.8	45.8	1,620
South Africa, 1998	32.7	8.8	58.6	501
Sudan, 1990	27.6	12.6	59.8	1,818
Swaziland, 2006	18.4	9.3	72.3	254
Tanzania, 2004	22.3	15.9	61.8	2,901
Togo, 1998	21.7	10.9	67.4	1,975
Uganda, 2006	18.4	20.7	60.9	2,182
Zambia, 2007	20.3	17.6	62.0	1,776
Zimbabwe, 2005	18.7	11.9	69.4	1,126
South and Southeast Asia				
Bangladesh, 2007	21.2	8.5	70.4	699
Cambodia, 2005	16.0	12.5	71.5	1,237
India, 2006	28.6	24.6	46.7	6,488
Indonesia, 2007	23.7	8.7	67.6	2,596
Nepal, 2006	25.8	22.8	51.4	552
Pakistan, 2006	26.7	21.5	51.8	1,927
Philippines, 2008	17.0	16.4	66.6	684
Sri Lanka, 1987	15.9	5.1	79.0	445
Thailand, 1987	14.8	7.6	77.6	334
Vietnam, 2002	22.4	7.9	69.7	255

[1] Preferred 3 or more months shorter than actual intervals

[2] Preferred 3 or more months longer than actual intervals

[3] Weighted number of intervals

na: not ascertained

Table 3.2.b. Preferred versus Actual Birth Intervals by Region, for Most Recent Survey

Percentage of preferred birth intervals less than actual intervals[1], percentage of preferred intervals within 3 months of actual intervals, and percentage of preferred intervals greater than actual intervals[2], for actual intervals ending within five years prior to the survey, by region

	Preferred < Actual		
Averages	**Preferred < Actual**	**Preferred within 3 months of Actual**	**Preferred > Actual**
Total	**24.0**	**14.2**	**61.8**
Central Asian States	19.8	10.1	70.1
Latin America and Caribbean	19.3	11.4	69.3
North Africa, West Asia and Europe	24.9	15.8	59.4
Sub-Saharan Africa	26.7	15.3	57.9
South and Southeast Asia	21.2	14.1	64.7

[1] Preferred 3 or more months shorter than actual intervals

[2] Preferred 3 or more months longer than actual intervals

3.2 Trends in Preferred Intervals

The length of birth intervals that women prefer has not changed much over time (Table 3.3 a and b). Overall, on average, the median length increased 0.7 months, and the per-year change was +0.15, implying that over a decade the average change was +1.5 months. The fastest change was in the Central Asian States, where there was a decrease in the median preferred interval of 1.18 months per year. In the other regions, the rate of change was positive, and highest in Latin America and the Caribbean, at +0.44 months per year (+4.4 months per decade). Except for the Central Asian States, the percentage of preferred intervals of less than 36 months decreased, but the rates of decrease were very small. In the Central Asian States, the percentage increased at a fairly large rate of 17 percentage points per decade.

Table 3.3.a. Trends in Length of Preferred Birth Intervals, by Country

Percentage point changes between the earliest and latest surveys and average percentage point change per year in the percentage of preferred birth intervals less than 24 months, less than 36 months, and 60 months or more, and in median length of preferred birth intervals in months, for intervals ending in the 5 years prior to the survey, by country

	Total							
	Trend (Last-First)				Change per year			
Survey	**<24 mos**	**<36 mos**	**60+ mos**	**Median interval**	**<24 mos**	**<36 mos**	**60+ mos**	**Median interval**
Central Asian States								
Kazakhstan, 1995 to 1999	7.7	6.9	2.5	-4.7	1.93	1.73	0.63	-1.18
Latin America and Caribbean								
Bolivia, 1989 to 2003	12.7	14.3	6.6	-3.3	0.91	1.02	0.47	-0.24
Brazil, 1986 to 1996	16.3	17.7	-9.8	-10.2	1.63	1.77	-0.98	-1.02
Colombia, 1986 to 2005	8.9	7.1	8.5	0.4	0.47	0.37	0.45	0.02
Dominican Republic, 1986 to 2007	4.8	-1.5	12.4	8.4	0.23	-0.07	0.59	0.40
Guatemala, 1987 to 1999	19.8	24.2	-3.4	-9.6	1.65	2.02	-0.28	-0.80
Haiti, 1994 to 2005	-3.7	-10.9	13.3	5.7	-0.34	-0.99	1.21	0.52
Nicaragua, 1998 to 2001	-9.6	-15.1	13.4	13.0	-3.20	-5.03	4.47	4.33
Peru, 1986 to 2004	2.8	1.2	9.8	5.6	0.14	0.06	0.49	0.28

(Cont'd)

Table 3.3.a. – cont'd

	Total							
	Trend (Last-First)				Change per year			
Survey	<24 mos	<36 mos	60+ mos	Median interval	<24 mos	<36 mos	60+ mos	Median interval
North Africa, West Asia and Europe								
Armenia, 2000 to 2005	-10.1	-8.1	3.5	6.0	-2.02	-1.62	0.70	1.20
Egypt, 1988 to 2008	9.5	14.7	-8.3	-5.1	0.48	0.74	-0.42	-0.26
Jordan, 1990 to 2007	13.6	9.7	-1.5	-4.1	0.80	0.57	-0.09	-0.24
Morocco, 1987 to 2003	0.4	-8.3	11.4	7.8	0.02	-0.52	0.71	0.49
Turkey, 1993 to 2003	3.3	7.1	-3.5	-4.3	0.33	0.71	-0.35	-0.43
Sub-Saharan Africa								
Benin, 1996 to 2006	2.3	6.7	0.5	-1.9	0.23	0.67	0.05	-0.19
Burkina Faso, 1993 to 2003	-2.6	-9.4	7.9	3.7	-0.26	-0.94	0.79	0.37
Cameroon, 1991 to 2004	-0.2	-4.2	4.9	1.1	-0.02	-0.32	0.38	0.08
Chad, 1997 to 2004	-1.3	-1.0	0.6	-0.2	-0.19	-0.14	0.09	-0.03
Cote D'Ivoire, 1994 to 1998	2.7	-2.4	2.9	0.3	0.68	-0.60	0.73	0.07
Ethiopia, 2000 to 2005	0.4	-3.6	8.1	2.4	0.08	-0.72	1.62	0.48
Ghana, 1988 to 2008	6.6	11.6	5.4	-0.6	0.33	0.58	0.27	-0.03
Guinea, 1999 to 2005	-3.0	-1.7	-1.7	0.4	-0.50	-0.28	-0.28	0.07
Kenya, 1989 to 2003	14.7	20.9	0.2	-6.6	1.05	1.49	0.01	-0.47
Liberia, 1986 to 2007	-4.0	-8.3	15.6	4.7	-0.19	-0.40	0.74	0.22
Madagascar, 1992 to 2004	-5.6	-10.4	7.2	5.2	-0.47	-0.87	0.60	0.43
Malawi, 1992 to 2004	-4.1	-12.3	10.8	4.8	-0.34	-1.03	0.90	0.40
Mali, 1987 to 2006	9.4	0.6	0.5	-0.6	0.49	0.03	0.03	-0.03
Mozambique, 1997 to 2003	-2.8	-2.2	1.6	1.1	-0.47	-0.37	0.27	0.18
Namibia, 1992 to 2007	-10.1	-24.9	24.8	13.3	-0.67	-1.66	1.65	0.89
Niger, 1992 to 2006	-4.5	-3.6	0.4	1.1	-0.32	-0.26	0.03	0.08
Nigeria, 1992 to 2008	5.2	12.5	-2.5	-5.0	0.29	0.69	-0.14	-0.28
Rwanda, 1992 to 2005	4.4	8.7	-9.1	-5.5	0.34	0.67	-0.70	-0.42
Senegal, 1986 to 2005	5.9	-3.4	7.4	1.2	0.31	-0.18	0.39	0.06
Tanzania, 1992 to 2004	-2.0	-6.7	10.3	2.5	-0.17	-0.56	0.86	0.21
Togo, 1988 to 1998	1.6	0.2	7.6	2.4	0.16	0.02	0.76	0.24
Uganda, 1988 to 2006	-3.4	-13.4	13.2	4.2	-0.19	-0.74	0.73	0.23
Zambia, 1992 to 2007	-3.8	-13.4	12.3	4.9	-0.25	-0.89	0.82	0.33
Zimbabwe, 1988 to 2005	5.4	6.5	4.4	-0.1	0.32	0.38	0.26	-0.01
South and Southeast Asia								
Bangladesh, 1994 to 2007	0.0	2.4	-2.1	-3.1	0.00	0.18	-0.16	-0.24
Cambodia, 2000 to 2005	-7.3	-12.9	13.2	7.5	-1.46	-2.58	2.64	1.50
India, 1993 to 2006	6.4	7.4	-0.6	-3.5	0.49	0.57	-0.05	-0.27
Indonesia, 1987 to 2007	9.8	17.0	-12.1	-4.0	0.49	0.85	-0.61	-0.20
Nepal, 1996 to 2006	3.6	8.6	-1.4	-4.1	0.36	0.86	-0.14	-0.41
Pakistan, 1991 to 2006	-1.4	-4.0	2.9	0.7	-0.09	-0.27	0.19	0.05
Philippines, 1993 to 2008	-1.2	-2.5	7.3	1.5	-0.08	-0.17	0.49	0.10
Vietnam, 1997 to 2002	-2.0	-6.5	2.8	0.9	-0.40	-1.30	0.56	0.18

Table 3.3.b. Trends in Length of Preferred Birth Intervals, by Region

Percentage point changes between the earliest and latest surveys and average percentage point change per year in the percentage of preferred birth intervals less than 24 months, less than 36 months, and 60 months or more, and in median length of preferred birth intervals in months, for intervals ending in the 5 years prior to the survey, by region

	Total							
	Trend (Last-First)				Change per year			
Averages	<24 mos	<36 mos	60+ mos	Median interval	<24 mos	<36 mos	60+ mos	Median interval
Total	**2.1**	**0.3**	**4.3**	**0.7**	**0.06**	**-0.14**	**0.46**	**0.15**
Central Asian States	7.7	6.9	2.5	-4.7	1.93	1.73	0.63	-1.18
Latin America and Caribbean	6.5	4.6	6.4	1.3	0.19	-0.11	0.80	0.44
North Africa, West Asia and Europe	3.3	3.0	0.3	0.1	-0.08	-0.02	0.11	0.15
Sub-Saharan Africa	0.5	-2.2	5.6	1.4	0.01	-0.23	0.45	0.12
South and Southeast Asia	1.0	1.2	1.3	-0.5	-0.09	-0.23	0.37	0.09

In 19 of the 46 countries with trend data, the median length of preferred intervals shrank, with Kazakhstan reporting the greatest rate of shrinkage (-1.18 months per year). In 27 countries, the median preferred length increased, with the greatest rate of increase occurring in Nicaragua, at +4.33 months per year.

Another way of looking at trends in preferred birth intervals is to compare them with the actual intervals. Table 3.4 (a and b) shows trends in the percentages of preferred intervals 4 or more months less than the actual intervals, within 3 months of the actual intervals, and 4 or more months greater than the actual intervals. There has been little change overall, with rates of change per year in the respective percentages of -0.07, +0.01, and +0.06 points. The greatest rates of change were in the Central Asian States, where the percentage with preferred intervals less than 3 months of the actual intervals grew (+0.75 points per year), and the percentage with preferred intervals greater than 3 months of the actual intervals shrank (-2.05 points per year).

Table 3.4.a. Trends in Length of Preferred versus Actual Birth Intervals, by Country

Percentage point changes between the earliest and latest surveys and average percentage point change per year in the percentage of preferred birth intervals less than actual intervals, percentage of preferred intervals within 3 months of actual intervals and percentage of preferred intervals greater than actual intervals, for actual intervals ending in the 5 years prior to the survey, by country

	Total					
	Trend (Last-First)			Change per year		
Survey	Preferred < Actual	Preferred within 3 months of Actual	Preferred > Actual	Preferred < Actual	Preferred within 3 months of Actual	Preferred > Actual
Central Asian States						
Kazakhstan, 1995 to 1999	3.0	5.2	-8.2	0.75	1.30	-2.05
Latin America and Caribbean						
Bolivia, 1989 to 2003	-9.3	4.6	4.7	-0.66	0.33	0.34
Brazil, 1986 to 1996	0.4	7.9	-8.4	0.04	0.79	-0.84
Colombia, 1986 to 2005	1.9	7.9	-9.9	0.10	0.42	-0.52
Dominican Republic, 1986 to 2007	2.2	0.8	-2.9	0.10	0.04	-0.14
Guatemala, 1987 to 1999	-2.6	12.0	-9.3	-0.22	1.00	-0.78

(Cont'd)

Table 3.4.a. – cont'd

	Total					
	Trend (Last-First)			Change per year		
Survey	Preferred < Actual	Preferred within 3 months of Actual	Preferred > Actual	Preferred < Actual	Preferred within 3 months of Actual	Preferred > Actual
Haiti, 1994 to 2005	-2.7	-7.9	10.6	-0.25	-0.72	0.96
Nicaragua, 1998 to 2001	2.3	-6.9	4.6	0.77	-2.30	1.53
Peru, 1986 to 2008	3.5	-0.4	-3.1	0.18	-0.02	-0.16
North Africa, West Asia and Europe						
Armenia, 2000 to 2005	-6.1	-4.2	10.3	-1.22	-0.84	2.06
Egypt, 1988 to 2008	3.1	7.6	-10.7	0.16	0.38	-0.54
Jordan, 1990 to 2007	1.1	8.6	-9.7	0.06	0.51	-0.57
Morocco, 1987 to 2003	-7.9	-2.1	10.0	-0.49	-0.13	0.63
Turkey, 1993 to 2003	2.7	1.3	-3.9	0.27	0.13	-0.39
Sub-Saharan Africa						
Benin, 1996 to 2006	-0.3	2.7	-2.4	-0.03	0.27	-0.24
Burkina Faso, 1993 to 2003	-3.0	-1.4	4.4	-0.30	-0.14	0.44
Cameroon, 1991 to 2004	1.8	-0.9	-1.0	0.14	-0.07	-0.08
Chad, 1997 to 2004	1.0	1.4	-2.4	0.14	0.20	-0.34
Cote D'Ivoire, 1994 to 1998	-1.6	2.4	-0.8	-0.40	0.60	-0.20
Ethiopia, 2000 to 2005	-1.6	-2.1	3.8	-0.32	-0.42	0.76
Ghana, 1988 to 2008	2.6	0.0	-2.6	0.13	0.00	-0.13
Guinea, 1999 to 2005	7.1	-1.2	-6.1	1.18	-0.20	-1.02
Kenya, 1989 to 2003	5.4	4.4	-9.8	0.39	0.31	-0.70
Liberia, 1986 to 2007	-13.0	3.2	9.8	-0.62	0.15	0.47
Madagascar, 1992 to 2004	0.3	-5.7	5.4	0.03	-0.48	0.45
Malawi, 1992 to 2004	-9.1	-3.6	12.8	-0.76	-0.30	1.07
Mali, 1987 to 2006	-9.3	6.2	3.1	-0.49	0.33	0.16
Mozambique, 1997 to 2003	-8.0	6.2	1.8	-1.33	1.03	0.30
Namibia, 1992 to 2007	1.2	-9.1	7.9	0.08	-0.61	0.53
Niger, 1992 to 2006	7.9	-2.2	-5.6	0.56	-0.16	-0.40
Nigeria, 1990 to 2008	-3.7	7.0	-3.3	-0.21	0.39	-0.18
Rwanda, 1992 to 2005	4.1	2.9	-7.1	0.32	0.22	-0.55
Senegal, 1986 to 2005	-5.3	-1.0	6.4	-0.28	-0.05	0.34
Tanzania, 1992 to 2004	-1.0	-4.9	5.9	-0.08	-0.41	0.49
Togo, 1988 to 1998	-5.0	-2.0	7.0	-0.50	-0.20	0.70
Uganda, 1988 to 2006	-18.2	2.7	15.5	-1.01	0.15	0.86
Zambia, 1992 to 2007	-7.7	-4.3	11.9	-0.51	-0.29	0.79
Zimbabwe, 1988 to 2005	2.5	2.2	-4.7	0.15	0.13	-0.28
South and Southeast Asia						
Bangladesh, 1994 to 2007	-1.8	-0.4	2.4	-0.14	-0.03	0.18
Cambodia, 2000 to 2005	-5.6	-8.3	13.9	-1.12	-1.66	2.78
India, 1993 to 2006	-0.2	8.0	-7.9	-0.02	0.62	-0.61
Indonesia, 1987 to 2007	13.5	2.9	-16.4	0.68	0.15	-0.82
Nepal, 1996 to 2006	1.2	9.5	-10.8	0.12	0.95	-1.08
Pakistan, 1991 to 2006	-8.4	-4.6	13.0	-0.56	-0.31	0.87
Philippines, 1993 to 2008	4.6	-4.4	-0.2	0.31	-0.29	-0.01
Vietnam, 1997 to 2002	7.8	-1.3	-6.5	1.56	-0.26	-1.30

Table 3.4.b. Trends in Length of Preferred versus Actual Birth Intervals, by Region

Percentage point changes between the earliest and latest surveys and average percentage point change per year in the percentage of preferred birth intervals less than actual intervals, percentage of preferred intervals within 3 months of actual intervals and percentage of preferred intervals greater than actual intervals, for actual intervals ending in the 5 years prior to the survey, by region

	Total					
	Trend (Last-First)			Change per year		
Averages	Preferred < Actual	Preferred within 3 months of Actual	Preferred > Actual	Preferred < Actual	Preferred within 3 months of Actual	Preferred > Actual
Total	**-1.1**	**0.8**	**0.3**	**-0.07**	**0.01**	**0.06**
Central Asian States	3.0	5.2	-8.2	0.75	1.30	-2.05
Latin America and Caribbean	-0.5	2.3	-1.7	0.01	-0.06	0.05
North Africa, West Asia and Europe	-1.4	2.2	-0.8	-0.24	0.01	0.24
Sub-Saharan Africa	-2.2	0.1	2.1	-0.16	0.02	0.14
South and Southeast Asia	1.4	0.2	-1.6	0.10	-0.11	0.00

3.3 Differentials

Except for the Latin America and Caribbean region, the average rate of increase in median actual lengths of birth intervals outpaces that of preferred lengths (Figure 3.2). In the Central Asian States, the preferred length drops substantially, but this rate is based only on one country's survey, Kazakhstan.

In urban areas, the annual average rate of change of median preferred-interval length exceeds that of rural areas in all regions except North Africa, West Asia and Europe, where preferred lengths in urban areas have decreased (Figure 3.3). The previously noted large decrease for Kazakhstan in preferred length occurred only in rural areas.

By wealth quintile, the increase in preferred length of birth intervals is usually greater as the level of wealth is higher. The rate of increase for the wealthiest quintile is more than three times greater than for the poorest quintile (Figure 3.4). The time trend of preferences for lengths of birth intervals varies by level of maternal education (Figure 3.5). Women with secondary education have the greatest rate of increase, while among women with no education the preferred-interval length decreases. Figure 3.6 shows changes in preferred length by women's parity at survey date. Only women who did not have a birth or who had only one birth show an increase in their preferred birth-interval lengths. Among women of other parities, the rate of decrease is greater the higher the parity.

Figure 3.2. Annual Rate of Change in Median Preferred and Actual Length of Birth Intervals

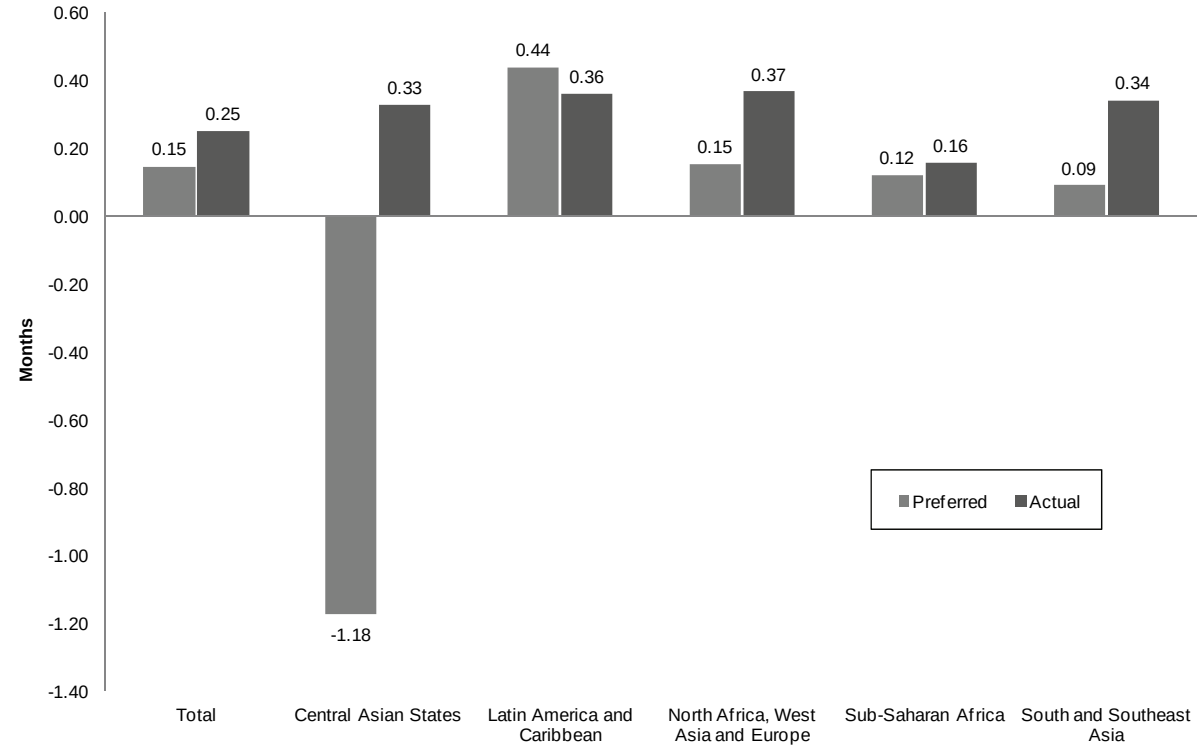


Figure 3.3. Average Annual Change in Median Length of Preferred Birth Intervals by Residence

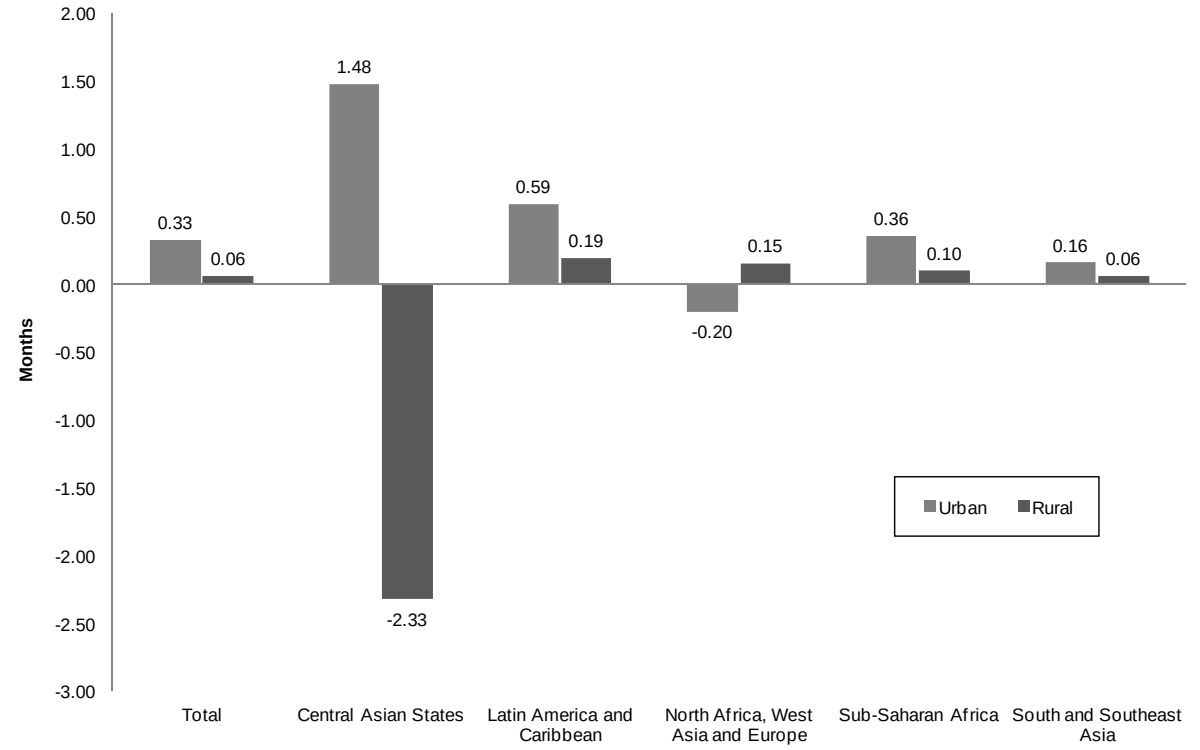


Figure 3.4. Average Annual Change in Median Length of Preferred Birth Intervals by Household Wealth Quintile

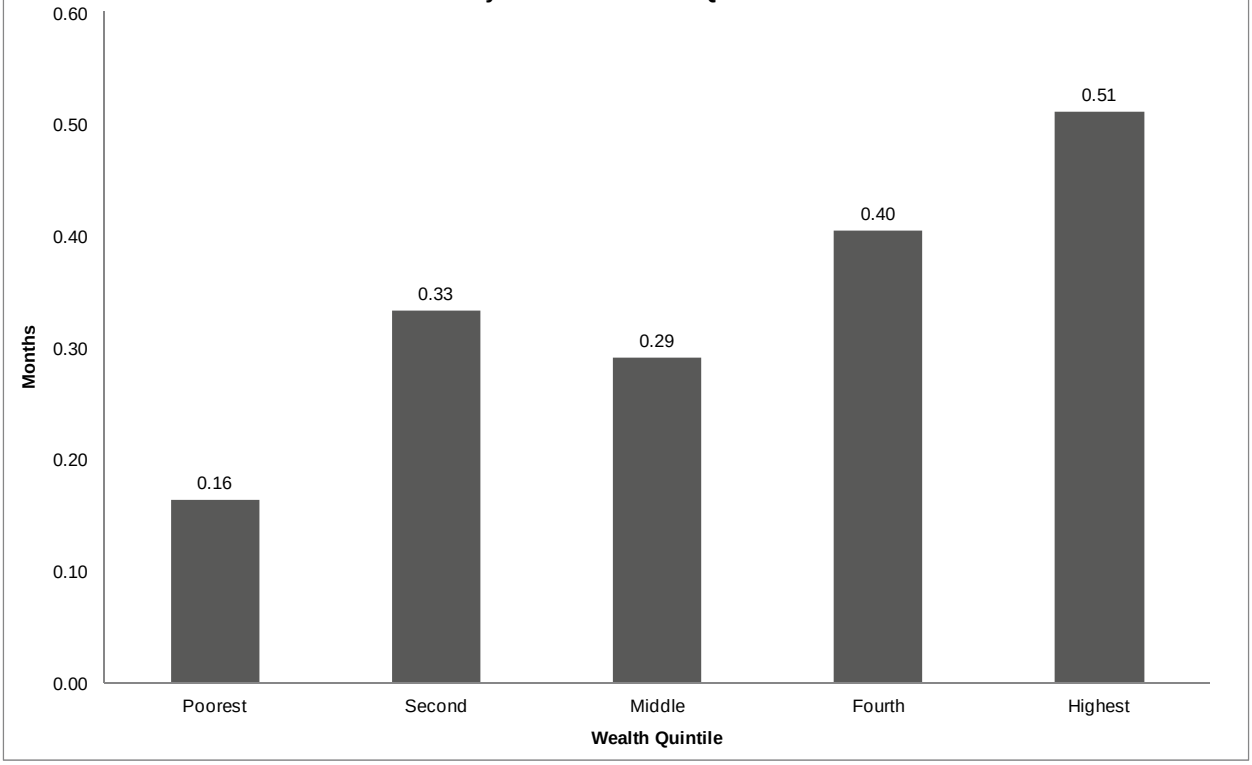


Figure 3.5. Average Annual Change in Median Length of Preferred Birth Intervals by Education

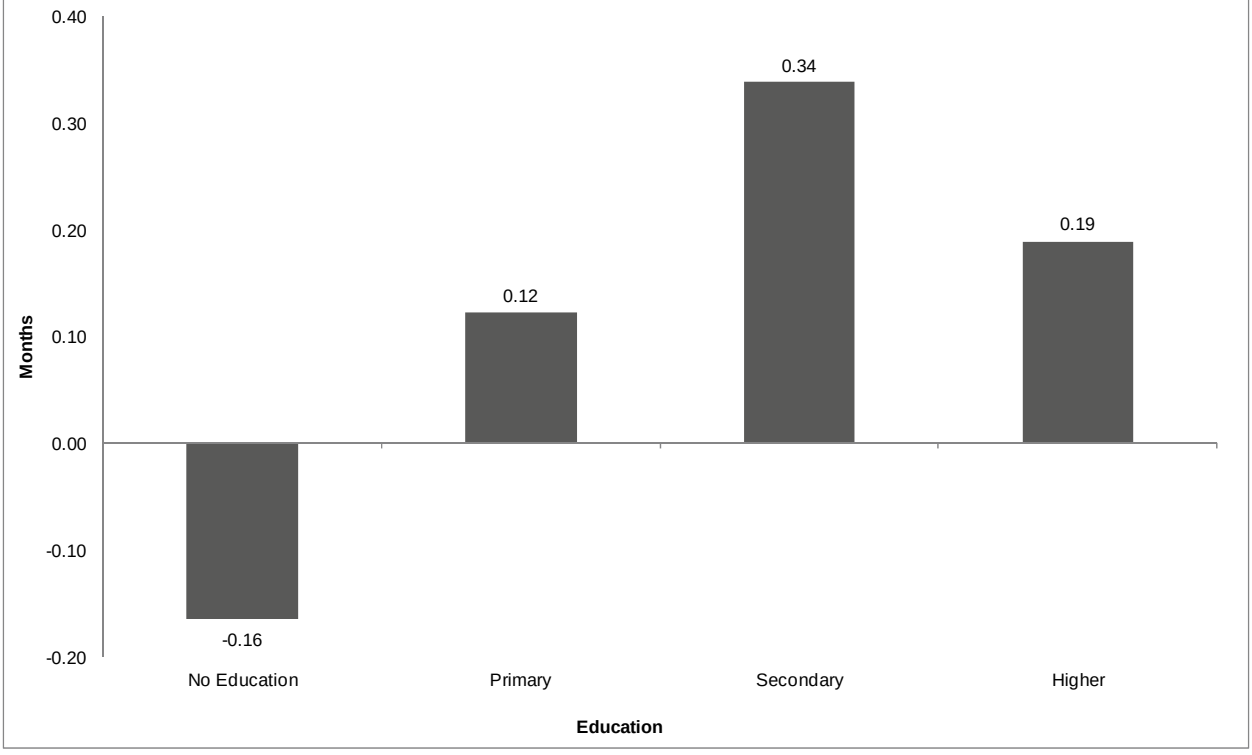
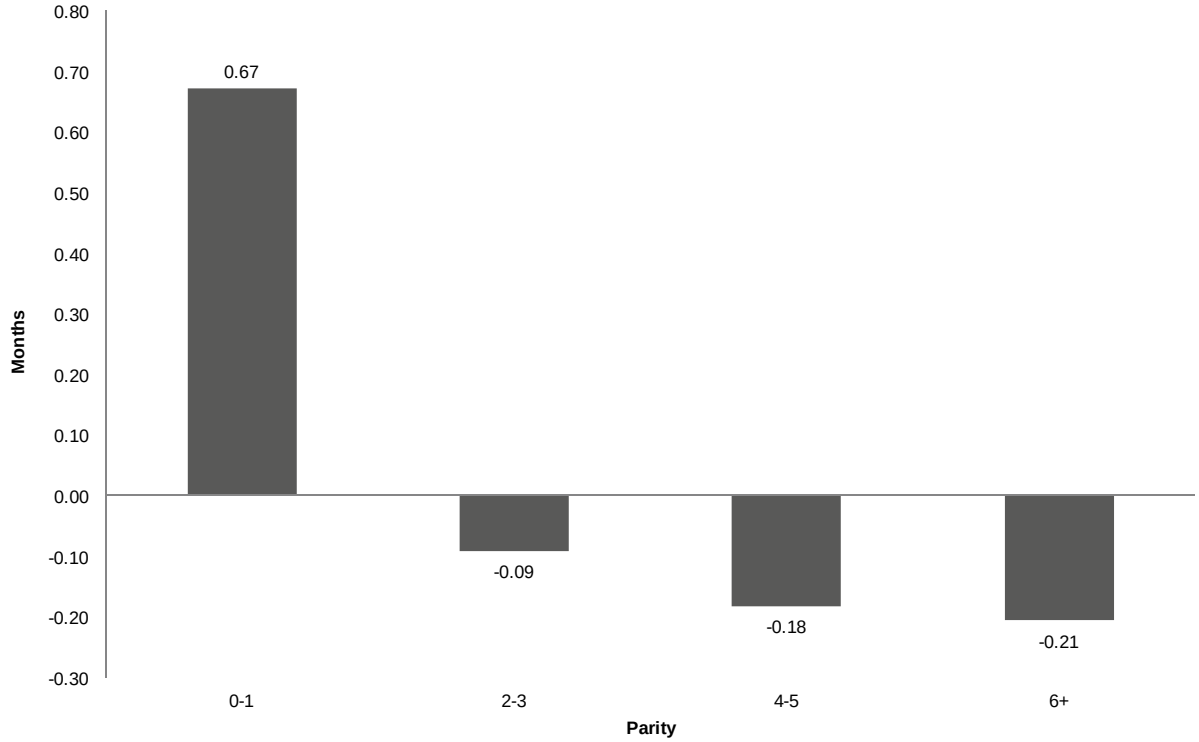


Figure 3.6. Average Annual Change in Median Length of Preferred Birth Intervals by Parity



4 Contraception for Spacing Births

4.1 Demand for Spacing Births

The demand for contraception for spacing births includes current use of contraception by married women who want another birth in two or more years from the date of the survey, plus women with an unmet need for spacing (fecund currently married women not using contraception but wanting to delay the next birth by two or more years). Over all the surveys, about one-quarter (25.5 percent) of currently married women have a demand for contraception in order to space the next birth (Table 4.1). The percentages of demand are somewhat higher in sub-Saharan Africa (28.7 percent) and the Central Asian States (27.1 percent) and somewhat lower in the North Africa, West Asia and Europe (20.3 percent) and in South and Southeast Asia (20.9 percent) (Table 4.3).

Overall, the demand for contraception for spacing has increased at an annual average rate of 0.22 percentage points (+2.2 percentage points per decade). The increase is greatest in the Central Asian States (+7.7 percentage points per decade). The South and Southeast Asian region shows a decrease in demand for contraception for spacing (-1.4 percentage points per decade), and the other two regions have between a 2.8 and 3.4 percentage point increase in demand per decade (Figure 4.1)

Figure 4.1. Average Annual Change in Demand for Contraception for Spacing Births and Percentage of Demand that is Unsatisfied, Total and by Region

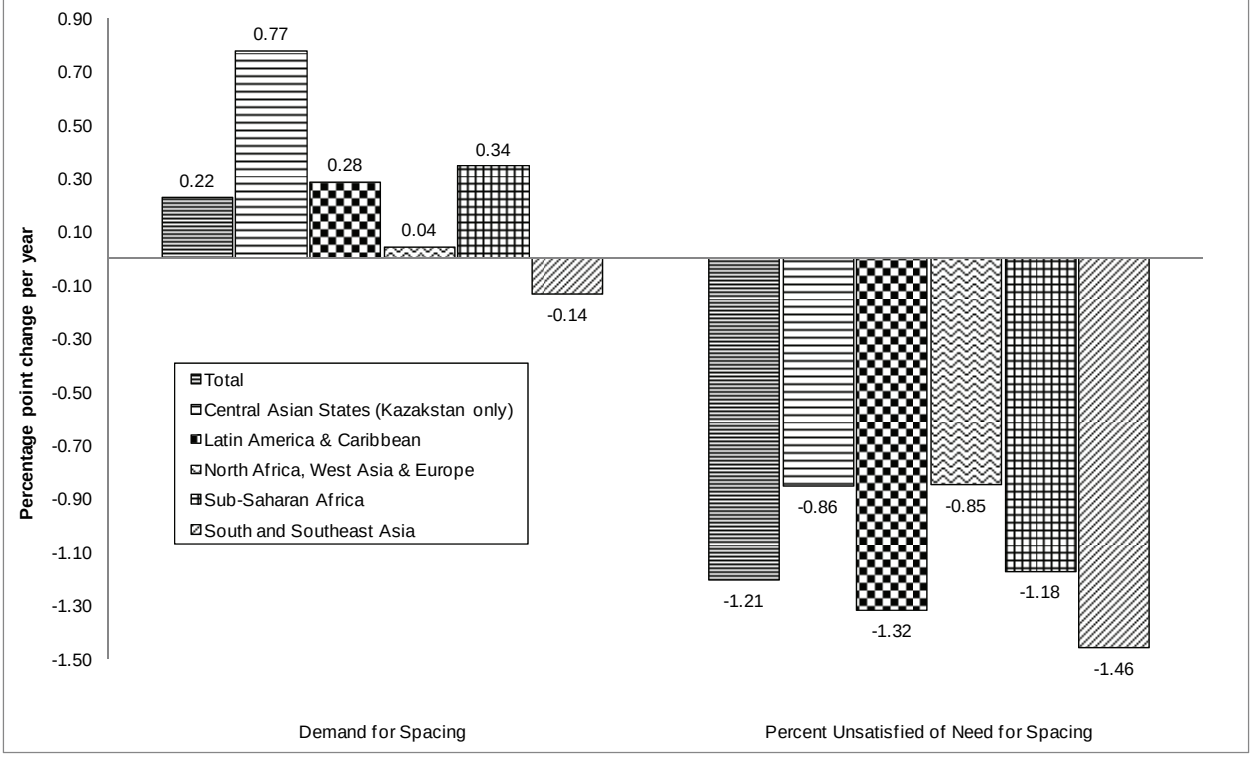


Table 4.1. Need for Spacing, by Country

Among currently married women, the percentage with an unmet need for family planning to space births, the percentage using contraception to space births, the total demand for contraception for spacing births and the percentage of demand for spacing births that is unsatisfied, by country

	Need for family planning			Percentage demand for spacing unsatisfied	Number
	Unmet need for spacing	Using to space	Demand for spacing[1]		
Central Asian States					
Kazakhstan, 1995	4.0	19.8	23.8	16.8	2,507
Kazakhstan, 1999	3.6	23.0	26.9	13.4	3,018
Kyrgyz Republic, 1997	4.5	26.3	30.7	14.7	2,675
Turkmenistan 2000	5.2	22.0	27.5	18.9	4,892
Uzbekistan, 1996	6.6	20.2	26.8	24.6	3,102
Latin America and Caribbean					
Bolivia, 1994	5.5	10.9	19.4	28.4	5,334
Bolivia, 1998	6.8	13.3	20.1	33.8	6,649
Bolivia, 2003	6.1	15.8	21.9	27.9	10,569
Brazil, 1991[a]	6.7	10.4	18.3	36.6	3,541
Brazil, 1996	2.6	14.0	17.6	14.8	7,584
Colombia, 1990	4.1	19.5	24.8	16.5	4,450
Colombia, 1995	3.2	18.9	24.0	13.3	6,097
Colombia, 2000	2.6	18.4	22.9	11.4	5,935
Colombia, 2005	2.6	16.9	20.9	12.4	19,799
Dominican Republic, 1991	8.5	10.9	20.2	42.1	4,083
Dominican Republic, 1996	7.1	14.0	22.6	31.4	4,983
Dominican Republic, 1999	7.4	17.8	26.4	28.0	728
Dominican Republic, 2002	6.7	14.8	22.5	29.8	13,996
Dominican Republic, 2007	7.0	16.1	23.1	30.3	15,417
Guatemala, 1995	12.4	7.6	20.5	60.5	7,984
Guatemala, 1999	11.8	8.5	21.0	56.2	3,964
Haiti, 1994	18.4	6.3	24.7	74.5	3,113
Haiti, 2000	15.8	9.8	25.6	61.7	5,958
Haiti, 2005	17.0	13.6	30.6	55.6	6,323
Honduras, 2005	8.4	22.8	31.3	26.8	11,613
Nicaragua, 1998	6.3	15.9	23.2	27.2	8,045
Nicaragua, 2001	5.9	20.5	26.4	22.3	7,424
Paraguay, 1990	8.8	23.6	35.0	25.1	3,574
Peru, 1992	4.1	13.9	20.8	19.7	8,741
Peru, 1996	3.5	18.2	24.4	14.3	16,885
Peru, 2000	3.5	20.3	25.6	13.7	15,628
Peru, 2004-08	3.1	23.7	28.9	10.7	22,564
Peru, 2009	2.8	23.9	28.8	9.7	13,828
North Africa, West Asia and Europe					
Armenia, 2000	2.6	11.8	15.1	17.2	4,125
Armenia, 2005	3.6	11.4	15.2	23.7	4,044
Azerbaijan, 2006	3.3	7.6	11.0	30.0	5,269
Egypt, 1995	5.3	8.6	14.4	36.8	13,710

(Cont'd)

Table 4.1. – cont'd

	Need for family planning			Percentage demand for spacing unsatisfied	Number
	Unmet need for spacing	Using to space	Demand for spacing[1]		
Egypt, 2000	3.1	11.4	14.9	20.8	14,382
Egypt, 2003	3.5	12.9	17.1	20.5	8,445
Egypt, 2005	3.6	12.4	16.5	21.8	18,187
Egypt, 2008	3.4	13.2	17.1	19.9	15,396
Jordan, 1990	8.6	11.7	22.2	38.7	6,168
Jordan, 1997	7.4	18.2	28.9	25.6	5,337
Jordan, 2002	5.6	25.5	33.0	17.0	5,706
Jordan, 2007	4.9	22.3	28.9	17.0	10,354
Moldova, 2005	2.5	19.3	22.4	11.2	4,937
Morocco, 1992	8.5	14.1	24.1	35.3	5,118
Morocco, 2003	3.5	22.3	27.0	13.0	8,782
Turkey, 1993	3.6	12.0	16.7	21.6	6,271
Turkey, 1998	3.8	14.3	19.0	20.0	5,921
Turkey, 2003	1.2	8.2	9.8	12.2	7,672
Ukraine, 2007	3.9	23.7	27.7	14.1	4,116
Yemen, 1997	17.2	7.2	24.4	70.5	9,786
Sub-Saharan Africa					
Benin, 1996	17.2	11.3	28.5	60.4	4,198
Benin, 2001	17.5	12.0	29.5	59.3	4,563
Benin, 2006	17.6	10.2	27.8	63.3	13,403
Burkina Faso, 1993	18.2	19.0	37.1	49.1	5,326
Burkina Faso, 1999	19.0	9.0	28.0	67.9	5,181
Burkina Faso, 2003	21.8	9.9	31.7	68.8	9,655
Cameroon, 1991	16.8	11.0	27.8	60.4	2,868
Cameroon, 1998	13.3	12.1	25.4	52.4	3,676
Cameroon, 2004	14.2	17.7	31.9	44.5	7,166
Central African Republic, 1994	11.6	11.9	23.5	49.4	4,083
Chad, 1997	6.6	3.1	9.7	68.0	5,832
Chad, 2004	16.6	9.9	26.5	62.6	4,663
Comoros, 1996	21.8	11.8	33.6	64.9	1,634
Congo Brazzaville, 2005	14.4	35.2	49.6	29.0	3,979
Congo, Democratic Republic, 2007	19.4	13.4	32.8	59.1	6,622
Cote D'Ivoire, 1994	20.0	8.0	28.0	71.4	5,271
Cote D'Ivoire, 1998	20.0	10.0	30.1	66.4	1,863
Eritrea, 1995	21.4	5.7	27.1	79.0	3,371
Eritrea, 2002	21.0	5.0	26.1	80.5	5,733
Ethiopia, 2000	21.3	3.7	25.1	84.9	9,789
Ethiopia, 2005	20.1	6.7	26.9	74.7	9,066
Gabon, 2000	19.9	24.0	44.0	45.2	3,348
Ghana, 1993	24.7	10.5	35.2	70.2	3,204
Ghana, 1998	21.7	12.3	34.0	63.8	3,131
Ghana, 2003	21.7	13.7	35.5	61.1	3,549
Ghana, 2008	22.5	12.3	34.8	64.7	2,876
Guinea, 1999	16.0	3.6	19.6	81.6	5,561
Guinea, 2005	13.1	5.9	19.1	68.6	6,292

(Cont'd)

Table 4.1. – cont'd

	Need for family planning			Percentage demand for spacing unsatisfied	Number
	Unmet need for spacing	Using to space	Demand for spacing[1]		
Kenya, 1993	21.4	9.9	31.3	68.4	4,629
Kenya, 1998	14.0	13.4	28.9	48.4	4,834
Kenya, 2003	14.4	14.3	30.2	47.7	4,919
Kenya 2008-09	12.9	17.5	30.4	42.4	4,928
Lesotho, 2004	11.0	13.8	24.8	44.4	3,709
Liberia, 2007	24.6	6.7	31.3	78.6	4,540
Madagascar, 1992	16.5	6.4	22.9	72.1	3,736
Madagascar, 1997	14.1	7.9	22.0	64.1	4,435
Madagascar, 2004	11.3	12.3	23.6	47.9	5,140
Madagascar, 2008-09	10.4	19.0	29.3	35.5	12,039
Malawi, 1992	23.6	7.4	31.0	76.1	3,492
Malawi, 2000	17.2	12.7	29.9	57.5	9,452
Malawi, 2004	17.2	15.5	33.8	50.9	8,312
Mali, 1996	20.1	4.3	24.3	82.7	8,222
Mali, 2001	20.9	5.1	25.9	80.7	10,723
Mali 2006	21.4	5.5	26.9	79.6	12,365
Mauritania 2000	22.9	5.1	28.1	81.5	4,541
Mozambique, 1997	16.9	2.6	19.5	86.7	6,530
Mozambique, 2003	10.8	16.0	26.9	40.1	8,736
Namibia, 1992	14.9	11.2	26.1	57.1	2,259
Namibia, 2000	9.3	13.1	22.4	41.5	2,610
Namibia, 2006-2007	9.1	17.6	26.6	34.2	3,451
Niger, 1992	15.7	3.8	19.5	80.5	5,561
Niger, 1998	14.0	6.9	20.9	67.0	6,382
Niger, 2006	13.3	9.7	23.0	57.8	7,941
Nigeria, 1990	15.5	3.3	18.9	82.0	6,880
Nigeria, 2003	11.8	7.8	19.6	60.2	5,336
Nigeria, 2008	15.0	8.8	23.8	63.0	23,578
Rwanda, 1992	20.8	10.2	31.0	67.1	3,785
Rwanda, 2000	24.0	7.3	31.3	76.7	5,052
Rwanda, 2005	24.5	7.4	31.9	76.8	5,510
Senegal, 1993	22.3	4.4	26.7	83.5	4,450
Senegal, 1997	25.5	8.0	33.5	76.1	5,851
Senegal, 2005	24.2	7.3	31.5	76.8	9,866
Sierra Leone, 2008	16.4	4.3	20.7	79.2	5,525
South Africa, 1998	4.7	14.4	19.1	24.6	5,077
Swaziland, 2006	7.3	12.7	20.0	36.5	2,062
Tanzania, 1996	15.4	10.0	25.4	60.6	5,411
Tanzania, 1999	13.8	15.1	28.9	47.8	2,653
Tanzania, 2004	15.1	15.5	31.7	47.6	6,950
Togo, 1998	21.4	14.6	36.0	59.4	5,819
Uganda, 1995	18.3	6.9	25.2	72.6	5,136
Uganda, 2000	20.7	11.2	31.9	64.9	4,881
Uganda, 2006	24.5	11.0	35.5	69.0	5,337
Zambia, 1992	21.6	9.0	30.6	70.6	4,457
Zambia, 1996	18.7	15.8	34.5	54.2	4,902
Zambia, 2002	16.8	19.2	36.1	46.5	4,694

(Cont'd)

Table 4.1. – cont'd

	Need for family planning			Percentage demand for spacing unsatisfied	Number
	Unmet need for spacing	Using to space	Demand for spacing[1]		
Zambia, 2007	17.1	24.8	41.9	40.8	4,402
Zimbabwe, 1994	9.2	27.0	38.1	24.1	3,788
Zimbabwe, 1999	7.3	29.4	38.0	19.2	3,609
Zimbabwe, 2005	7.0	31.2	39.4	17.8	5,143
South and Southeast Asia					
Bangladesh, 1994	9.2	11.0	21.0	43.8	8,980
Bangladesh, 1997	7.9	13.0	21.8	36.2	8,450
Bangladesh, 2000	8.0	15.6	24.7	32.4	9,720
Bangladesh, 2004	5.1	16.2	22.5	22.7	10,582
Bangladesh, 2007	6.6	15.0	21.6	30.6	10,192
Cambodia, 2000	14.4	9.4	23.8	60.5	9,071
Cambodia, 2005	8.9	12.9	21.8	40.8	10,087
India, 1993	9.0	3.4	12.4	72.6	84,678
India, 1999	8.3	3.5	11.8	70.3	84,682
India, 2006	6.0	4.8	11.2	53.6	93,089
Indonesia, 1991	7.9	18.7	27.2	29.0	21,109
Indonesia, 1994	4.8	22.6	28.1	17.1	26,186
Indonesia, 1997	4.2	25.2	30.0	14.0	26,886
Indonesia, 2002	4.0	24.2	28.8	13.9	27,857
Indonesia, 2007	4.3	25.1	29.5	14.6	30,931
Nepal, 1996	14.3	2.6	16.9	84.6	7,982
Nepal, 2001	11.4	3.8	15.2	75.0	8,342
Nepal, 2006	9.4	4.8	14.1	66.7	8,257
Pakistan, 1991	16.3	2.1	18.4	88.6	6,364
Pakistan, 2006	10.9	6.5	17.4	62.6	9,556
Philippines, 1998	8.2	13.1	23.6	34.7	8,336
Philippines, 2003	7.9	13.7	23.2	34.1	8,671
Philippines, 2008	9.0	14.7	23.6	38.1	8,418
Vietnam, 1997	3.5	14.8	18.6	18.8	5,340
Vietnam, 2002	2.0	13.9	16.4	12.2	5,338
Average	11.9	13.1	25.5	46.3	1,413,376

[1] Includes failure to space in surveys where available

[a] Northeast region

Table 4.2. Trends in the Demand to Space Births and Unsatisfied Demand to Space Births, by Country

Among currently married women, percentage point changes between earliest and latest surveys and average percentage point changes per year in the percentage of total demand for contraception for spacing births and the percentage of demand for spacing births that is unsatisfied, by country.

	Demand for spacing		Percentage demand for spacing unsatisfied	
	Trend	**Change per year**	**Trend**	**Change per year**
Central Asian States				
Kazakhstan 1995 to1999	3.1	0.77	-3.4	-0.86
Latin America and Caribbean				
Bolivia, 1994 to 2003	2.5	0.28	-0.5	-0.06
Brazil, 1991[a] to 1996	-0.7	-0.14	-21.8	-4.37
Colombia, 1990 to 2005	-3.9	-0.26	-4.1	-0.27
Dominican Republic, 1991 to 2007	2.9	0.18	-11.8	-0.74
Guatemala, 1995 to 1999	0.5	0.14	-4.3	-1.23
Haiti, 1994 to 2005	5.9	0.54	-18.9	-1.72
Nicaragua, 1998 to 2001	3.2	1.07	-4.8	-1.60
Peru, 1992 to 2009	8.0	0.46	-10.0	-0.57
North Africa, West Asia and Europe				
Armenia, 2000 to 2005	0.1	0.02	6.5	1.29
Egypt, 1995 to 2008	2.7	0.21	-16.9	-1.30
Jordan, 1990 to 2007	6.7	0.39	-21.8	-1.28
Morocco, 1992 to 2003	2.9	0.26	-22.3	-2.03
Turkey, 1993 to 2003	-6.9	-0.69	-9.3	-0.93
Sub-Saharan Africa				
Benin, 1996 to 2006	-0.7	-0.07	3.0	0.30
Burkina Faso, 1993 to 2003	-5.4	-0.54	19.7	1.97
Cameroon, 1991 to 2004	4.1	0.32	-15.9	-1.22
Chad, 1997 to 2004	16.8	2.24	-5.4	-0.72
Cote D'Ivoire, 1994 to 1998	2.1	0.47	-5.0	-1.11
Eritrea, 1995 to 2002	-1.0	-0.14	1.5	0.21
Ethiopia, 2000 to 2005	1.8	0.36	-10.1	-2.03
Ghana, 1993 to 2008	-0.4	-0.03	-5.5	-0.37
Guinea, 1999 to 2005	-0.5	-0.08	-13.0	-2.17
Kenya, 1993 to 2009	-0.9	-0.06	-25.9	-1.67
Madagascar, 1992 to 2009	6.4	0.39	-36.6	-2.22
Malawi, 1992 to 2004	2.8	0.22	-25.2	-2.02
Mali, 1996 to 2006	2.6	0.26	-3.2	-0.32
Mozambique, 1997 to 2003	7.4	1.23	-46.5	-7.75
Namibia, 1992 to 2007	0.5	0.03	-22.9	-1.58
Niger, 1992 ro 2006	3.5	0.25	-22.7	-1.62
Nigeria, 1990 to 2008	4.9	0.27	-19.0	-1.05
Rwanda, 1992 to 2005	0.9	0.07	9.7	0.75
Senegal, 1993 to 2005	4.8	0.38	-6.7	-0.54
Tanzania, 1996 to 2004	6.3	0.48	-13.0	-1.00
Uganda, 1995 to 2006	10.3	0.94	-3.6	-0.33
Zambia, 1992 to 2007	11.3	0.75	-29.8	-1.99
Zimbabwe, 1994 to 2005	1.3	0.11	-6.4	-0.55

(Cont'd)

Table 4.2. – cont'd

	Demand for spacing		Percentage demand for spacing unsatisfied	
	Trend	**Change per year**	**Trend**	**Change per year**
South and Southeast Asia				
Bangladesh, 1994 to 2007	0.6	0.04	-13.3	-0.98
Cambodia, 2000 to 2005	-2.0	-0.40	-19.7	-3.94
India, 1993 to 2006	-1.2	-0.09	-19.0	-1.46
Indonesia, 1991 to 2007	2.3	0.14	-14.5	-0.90
Nepal, 1996 to 2006	-2.8	-0.28	-17.9	-1.79
Pakistan, 1991 to 2006	-1.0	-0.06	-25.9	-1.62
Philippines, 1998 to 2008	0.0	0.00	3.4	0.34
Vietnam, 1997 to 2002	-2.2	-0.44	-6.6	-1.32
Average	2.2	0.22	-12.0	-1.21

[a] Northeast region

Table 4.3. Levels and Trends in the Demand for Spacing and Percentage Unsatisfied of Demand for Spacing, by Region

Among currently married women, average percentage with a demand for contraception for spacing births and the percentage of the demand for spacing that is unsatisfied and average annual percentage point changes in demand and percentage unsatisfied of the demand between the earliest and latest surveys, by region

	Total		Average Annual Change	
Averages	**Demand for spacing**	**Percentage unsatisfied of need for spacing**	**Demand for spacing**	**Percent unsatisfied of need for spacing**
Total	**25.5**	**46.3**	**0.22**	**-1.21**
Central Asian States (Kazakstanonly)	27.1	17.7	0.77	-0.86
Latin America and Caribbean	24.0	29.8	0.28	-1.32
North Africa, West Asia and Europe	20.3	24.3	0.04	-0.85
Sub-Saharan Africa	28.7	60.7	0.34	-1.18
South and Southeast Asia	20.9	42.7	-0.14	-1.46

4.2 Unsatisfied Demand for Contraception for Spacing

The percentage of demand for contraception for spacing births that is unsatisfied is calculated by dividing the number of women with an unmet need for contraception for spacing by the total demand for contraception for spacing. For all surveys together, almost half of the demand is unsatisfied (46.3 percent). By region, the percentage unsatisfied has a large variation, from 17.7 percent in the Central Asian States to 60.7 percent in sub-Saharan Africa (Table 4.3). The percentage of demand unsatisfied for contraception for spacing varies widely, from 89 percent in Pakistan in 1991 to 10 percent in Peru in 2009. However, in all regions the percentage unsatisfied has declined (Figure 4.1). Per decade, the overall decline is 12.1 percentage points, and the greatest per decade decline (14.6 percentage points) has occurred in South and Southeast Asia, followed by 13.2 percentage points in Latin America and the Caribbean. By country, the largest annual declines in the percentage of demand for spacing that is

unsatisfied have occurred in Mozambique at 7.8 points and in Brazil and Cambodia with declines of about 4 percentage points (Table 4.2). Six countries have had increases in unsatisfied demand for spacing, with an increase of 2 percentage points per year in Burkina Faso and over 1 in Armenia.

4.3 Differentials

The demand for contraception for spacing has risen somewhat more rapidly in rural areas than in urban areas, resulting in a greater decrease in unmet need for contraception for spacing in rural areas (Figure 4.2). As Figure 4.3 shows, the rate of increase in demand for contraception to space births differs substantially by wealth quintile for all countries together and by region. However, the demand for contraception for spacing has fallen in South and Southeast Asia among all wealth quintiles, perhaps due to increasing demand for limiting rather than spacing births. For all countries as a whole, the change in the percentage of unsatisfied demand for contraception for spacing has increased among all wealth quintiles except the wealthiest. However, this increase is due entirely to the countries of sub-Saharan Africa (Figure 4.4). In this region, because the demand for spacing rose, the increase in unsatisfied demand relects a failure of family planning services to keep up with the increasing demand. In the other regions the wealth quintiles show a decrease in the unsatisfied percentage, with the exceptions of the fourth quintile in the Latin America and Caribbean region and the lowest three quintiles of North Africa, West Asia and Europe.

Figure 4.2. Average Annual Change in Demand for Contraception for Spacing Births and Percentage of Demand that Is Unsatisfied by Residence

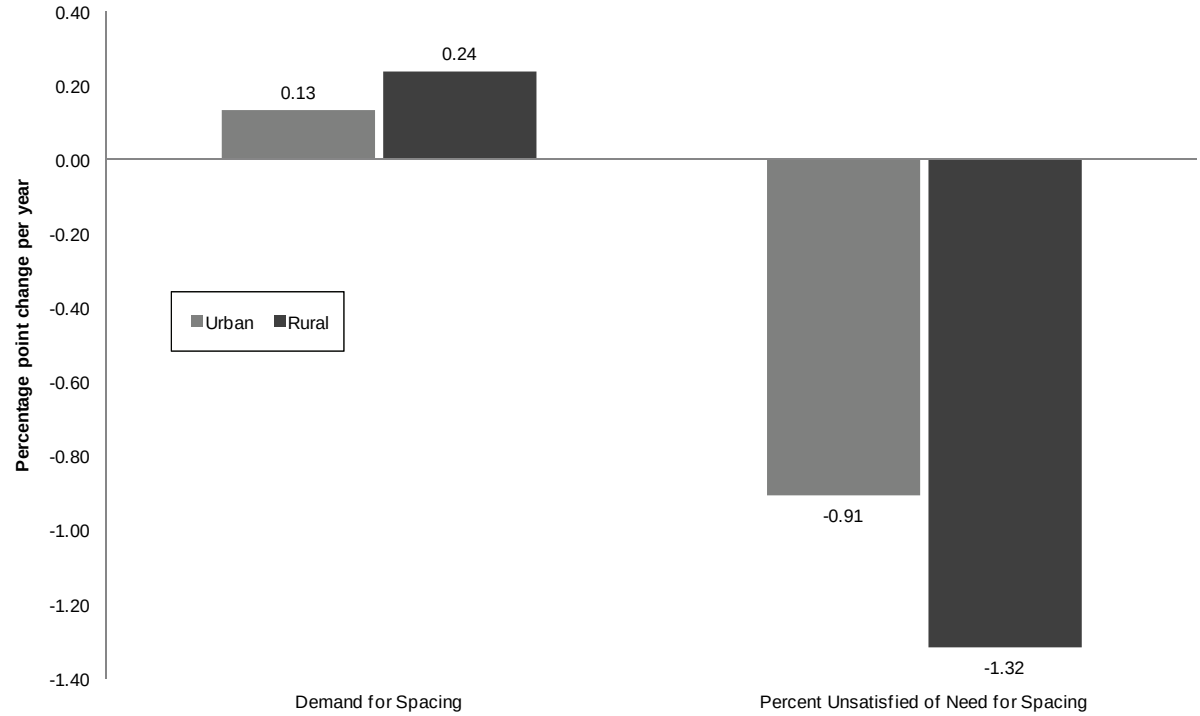


Figure 4.3. Average Annual Change in Demand for Contraception for Spacing Births by Household Wealth Quintile

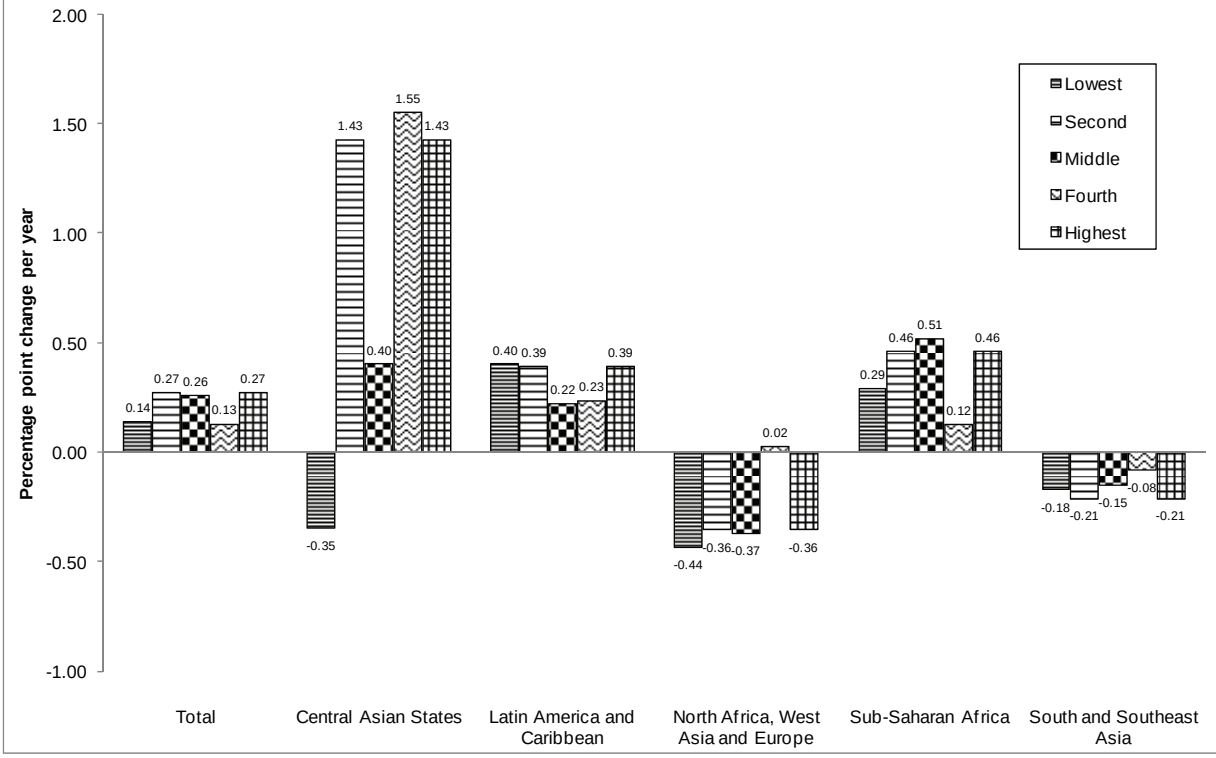
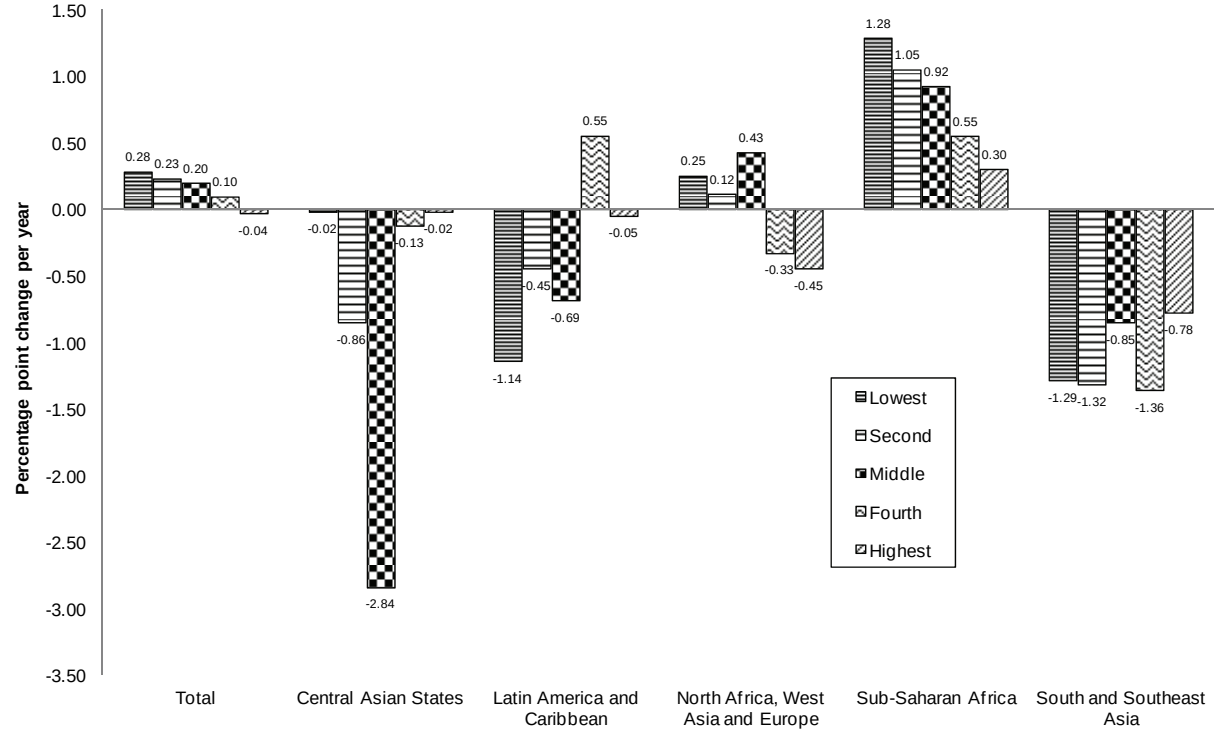


Figure 4.4. Average Annual Change in Percentage of Unmet Demand for Contraception for Spacing Births by Household Wealth Quintile



The demand for contraception for spacing births is greater the higher women's level of education, doubling between women with no education and women with secondary or higher (Figure 4.5). However, the percent of women with an unsatisfied demand for spacing is approximately the same across all education categories. Over time, in all regions the percentage of demand for contraception for spacing that was unsatisfied has declined in almost all education categories, except secondary or higher in Latin America and the Caribbean and no education in North Africa, West Asia and Europe (Figure 4.6).

Women's age is related to the change in demand for contraception for spacing. The amount of yearly increase is highest for younger women and then declines until age 35-39, after which there is little change (Figure 4.7). The percentage of contraceptive demand for spacing that is unsatisfied has decreased substantially in all age groups.

Figure 4.5. Percentage of Women with a Demand for Contracepton for Spacing and Percentage of Demand for Spacing that is Unsatisfied by Level of Education

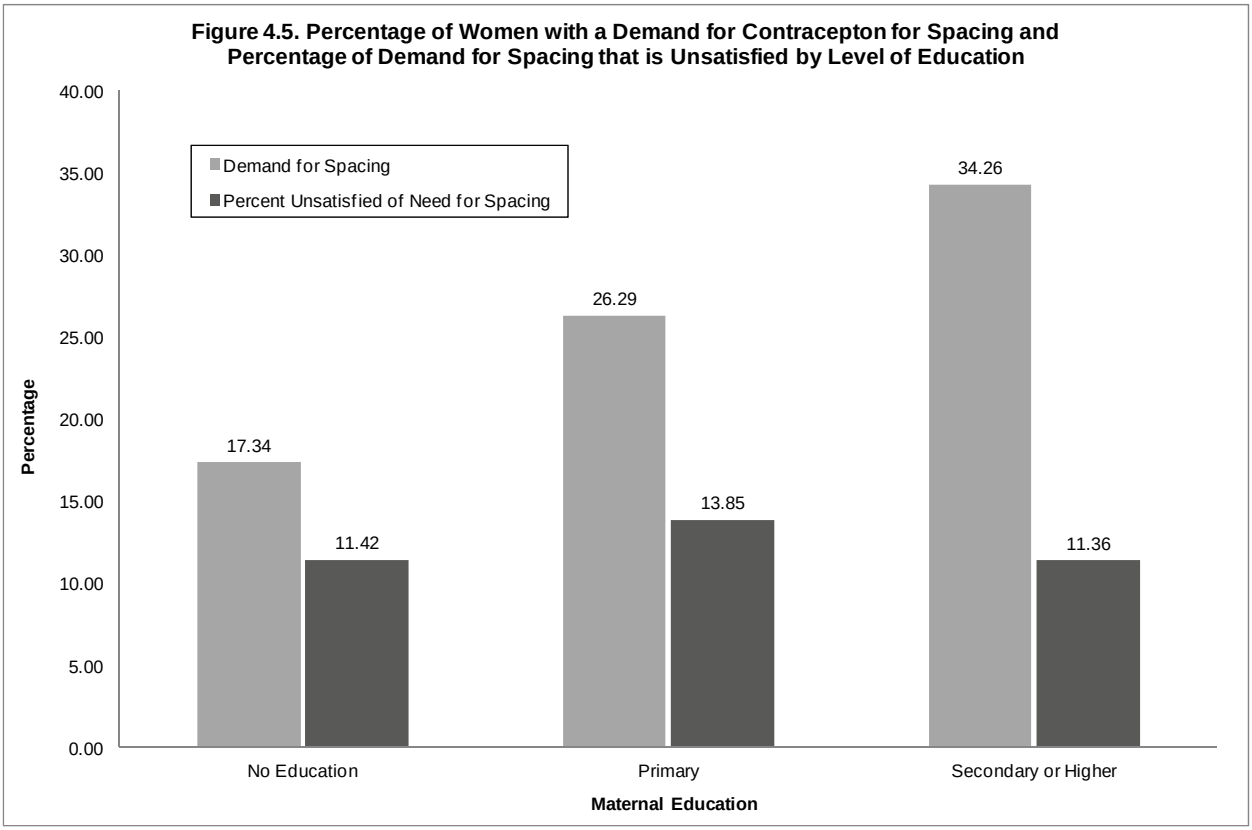


Figure 4.6. Average Annual Change in Percentage of Unmet Demand for Contraception for Spacing Births by Level of Education

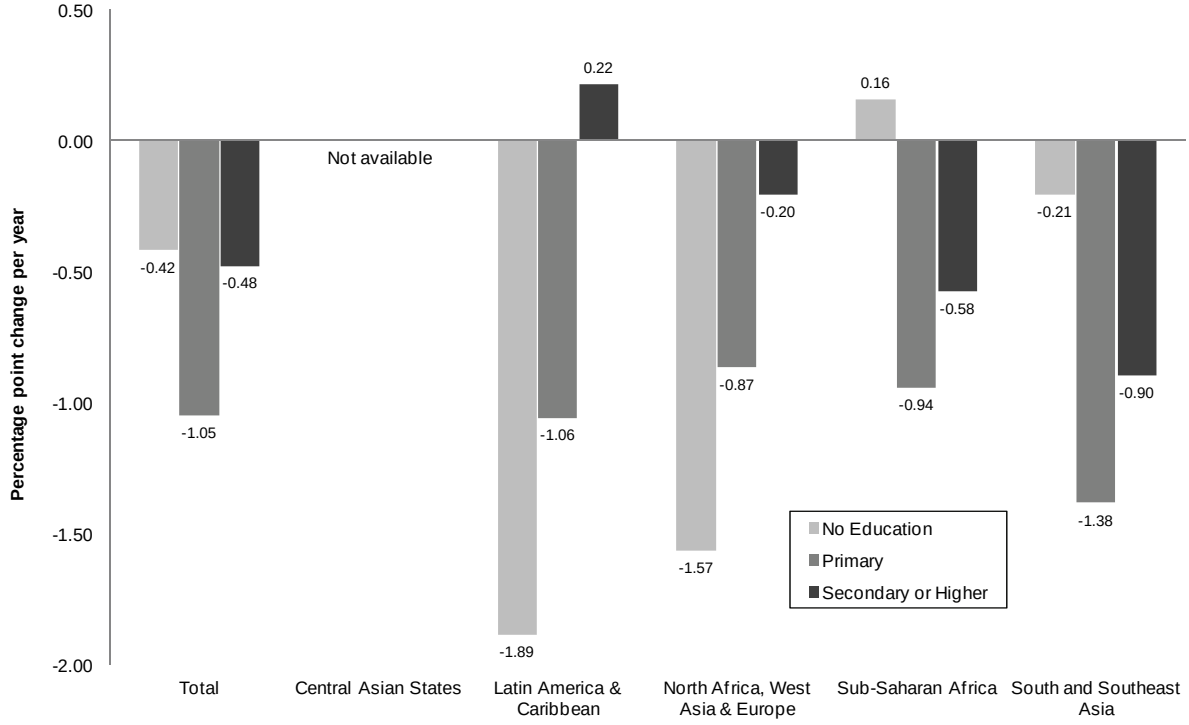
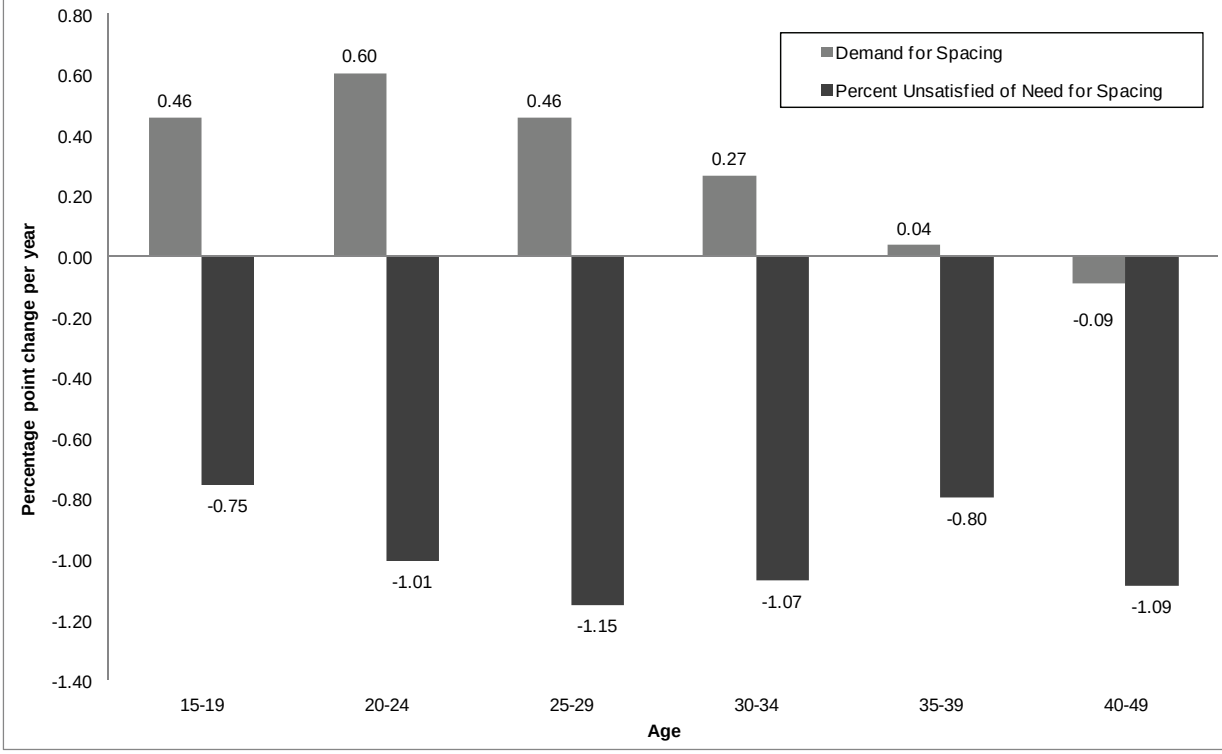


Figure 4.7. Average Annual Change in Demand for Contraception for Spacing Births and in Percentage Unsatisfied of Demand for Spacing by Age



5 Discussion

It has been demonstrated that short birth intervals are detrimental to the health of both the succeeding child and to the mother (Setty 2002). The World Health Organization recommends that women wait at least 24 months after a birth before becoming pregnant again, resulting in a recommended minimum birth interval of 33 months (WHO, 2006). Other research suggests that women would do better to wait another three months in order to have a birth interval of at least 36 months. However, waiting too long—an interval of 60 months or more—can also be detrimental to health (Conde-Agudelo et al., 2006; Rutstein, 2008).

Substantial proportions of births still occur after intervals that are too short for the health of infants and their mothers. More than half of births occur less than three years after the mother's previous birth. The regional variation in this proportion is small. However, this proportion has decreased over time, at a rate of about 7 percentage points per decade. Preferred birth intervals are still much longer than actual intervals, but the rate of increase in the length of actual intervals exceeds the increase in preferred intervals, so the gap between the two is shrinking. There are still important distinctions in both preferred and actual birth intervals by area of residence, household wealth, and women's education. Urban areas, richer households, and more educated women both prefer and have longer birth intervals than other groups of women, and the more advantaged groups have greater average annual increases in the length of birth intervals.

Family planning and contraceptive use are the principal ways that women can delay the next birth until the recommended period of time has passed since the last birth. While postpartum amenorrhea due to breastfeeding and postpartum abstinence do delay the next conception, by themselves they are not enough to ensure a birth interval of 24 months, let alone 36 months. About one-quarter of women want to use contraception to space their next birth. Unfortunately, for almost half of the women who have a need for contraception for spacing births, that need is unsatisfied. The percentage of women with an unsatisfied need for contraception to space births is highest in sub-Saharan Africa, followed by South and Southeast Asia. Unsatisfied need for contraception for spacing is lower in the other two regions but is still higher than it should be or needs to be for the health of women and children.

Over time, the demand for contraception for spacing has risen and the percentage of demand that is unsatisfied has fallen. These trends suggest that women are receiving the message that short birth intervals should be avoided and that family planning programs are increasing the supply of contraception to these women. While there are variations by residence, wealth, and education, all groups appear to be participating in these two positive outcomes.

6 Conclusion and Policy Implications

Numerous studies have shown that there is an optimal length of time between births for the health of both mother and child. Now, health programs, especially maternal and family planning programs, need to do more to impart this knowledge and to provide services to assist women in attaining the optimal birth interval. While the trend data on actual and preferred birth intervals show that more women want to avoid and are avoiding deleterious short intervals than in the past, many women still have shorter intervals than they would have liked, and some women increasingly prefer intervals that are even longer than optimal. Efforts to inform women about the health consequences of both too short and too long a birth interval should be redoubled and family planning efforts should be increased, especially in sub-Saharan Africa, where unsatisfied demand for contraception for birth spacing is greatest.

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