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FERTILITY TRANSITION IN SUB-SAHARAN AFRICA: A COMPARATIVE ANALYSIS OF COHORT TRENDS IN 30 COUNTRIES

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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@macrointernational.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. 23

Fertility Transition in Sub-Saharan Africa: A Comparative Analysis of Cohort Trends in 30 Countries

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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

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Executive Summary

This study examines fertility trends for 30 sub-Saharan African countries with Demographic and Health Surveys (DHS) between 1986 and 2006. The study uses women's birth histories to construct panel data that enable calculation of fertility by mother's birth cohort. The panel comprises women born between 1937 and 1990 and covers their fertility behavior between 1952 and 2005. The study's focus on cohort trends in fertility distinguishes it from many other studies of fertility transition and enables examination of women's fertility over their own lifetimes, rather than what fertility rates at a single point in time.

Over the past five decades, most countries studied show signs of fertility decline in the cohort measures examined. Comparing women born between 1950 and 1959 with those born between 1960 and 1969 reveals that 17 of the 30 countries studied show rates of fertility decline indicative of fertility transition. However, there is significant variation among countries in fertility levels and trends.

This study also finds some "stalling" in fertility declines in a few countries, as decreases in fertility become less pronounced than in the past. Fertility decline stalling for most age groups can be witnessed in the Congo (Brazzaville) and Madagascar. In several other countries, stalling is only witnessed in certain age groups, while in some countries fertility is increasing among certain age groups. Thus these data contain suggestions of stalling fertility transitions. For nearly all countries, however, cohort fertility rates for women born in the most recent past show decreases suggesting little evidence of an unequivocal reversal in Africa's fertility transition.

The largest percentage fertility declines by age group appear for women aged 15-19. This pattern suggests that women are delaying the start of reproduction. Beyond this youngest reproductive age group, fertility declines are similar for younger and older age groups for most countries in the study. There is some evidence that earlier cohorts have larger fertility declines among older women, followed by declines among younger women in subsequent cohorts.

The analysis offered here is intended to provide a starting point for further analysis of the retrospective cohort fertility data detailed in this report. Retrospective data may suffer from bias related to recall errors or sample selection. The extent of bias related to retrospective data is unknown and could be a factor in the trends represented here. The large number of data tables and figures included in this report (see Appendix B for data tables and figures for each country studied) present new opportunities for exploring fertility trends in sub-Saharan Africa and are included for this purpose.

1 Introduction

This report provides a comparative analysis of fertility trends in 30 sub-Saharan African countries, using data from 74 Demographic and Health Surveys (DHS) conducted between 1986 and 2006. Unlike much work on fertility trends, in this report I examine fertility by mother's birth cohort. The goal is to examine four main questions: First, what countries are experiencing fertility declines, and at what rates? Second, can the reported stalls in fertility decline be found in cohort measures? Third, between what cohorts is fertility decline largest? Fourth, among what age groups is fertility declining the most?

The point of this study is not to suggest causal mechanisms of changes or differences (or lack thereof) in fertility rates. Rather, this study provides a description of fertility trends by mother's birth cohort in order to discern fertility patterns over the past five decades. The goal is to examine overall trends and to compare countries in these trends.

While period measures of fertility, such as the period total fertility rate (TFR) and age-specific fertility rates (ASFRs), are more readily calculated than the cohort measures used in this report, they can sometimes be misleading predictors of future fertility. This would be the case if cohorts are changing their fertility patterns by age.[1] However, following birth cohorts over time to examine their fertility behaviors is difficult, and total fertility over all reproductive years can only be calculated at the end of those years.

In order to understand how women born at different periods in time may alter their fertility patterns, I construct a panel using the fertility histories of survey respondents. The coverage of fertility in the panel differs by country based on date and number of DHS surveys, but allows more comparisons across countries and years. The panel shows women born between 1937 and 1990, and covers the years between 1952 (in the earliest case) and 2005 (in the latest).

The study is divided into sections examining different types of fertility measures. Section 2, "Data and Methods," describes the data, panel creation, and variables used in this study. Section 3, "Fertility Trends by Mother's Birth Cohort," examines cohort measures of fertility, including cumulative births by cohort and age-specific fertility by cohort. Section 4 provides conclusions. In all sections, I focus entirely on cohort measures, to add a dimension to the literature that more commonly examines period rates.

I present results for the grouped countries in the main body of the report. There is much to suggest that countries in sub-Saharan Africa may be similar in their demographic behavior (see Cleland, Onuoha, and Temaeus, 1994, for a discussion). However, the grouped analysis masks substantial variation across countries. The report therefore includes an extended appendix containing all measures for individual countries (Appendix B).

In constructing a panel using fertility histories, I attempt to examine measures that one can witness for multiple, continuous years. While many countries have multiple DHS surveys that can be used to examine trends, these analyses are based on only a few points in time, reflecting the various DHS survey periods.

DHS data contain a great number of variables. However, most of them only cover information on the respondent at the time of the interview. For example, the DHS asks the educational status of the

[1] For a discussion of problems arising between period versus cohort fertility measures, see for example Bongaarts (2002).

respondent at the time of the survey, but the survey does not reveal for how long the respondent has had this educational status. Thus one cannot construct cohort measures of fertility by these "static" categories unless one assumes that people never change categories. For example, I cannot construct completed fertility by educational status without assuming that respondents have never changed educational level throughout their reproductive lives. I avoid making this type of assumption here and therefore avoid analyses that rely on variables that can only be determined for each respondent at the time of the interview.

1.1 Measuring Fertility

A number of measures can be used to describe a country's fertility levels and trends. One of the most common is the total fertility rate which represents the number of births a woman is expected to have over the course of her reproductive years. The TFR can be defined in period or cohort terms. While most research uses period measures, the main contribution of this report is its focus on cohort measures. This section outlines the differences between period versus cohort measures.

The period TFR is constructed using data from a single year by summing period age-specific fertility rates. A period ASFR is defined as the number of births to women of a specific age during the period, divided by the number of women-years spent at that specific age during the period.[2] In order to calculate the period TFR, the period age-specific fertility rates are summed. The resulting total provides a representation of how many children a woman is expected to have in the course of her childbearing years (normally defined as age 15-49). If one wants to avoid extrapolating period ASFRs, then all ages between 15 and 49 must be covered by the sample to construct a period TFR. A DHS samples women age 15- 49 at a single point; therefore the period TFR constructed from DHS data will only represent that point in time, unless further data are extrapolated.

Notably, the period TFR is based on a synthetic cohort—which assumes that a woman will follow the age-specific fertility rates for that period throughout her childbearing years. While the period TFR provides an indication of expected fertility trends, it can result in inaccurate predictions, particularly if fertility patterns change between cohorts. A primary instance of when period and cohort TFR may differ is the "tempo effect." In demography, the word "tempo" denotes timing of births.

To illustrate how the tempo effect can cause disparities between the period and cohort TFRs, consider this example. Suppose Woman A is born in 1950, while Woman B is born in 1960. If we examine data for 1985, we might find that Woman A had three births at age 25, while Woman B had only two births by this age. Thus we might suspect that fertility rates are declining. However, if we examine data for both women at age 49, the end of their reproductive years, we might find that each had six births. This result would only be possible if Woman B "caught up" when she was between ages 25 and 49. If indicative of the general fertility trends, it would suggest a tempo effect— that women born in 1960 delayed fertility before age 25 but caught up later.

The tempo effect can work in the opposite direction, too, if for example women born in 1960 have shorter intervals between births, or begin childbearing earlier than women born in 1950. Women born in 1960 may end their reproductive years with the same number of births as women born in 1950, but have had more births at younger ages.

To avoid these possible tempo effects, it is sometimes advisable to examine cohort TFR, or completed fertility, rather than to rely on the period TFR based on period ASFRs. A cohort TFR can only

[2] ASFRs are frequently multiplied by 1,000 so that they represent births per 1,000 women of that age. We do not multiply by 1,000 when we construct our ASFRs, so they are read as births per woman of that age group.

be calculated once women born in a certain time period complete their childbearing years. In the example, the cohort TFR of women born in 1950 could not be calculated until 1999, when these women reached age 49, the end of their childbearing years. Because of this time lag, however, the period TFR is a much more frequently used measure than cohort TFR.

2 Data and Methods

2.1 Data

In this study I use individual-level data from 74 DHS conducted in 30 sub-Saharan African countries between 1986 and 2006. I focus on the female samples, including data on women age 15-49. Table 2.1 lists all countries and years included, as well as sample sizes. For each country survey, the data include mother's date of birth, the interview date, and the dates of her births (up to 20 births[3]). This provides a total of 564,686 observations.

The surveys included are all Standard DHS with samples representative of the entire female population.[4] A few countries with DHS between 1986 and 2006 were excluded due to comparability issues. The only DHS in Sudan was conducted in 1990, and included only ever-married women; hence, the Sudan is excluded from this study. The 1999 Senegal DHS is listed as a Standard DHS but is not coded in the same manner as the other surveys. In order to avoid any possible errors in re-coding, this survey is also excluded. Also, the Ethiopia surveys have dates listed in the Ethiopian calendar. Rather than risk coding problems from making these compatible with the rest of the surveys, Ethiopia is also excluded. Finally, I do not include Mauritania and Eritrea because the data's use is restricted.

[3] The Madagascar 1997 survey contains data on the number of births up to 21. Because women with 21 births represent a very small sample and in order to be comparable to other surveys, the number of births is capped at 20 for this country and year.

[4] DHS surveys that interviewed only ever-married women were excluded from this analysis.

Table 2.1: Sample sizes of DHS fertility data used, by country and survey year

	Survey Year																				
Country	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Benin											5,491					6,219					18,000
Burkina Faso							6,354						6,445					12,477			
Burundi		3,970																			
Cameroon						3,871							5,501						10,656		
Central African Republic									5,884												
Chad											7,454								6,085		
Comoros											3,050										
Congo (Brazzaville)																				7,051	
Côte d'Ivoire									8,099				3,040								
Gabon															6,183						
Ghana			4,488					4,562					4,843					5,691			
Guinea														6,753						7,954	
Kenya			7,150					7,540					7,881					8,195			
Lesotho																			7,095		
Liberia	7,092																				
Madagascar							6,260					7,060						7,949			
Malawi							4,850								13,220				11,698		
Mali		3,200								9,704						12,817					14,583
Mozambique												8,779						12,418			
Namibia							5,421								6,755						
Niger							6,503						7,577								9,223
Nigeria					8,781									9,810				7,620			
Rwanda							6,551								10,421					11,321	
Senegal	4,415						6,310					8,593								14,602	
South Africa													11,735								
Tanzania							9,238				8,120								10,329		
Togo			3,360										8,569								
Uganda			4,730							7,070					7,246						8,531
Zambia							7,060				8,021					7,658					
Zimbabwe			4,201						6,128					5,907						8,907	

2.2 Panel Creation

The collection of women's birth histories in the DHS enables the creation of panel data. Creation of the panel involves establishing multiple records for each woman based on information that a woman has provided in a single survey about her fertility history. From the individual-level records, I create panel data of each woman representing her entire fertility history between age 15 and the year of the survey.[5] A panel data set contains multiple records for the same individuals over time. The observation is a person-year.

This panel created from fertility histories is different than the synthetic panels that are often constructed from period measures. In these synthetic panels, different people represent a group over time. For example, suppose two surveys are conducted, one in 1990 and the other in 1995, covering different women each year. Using the 1990 survey, a statistic is calculated for women who are 20 years old in 1990. The same statistic is calculated using the 1995 survey for women who are age 25 in 1995. These two statistics might then be linked to show how women born in 1970 behave as they age. However, the same women are not interviewed in 1990 and 1995. While this is a perfectly reasonable method of estimating changes over time, it is not the method that I employ. Instead, the fertility histories allow the calculation of fertility rates as if the same women had been interviewed in 1990 and 1995.

To make years comparable requires picking a reference point. I choose the end of the calendar year. Therefore, I define a woman's age as the number of completed years of life at the end of the calendar year. The woman's number of births is the number that she has had by the end of the calendar year.

To illustrate creation of the panel, consider an example. Suppose the 1996 Benin survey contains information on a woman age 25 who was born in November 1971 and who has given birth three times. For simplicity, suppose that all three births occurred in November but in different years, say 1995, 1993, and 1991. Also assume that the respondent was interviewed in December 1996. Table 2.2 below shows the information in the DHS survey for this woman, named "Respondent 1." In order to create a panel, I make 10 other records for this woman. I make a record for her in 1995 in which is she is age 24, gives birth during the year, and has two prior births. This process continues until the beginning of her reproductive years, which I assume (following the DHS) to be age 15. At the end of 1986, the woman is age 15 and has not given birth at all. I do not make a record for the respondent in 1985 or any other earlier year, nor do I make a record for the respondent for 1997 or any other later year.

To further illustrate the concept, consider a second example for "Respondent 2." This respondent does not have her births in the same month. Further, this example demonstrates where this study's method will create discrepancies between births by age according to the respondent's years of life lived versus age at the end of the calendar year. Suppose this respondent was also interviewed in December, 1996. Respondent 2's date of birth is June, 1975, so that at the time of the interview she is age 21. Suppose that this respondent has had two births, one in January, 1994, and a previous one in May, 1992. At the end of 1994, the respondent is age 19 and has had a total of two births. At the end of 1992 the respondent is age 17 and has had one birth. Note that the respondent is 16 when she gives birth to her first child, but I code her as age 17 for this first birth.

[5] The youngest age recorded in DHS surveys is 12. In creating the cumulative number of births by a given age and the age at first birth, I include births that occurred before age 15, but I do not show ASFRs for ages below 15.

Table 2.2: Example of panel creation

Respondent 1											
Date of Respondent's Birth: Nov., 1971. **Date of Interview:** Dec., 1996. **Date of Birth 1:** Nov., 1995. **Date of Birth 2**: Nov., 1993. **Date of Birth 3:** Nov., 1991.											
Year:	**1996**	**1995**	**1994**	**1993**	**1992**	**1991**	**1990**	**1989**	**1988**	**1987**	**1986**
Age at end of year	25	24	23	22	21	20	19	18	17	16	15
Number of births within year	0	1	0	1	0	1	0	0	0	0	0
Total number of births	3	3	2	2	1	1	0	0	0	0	0
Respondent 2											
Date of Respondent's Birth: June, 1975. **Date of Interview:** Dec., 1996. **Date of Birth 1:** Jan., 1994. **Date of Birth 2**: May, 1992.											
Year:	**1996**	**1995**	**1994**	**1993**	**1992**	**1991**	**1990**	**1989**	**1988**	**1987**	**1986**
Age at end of year	21	20	19	18	17	16	15	-	-	-	-
Number of births within year	0	0	1	0	1	0	0	-	-	-	-
Total number of births	2	2	2	1	1	0	0	-	-	-	-

Performing this process for all observations yields over 7.5 million person-year observations. Table 2.3 provides the ranges of years covered for each country in the panel data set.

Because the interview year only contains information for the calendar year between January and the month of the interview, the full year of the interview is not covered. Rather than attempting to impute fertility rates for the remaining months after the interview, I exclude data from the actual interview year.

Finally, in calculating fertility statistics, observations are weighted according to relative probability of responding to the DHS, the individual DHS sample sizes within countries, and the relative population sizes of countries. See Appendix A for a detailed description of the weighting method.

Table 2.3: Years covered by DHS surveys and by panel

Country	Earliest survey year	Latest survey year	Earliest women's birth year possible in panel	Latest women's birth year possible in panel	Earliest possible year of data in panel	Latest possible year of data in panel
Benin	1996	2006	1946	1990	1961	2005
Burkina Faso	1992	2003	1942	1987	1957	2002
Burundi	1987	1987	1937	1971	1952	1986
Cameroon	1991	2004	1941	1988	1956	2003
Central African Republic	1994	1995	1944	1979	1959	1994
Chad	1996	2004	1946	1988	1961	2003
Comoros	1996	1996	1946	1980	1961	1995
Congo (Brazzaville)	2005	2005	1955	1989	1970	2004
Côte D'Ivoire	1994	1999	1944	1983	1959	1998
Gabon	2000	2000	1950	1984	1965	1999
Ghana	1988	2003	1938	1987	1953	2002
Guinea	1999	2005	1949	1989	1964	2004
Kenya	1989	2003	1939	1987	1954	2002
Lesotho	2004	2004	1954	1988	1969	2003
Liberia	1986	1986	1936	1970	1951	1985
Madagascar	1992	2004	1942	1988	1957	2003
Malawi	1992	2004	1942	1988	1957	2003
Mali	1987	2006	1937	1990	1952	2005
Mozambique	1997	2003	1947	1987	1962	2002
Namibia	1992	2000	1942	1984	1957	1999
Niger	1992	2006	1942	1990	1957	2005
Nigeria	1990	2003	1940	1987	1955	2002
Rwanda	1992	2005	1942	1989	1957	2004
Senegal	1986	2006	1936	1990	1951	2004
South Africa	1998	1998	1948	1982	1963	1997
Tanzania	1992	2004	1942	1988	1957	2003
Togo	1988	1998	1938	1982	1953	1997
Uganda	1988	2006	1938	1990	1953	2005
Zambia	1992	2002	1942	1986	1957	2001
Zimbabwe	1988	2006	1938	1990	1953	2005

2.3 Data Limitations

The primary limitation of the data arises from the potential of a sample gathered at one point in time to misrepresent the population in other points in time. In creating the panel described above, I must assume that the population characteristics in the year in which the survey was conducted are similar to the characteristics of the population in prior years.

Suppose, for example, that a country has a DHS conducted in 2000. The sampling required to create a representative sample for the survey is based on the characteristics of the population in 2000. Most notably, these characteristics include women's ages. In the analyses in this report, however, I use the birth histories of women who are age 40 in 2000 to characterize fertility rates of women age 25 in 1985. If women age 40 in 2000 have different birth patterns than the full distribution of women age 25 in 1985, then bias may be introduced.

This bias could arise if women with certain fertility patterns are more likely than other women to die young. For example, suppose the distribution of women who are age 25 in 1985 includes two types of women: women who would have low completed fertility if they were to survive through their childbearing years, and women who would have high completed fertility if they were to do the same. If only the low-fertility women survive to 2000, then using this sample to characterize the age-specific fertility for women age 25 in 1985 would underestimate the fertility rates of that year.

Fertility-specific mortality may bias results in either direction. It is plausible that high-fertility women might have a higher probability of death during childbirth. Given that sub-Saharan countries have the highest maternal mortality rates in the world (WHO, UNICEF, UNFPA, and the World Bank, 2007), differential mortality by fertility status may be a significant data problem in the analysis. Alternatively, if women who have diseases (such as HIV) that make them less able to conceive also have a higher probability of early death from these diseases, this fact could lead to lower-fertility women dying younger than higher-fertility women.

The longer the time between the DHS survey and the year for which I am computing data, the higher the likelihood that the distribution may be biased. For example, using women age 40 in 2000 to characterize the birth rates of women age 35 in 1995 will probably suffer less bias than using these same women to characterize the birth rates of women age 15 in 1975. Therefore, countries with multiple DHS surveys will have more complete information, and data years that are closer to the survey years will have better estimates than those far from the survey years.

While these biases may be minor in many cases, they may be more pronounced in countries with high HIV prevalence or high maternal mortality. I do not attempt to correct statistics for these biases, due to difficulties arising from lack of mortality records. While maternal mortality has been estimated in many of the countries studied, there is much uncertainty in these estimates (see WHO and UNICEF, 1996; WHO, 1997). Readers are therefore cautioned that such biases may exist and that results may reflect these biases rather than actual trends.

While the use of the retrospective birth histories is common in performing fertility analyses (see, for example, Rutstein and Rojas, 2006), the window of retrospective data used is usually 3 to 5 years. I use a longer window of time before each survey (up to 34 years). Thus the biases may be more likely to affect the analyses in this study compared with other retrospective studies.

3 Fertility Trends by Mother's Birth Cohort

This section presents figures that show completed fertility by women's birth cohort. They show that in the majority of countries in this study completed fertility decreases with each successive cohort.

3.1 Cumulative Number of Births by Mother's Birth Cohort

Examination of cumulative number of births by age and cohort for the 30 sub-Saharan African countries studied can provide evidence of fertility transition—the extent to which fertility decline has occurred, and whether the decline has stalled or reversed. For women who have completed their reproductive years, the cumulative number of births represents cohort TFR, or the completed number of births. For cohorts that have not yet reached the end of their childbearing years, I can construct the cumulative rates for the available ages, to provide a projection of completed fertility.

Due to differing time coverage of the DHS surveys, I focus only on 23 countries when performing the grouped analysis.[6] These 23 countries have the most comparable coverage of the same cohorts and age groups. For these countries, I examine only the cohorts born in 1940-1949, 1950-1959, 1960-1969, and 1970-1979. For the cohorts born in 1940-1949 and 1950-1959, I examine all age groups between 15 and 49. For the cohort born between 1960 and 1969, I examine age groups between 15 and 39. For the cohort born between 1970 and 1979, I examine age groups between 15 and 29. I exclude for this pooled analysis the cohort born between 1980 and 1989 in order to include more countries.

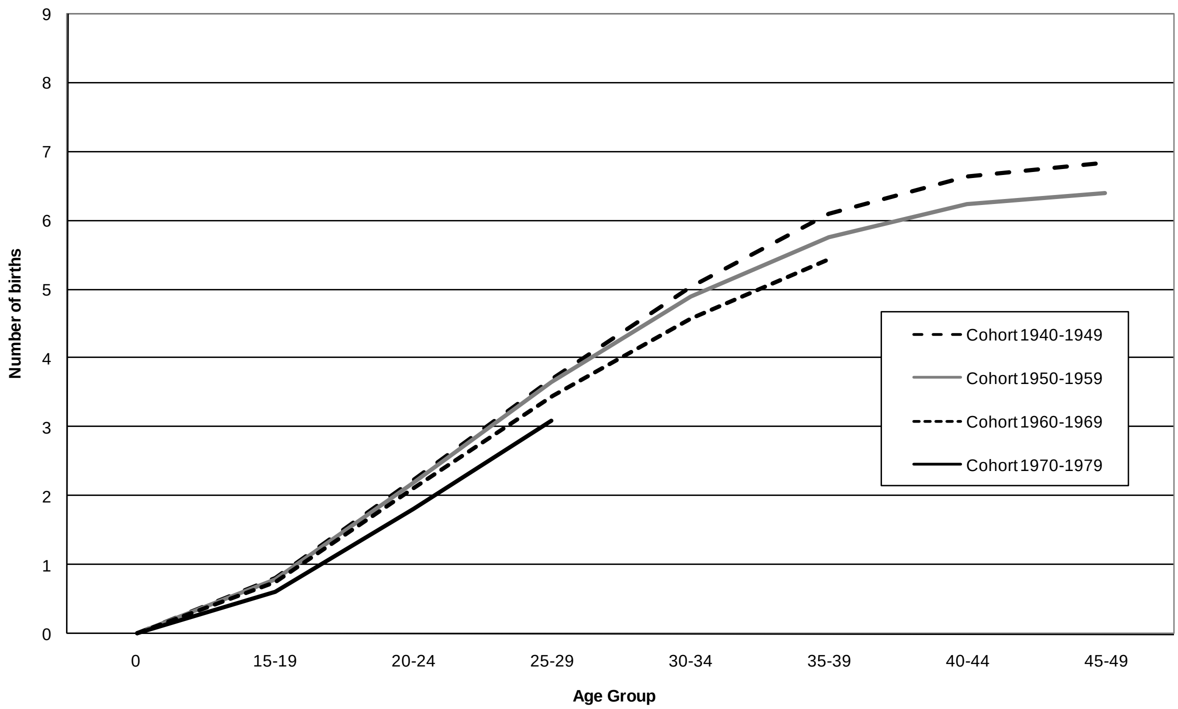
Figure 3.1 shows the cumulative number of births over the reproductive years for successive cohorts in all 23 countries combined. Each curve represents a cohort of women born in a particular range of years. The earliest cohort is 1940-1949, represented by the upper-most curve.[7] For women born between 1940 and 1949, the average cumulative number of births by age 45-49 is 7.2. The curve for the 1970 to 1979 cohort shows data only up to age 25-29, reflecting the fact that data are not yet available for this cohort at later ages. However, an indication of the cohort's completed fertility is suggested by following the trajectory of that cohort's curve to the later ages.

For each successive cohort shown in Figure 3.1, the curves shift downward consistently, reflecting lower fertility for each successive cohort of women, but the declines are not large. There appears to be no indication in Figure 3.1 that the fertility transition is reversing, in which case later cohorts would have curves higher than those of earlier cohorts.

Tempo effects may also be reflected in these curves; however, no tempo effect is evident from the pooled data (Figure 3.1). Suppose two successive cohorts have the same completed fertility. A tempo effect will be evident if the later cohort curve diverges from the prior cohort's curve for one age group and then returns to the prior cohort's curve.[8]

[6] The excluded countries are the Central African Republic, Burundi, the Congo, Gabon, Lesotho, Liberia, and Nigeria. Appendix B includes individual country-level analysis for these countries as well as the others.
[7] While the panel data allow for observations on women born between 1936 and 1939, I exclude them due to small sample size and non-equivalent size of the cohort.
[8] This describes a tempo effect without a "quantum" effect.

Figure 3.1: 23 Sub-Saharan African countries: Cumulative number of births, by mother's age and birth cohort



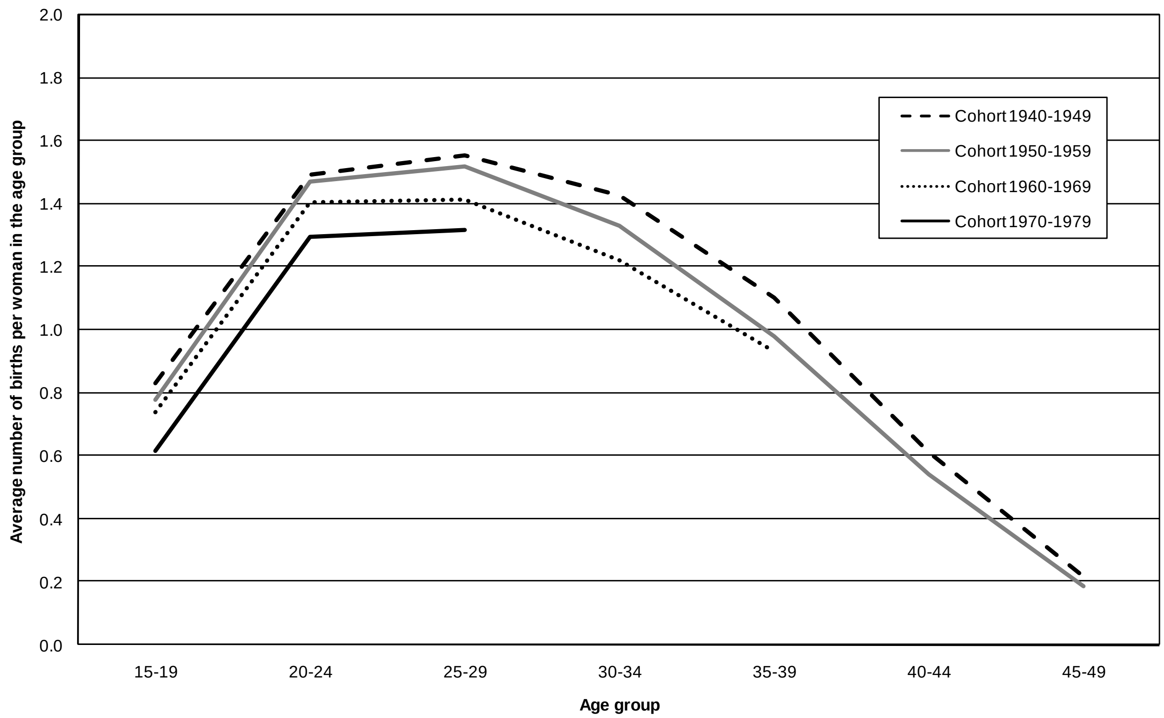
Birth curves for individual countries reveal differences between countries, as well as between successive cohorts. Twenty-eight of the 30 countries studied display at least some fertility decline. The two that do not are the Central African Republic and Mali. Additionally, the declines for Guinea and Liberia are very small. The figures for each of the 30 countries appear in Appendix B.

3.2 Age-Specific Fertility Rates by Mother's Birth Cohort

Another indication of fertility trends can be found in age-specific fertility rates. Figure 3.2 shows the trends in ASFRs by mother's birth cohort for the same cohorts as in Figure 3.1. This shows a variant of the same data, but the number of births is not cumulative, which enables one to examine differences between cohorts that are not compounded with age and thus to study the ages at which fertility declines have been most likely to occur.

Figure 3.2 shows a decline in births by age between women of successive birth cohorts. Further, the differences between cohorts appear to be getting larger. The difference in fertility between the 1940-1949 and the 1950-1959 cohorts appears smaller than the difference between the 1960-1969 and 1970-1979 cohorts.

Fig. 3.2: 23 Sub-Saharan African countries:
Age-specific fertility rates, by mother's birth cohort



To further examine the changes in fertility between cohorts, I calculate the differences between ASFRs by cohort and calculate whether the rates are statistically significantly different between cohorts. Table 3.1 provides the means, standard deviations, and sample sizes of the data shown in Figure 3.2. "N" denotes the weighted sample sizes according (see Appendix A for description of weights).

Table 3.1: 23 Sub-Saharan African countries: Age-specific fertility rates by mother's age group and birth cohort

Age group		Mother's Birth Cohort 1940-1949	1950-1959	1960-1969	1970-1979
15-19	Mean	0.83	0.78	0.74	0.62
	Std. dev.	(0.09)	(0.02)	(0.01)	(0.04)
	N	63,861	318,213	579,916	652,283
20-24	Mean	1.49	1.47	1.40	1.30
	Std. dev.	(0.10)	(0.03)	(0.04)	(0.07)
	N	67,078	319,381	548,044	426,012
25-29	Mean	1.56	1.52	1.41	1.32
	Std. dev.	(0.12)	(0.03)	(0.06)	(0.12)
	N	67,065	316,319	450,867	174,174
30-34	Mean	1.43	1.33	1.22	
	Std. dev.	(0.12)	(0.05)	(0.06)	
	N	67,090	293,639	284,228	
35-39	Mean	1.11	0.98	0.93	
	Std. dev.	(0.10)	(0.06)	(0.10)	
	N	65,633	230,965	114,260	
40-44	Mean	0.61	0.54		
	Std. dev.	(0.11)	(0.07)		
	N	50,076	128,289		
45-49	Mean	0.22	0.19		
	Std. dev.	(0.15)	(0.13)		
	N	15,379	26,933		

Table 3.2 shows the differences in fertility by age between cohorts. For simplicity, and because of smaller sample sizes in the earliest and latest cohorts (1936-1939 and 1980-1989, respectively), I focus only on the four cohorts born between 1940 and 1979. Allow two successive cohorts to be denoted *c1* and *c2*. Let *c2* be later than *c1*. The difference between age-specific fertility rates between cohorts is therefore:

(E.1) $$ASFR_{a,c2} - ASFR_{a,c1}$$

While the difference between the rates allows one to see the level change, the ratio of age-specific fertility rates between cohorts allows one to view percentage differences. The ratio is calculated:

(E.2) $$r_{a,c1,c2} = \frac{ASFR_{a,c2}}{ASFR_{a,c1}}$$

If $r_{a,c1,c2} < 1$ then $ASFR_{a,c2} < ASFR_{a,c1}$. The percentage difference is $-(1 - r_{a,c1,c2})*100$.

As an example of how to read Table 3.2, the ASFR for women age 15-19 declined by 0.05 of a child between the 1940-1949 and 1950-1959 cohorts—a 6% decline. Further, the difference between the rates is statistically significant at the 95% level, as evidenced by a t-statistic with an absolute value greater than 1.96. The right-most column shows the average; for example, the ASFR for women age 15-19 declined 9% between successive cohorts, on average. A ratio of greater than 1.0 means that the ASFR for that age group increased between successive cohorts. Likewise, a ratio less than 1.0 means that the ASFR for that age group decreased between successive cohorts. The bottom rows show the average differences between cohorts. For example, the average difference by age group between the 1940-1949 and 1950-1959 cohorts was 0.06 of a child, or 8%.

Examination of changes in ASFRs indicates whether fertility changes are more likely in particular age groups. The declines by age are largest in level among women aged 30-34. Percentage-wise, the largest declines appear in ages 15-19 and ages over 40. Given these are the lowest fertility ages, larger percentage changes can occur with smaller declines in fertility. However, changes cannot be witnessed for the later age groups and later cohorts. While in the earlier cohorts changes are larger among the older age groups, in later cohorts there are large declines amongst the youngest age group. This might be indicative of a pattern in which older women lower their fertility rates first, followed by changes in the younger age groups.

While the 1970-1979 cohort has not yet ended the reproductive years, I can compare each cohort up to age 29. In doing this, the largest fertility differences are between the 1960-1969 and the 1970-1979 cohorts. There is a 10% decline between these cohorts (or 0.11 of a birth). If one uses the 10% decline benchmark that characterizes fertility transition (Coale and Watkns, 1986), the table suggests that in these pooled data from 23 sub-Saharan African countries, fertility transition started between the 1960-1969 and 1970-1979 cohorts.

Finally, these fertility declines between cohorts are always statistically significant, suggesting that the differences between cohorts are unlikely to be the result of random variation in the ASFRs.

Table 3.2: 23 Sub-Saharan African countries: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	-0.05	-0.04	-0.12	**-0.07**
	Ratio of means	0.94	0.95	0.84	**0.91**
	T-statistic for difference between means	(147.16)	(955.96)	(2,380.74)	
20-24	Difference in means	-0.02	-0.07	-0.10	**-0.07**
	Ratio of means	0.98	0.95	0.93	**0.95**
	T-statistic for difference between means	(60.22)	(964.84)	(934.17)	
25-29	Difference in means	-0.04	-0.10	-0.09	**-0.08**
	Ratio of means	0.97	0.93	0.93	**0.95**
	T-statistic for difference between means	(85.65)	(1,028.72)	(321.51)	
30-34	Difference in means	-0.10	-0.11		**-0.10**
	Ratio of means	0.93	0.92		**0.92**
	T-statistic for difference between means	(204.90)	(711.21)		
35-39	Difference in means	-0.13	-0.05		**-0.09**
	Ratio of means	0.89	0.95		**0.92**
	T-statistic for difference between means	(313.09)	(143.54)		
40-44	Difference in means	-0.07			**-0.07**
	Ratio of means	0.89			**0.89**
	T-statistic for difference between means	(127.32)			
45-49	Difference in means	-0.03			**-0.03**
	Ratio of means	0.87			**0.87**
	T-statistic for difference between means	(20.10)			
Average of means: All ages		**-0.06**	**-0.07**	**-0.11**	
Average ratio: All ages		**0.92**	**0.94**	**0.90**	
Average of means: Ages 15-29		**-0.04**	**-0.07**	**-0.11**	
Average ratio: Ages 15-29		**0.97**	**0.94**	**0.90**	

Using pooled data masks differences between countries. ASFR data by cohort for each country appear in Appendix B. Table 3.3 presents the mean percentage differences between cohorts in ASFRs for ages 15-29 for each country. Older age groups are excluded so that more countries and cohorts can be included in the comparison. Examining these changes between cohorts suggests that of the 13 countries with a decline between the 1940-1949 and 1950-1959 cohorts, 11 show larger declines with successive cohorts. Of the 10 countries that begin with increases or no changes in fertility between cohorts, 8 switch by the third cohort difference to either small decreases or constant fertility. This pattern of declining cohort fertility for women born after 1950 is also found by Garenne (2008). The only exceptions to this pattern are Mali and the Central African Republic, which exhibit small fertility increases between cohorts.

Examination of Table 3.3 can provide an indication of which countries have started the fertility transition, using the benchmark of a 10% decline in fertility. Of the 30 countries studied, 4 (Benin, Ghana, Rwanda, and South Africa) show at least a 10% decline in fertility between the 1940-1949 and 1950-1959 cohorts. Fourteen countries have at least 10% declines between the 1950-1959 and 1960-1969 cohorts. No country shows sustained increasing fertility after a decline. Thus there do not appear to be any unconditional “reversals” in fertility transition.

A stall in fertility decline would be indicated by a country showing no declines after prior fertility declines, or by fertility declining at a slower pace than before. While no country exhibits constant fertility after a period of decline using the statistics in Table 3.3, two countries show slowing fertility declines. These include the Congo (Brazzaville) and Madagascar. These are not the countries found by other researchers to be experiencing stalls in fertility decline (see, for example, Garenne, 2008). Garenne, examining period measures, finds stalls fertility decline in Ghana, Kenya, Nigeria, Rwanda, and Tanzania between 1995 and 2005. While the data grouped for ages 15-29 do not reflect stalls in fertility decline for these countries, examination of data for individual age groups from the individual countries does. For example, Kenya, Nigeria, Rwanda, and Tanzania all show increases in fertility between the 1960-1969 and 1970-1979 cohorts for the 30-34 age group. Ghana shows a much slower fertility decline for this same age group and cohort difference (see Appendix B).

Table 3.4 explores which age groups have experienced the largest declines in fertility between cohorts. These numbers are derived from the tables in Appendix B that look like Table 3.2. For example, for women age 20-24 the average ratio of means in Table 3.2 is 0.95, which in Table 3.4 appears as a 5% decline. Table 3.4 shows that, between women born in 1940 and those born in 1979, the group with the largest fertility decline is age 15-19. This finding suggests a delay in the start of childbearing among younger women. After this youngest age group, countries exhibit either similar or increasing fertility declines by age group. Several countries show average increases for age 20-24 and 25-29. Chad, Malawi, Mali, Mozambique, and Niger all show average fertility increases for age 20-24.

The biases potentially arising from retrospective data would mean that women who give birth later or who have fewer births are disproportionately represented in the data. To the extent that there is this type of bias in the data, it would yield overestimates of changes at older ages. This supports the finding that the largest percentage declines in fertility are among the youngest age groups.

Table 3.3: Percentage difference between cohorts in average age-specific fertility rates for ages 15-29.

	Difference between mother's birth cohorts		
Country	**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**
23 Pooled Countries	-3%	-6%	-10%
Benin	-11%	-2%	-13%
Burkina Faso	3%	0%	-12%
Burundi	-1%	-17%	
Cameroon	3%	1%	-17%
Central African Republic	0%	2%	
Chad		4%	-5%
Comoros		-17%	
Congo (Brazzaville)		-22%	-10%
Côte D'Ivoire	4%	-4%	-22%
Gabon		-12%	-16%
Ghana	-10%	-10%	-21%
Guinea		1%	-2%
Kenya	-1%	-13%	-23%
Lesotho		-12%	-14%
Liberia	2%		
Madagascar	-8%	-10%	-9%
Mali	3%	1%	1%
Malawi	6%	-2%	-9%
Mozambique	5%	-1%	-3%
Namibia	-1%	-11%	-20%
Niger	5%	5%	-8%
Nigeria	5%	-3%	-13%
Rwanda	-16%	-10%	-13%
Senegal	-5%	-10%	-19%
South Africa	-12%	-6%	-15%
Tanzania	0%	-12%	-14%
Togo	-1%	-10%	-20%
Uganda	-3%	-3%	-3%
Zambia	-4%	-13%	-14%
Zimbabwe	-5%	-16%	-20%

Notes: Missing observations occur due to missing data. Statistics calculated by averaging changes between cohorts for age groups 15-19, 20-24, and 25-29. No adjustment is made for relative size of age group.

Table 3.4: Percentage difference between cohorts born between 1940 and 1979 in age-specific fertility rates

Country	Age group 15-19	20-24	25-29	30-34
23 Pooled Countries	-9%	-5%	-5%	
Benin	-13%	-6%	-7%	-6%
Burkina Faso	-2%	-1%	-6%	-8%
Cameroon	-7%	-1%	-5%	-3%
Central African Republic	-7%	0%		
Chad	-3%	2%	3%	-2%
Cote d'Ivoire	-7%	-5%	-9%	
Ghana	-18%	-11%	-11%	-11%
Kenya	-19%	-8%	-10%	-9%
Madagascar	-13%	-6%	-8%	-9%
Mali	1%	3%	1%	-3%
Malawi	-1%	2%	-5%	-6%
Mozambique	-1%	4%	-1%	0%
Namibia	-7%	-10%	-16%	
Niger	1%	2%	-2%	-4%
Nigeria	-5%	-4%	-3%	0%
Rwanda	-21%	-10%	-8%	-7%
Senegal	-16%	-11%	-8%	-7%
South Africa	-7%	-16%	-10%	
Tanzania	-18%	-5%	-4%	-6%
Togo	-16%	-9%	-7%	
Uganda	-9%	0%	-1%	-1%
Zambia	-16%	-7%	-9%	-4%
Zimbabwe	-18%	-11%	-13%	-16%

Notes: Countries with missing data are not shown. Statistic calculated by averaging differences between 1940-1949 and 1950-1959 cohorts, 1950-1959 and 1960-1060 cohorts, and 1960-1969 and 1970-1979 cohorts.

4 Discussion and Conclusions

This report has provided a comparative analysis of fertility trends in 30 sub-Saharan African countries, using data from 74 DHS conducted between 1986 and 2006. Unlike much work on fertility trends, this report examines fertility trends by mother's birth cohort. The goal has been to address four main questions. First, what countries are experiencing fertility declines, and at what rates? Second, is the stalling in fertility transition that other studies have suggested also found in cohort measures? Third, between what cohorts is fertility decline largest? Fourth, is fertility declining differently at different ages, and if so, which ages experience larger declines?

With regard to the first question, all of the 30 countries studied exhibit at least some indications of fertility decline. In nearly all of the countries fertility rates have declined between mother's birth cohorts, starting with women born in 1960-1969. Countries with fertility increases between earlier cohorts have switched to at least small declines by later cohorts. The only exceptions to this pattern are Mali and the Central African Republic, which shows few signs of fertility decline.

As to the second question, the measures examined show little evidence of a "reversal" of fertility transition. Several countries, however, exhibit what could be a slowing or even reversal of fertility decline between cohorts, at least for certain age groups. The Congo (Brazzaville) and Madagascar show slowing fertility declines. Ghana, Kenya, Rwanda, and Tanzania all show increases in fertility between the 1960-1969 and 1970-1979 cohorts for the 30-34 age group. Between the 1940-1949 and 1960-1969 cohorts, many countries also exhibit increasing fertility, particularly for groups under age 25. However, by later cohorts most countries show the largest percentage fertility declines in the 15-19 age group, suggesting a delay in the start of childbearing. The overall pattern is that countries that have initiated declines do not later see sustained increases in fertility.

While countries vary in fertility levels and trends, 26 of the 30 countries studied show at least a 10% decline in fertility for at least one age group between the 1950-1959 and 1960-1969 cohorts; a 10% decline in fertility is the level usually cited as evidence of the start of fertility transition. This provides an answer to the first question. Since most countries did not exhibit a 10% decline between the cohorts born in 1940-1949 and 1950-1959, it is possible to state, using this study's data, that fertility transition began with the 1960-1969 cohort.

As to the fourth question, beyond the youngest age group, most countries exhibit sustained or progressively larger fertility declines in age groups between 20 and 34. This findings suggests that fertility decline began with women later in their reproductive years (age 25 and over), followed by younger age groups.

The goal of this report has been to present basic trends in specific fertility measures, with an emphasis on cohort measures. Because the data show cohort trends, they may paint a different picture than period trends. This report includes a great deal of data that has not been emphasized, particularly at the country level (see Appendix B), but that can be useful for researchers and policy-makers. Further work should test the robustness of the trends studied with cohort measures, and examine how they relate to trends identified using different measures.

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Appendix A: Construction of Sample Weights

DHS surveys are designed to be representative of the overall household population. Accuracy of statistics is lower in smaller sample sizes. If individuals are randomly selected from the entire population to be surveyed, the number of survey observations for a group that constitutes a smaller proportion of the overall population would be very small. This would lead to potentially inaccurate estimates for this group. In this case a survey may oversample this group, so that the group's sample proportion is larger than the group's proportion in the population. The survey then provides sample weights to data users so that these over-sampled individuals can be statistically made to represent their actual portion of the population. For example, urban women may constitute 10% of the population, but may constitute 50% of the sample. Urban women would then have sample weights such that they would "appear" as 10% of the sample.

The DHS provides individual weights that can be used to make sample statistics representative of the population. Summing across the sample weights for each survey yields the total number of observations in the survey. The DHS sample is performed in order to be representative of the population at the time it was taken.

While the DHS sample weights are useful in creating population-representative samples for the time of the survey, further weighting is necessary in creating sample statistics with the constructed panel. The first problem is that observations from several surveys for an individual country are combined in the creation of the panel.

The second problem is that DHS samples range in size but are not reflective of the overall population size. Two countries may each have a DHS survey size of 3,000, but one country may have a population of 1 million while the other has a population of 10 million. Combining the samples from these two countries will make them appear to be equally in weight, even though the country with more people is more representative of the total population of both countries combined.

To deal with these issues and to create new weights that are useful for the purposes of this study, I construct a new weight composed of two parts. The first part is the DHS sample weight. The second part is used to weight individual women to make the sample reflective of the country's population size and age distribution in a particular year.

A.1 Weights for Analyses of Individual Countries

The construction of the weights for analyses of individual countries begins with the DHS sample weights. Each respondent is assigned a sample weight for the particular survey. Allow i to denote the individual, D to index the DHS surveys in an individual country C, and z be the total number of surveys in country C. Refer to the sample weight as $SW_{i,D,C}$. In the panel created from fertility histories, this weight remains constant for each individual for all observations on that individual. In essence this is saying that individual i represents $SW_{i,D,C}$ women at the time of the survey. The DHS sample weights are assigned such that they sum to the DHS sample sizes.

The second step in the creation of weights for analyses of individual countries is consideration of the different DHS sample sizes for an individual country. Consider two people (Person 1 and Person 2) who are interviewed in different surveys in the same country. Let Person 1 be interviewed in 1996, while Person 2 is interviewed in 1991 (see Table A.1). For this country, suppose that there are only two DHSs, so that the 1991 survey is $D = 1$ while the 1996 survey is $D = 2$. Further, allow that both individuals were born in 1960. In each of their respective surveys, Persons 1 and 2 are assigned DHS sample weights. Let Person 1's sample weight be 1.2 (i.e. $SW_{1,2,C} = 1.2$), while Person 2's sample weight is 0.9 ($SW_{1,2,C} = 0.9$).

Suppose that the 1996 DHS survey for this country contains 10,000 observations, while the 1991 survey contains only 3,000 observations. Allow $SS_{D,C}$ to refer to the sample size for DHS survey D (i.e. $SS_{1,C}$ = 3,000 and $SS_{2,C}$ = 10,000).

To understand what percentage each of these individuals should carry in calculated statistics, consider the constructed panel. Since both Persons 1 and 2 were born in 1960, after creating the panel, there will be observations for each of these individuals for 1990 at age 30. Person 1 is interviewed in 1996, such that in the panel her age at the end of 1990 is assigned as 30. Person 2 is interviewed in 1991, such that in the panel her age at the end of 1990 is also assigned as 30. For simplicity, assume that these are the only two observations for age 30 in 1990 for the country in question. Let $n_{A,C,Y}$ be the sample size *in the panel* for age A in country C in year Y. In this example, $n_{A,C,Y} = 2$.

If one were to ignore the different DHS sample weights and DHS sample sizes, then each person would represent half of the panel sample. However, the individuals have a different likelihood of being sampled at the times of their surveys, so I account for this with $SW_{i,D,C}$. If one were to ignore the respective DHS sample sizes, then each individual would account for a proportion of the panel sample for age A and year Y equal to

(E.3) $$\frac{SW_{i,D,C}}{\sum_{D=1}^{z}\sum_{i=1}^{n} SW_{i,D,C}}.$$

Person 1 would account for 57% of the panel sample, while Person 2 would account for 43%.

If one takes into account the relative DHS survey sizes for country C, however, the relative proportion that each individual accounts for in the panel sample changes. Consider that Person 2 represents 0.9 people in a DHS sample size of 3,000. However, if the 1991 DHS survey were as large as the 1996 DHS survey (10,000), then Person 2 would account for 3.3 people in a survey of 10,000. When considering this, it becomes clear that Person 2 should carry more weight in calculated statistics for the age group A and year Y than Person 1. To account for this, I employ a scaling factor specific to the survey date. Call this scaling factor $F1_{D,C}$ and let

(E.4) $$F1_{D,C} = \frac{\sum_{D=1}^{z} SS_{D,C}}{SS_{D,C}}$$

When this scaling factor is multiplied by the DHS sample weight ($SW_{i,D,C} \times F1_{D,C}$), Person 2 will now account for 71% of the panel sample, while Person 1 only accounts for 29%.

The weights should sum to the actual panel sample size for the age group, country, and year. The scaled DHS sample weights for the two individuals sum to 5.46, not the panel sample size of 2. I therefore employ a second scaling factor $F2_{A,C,Y}$ that is constant across individuals in the age group and year:

(E.5) $$F2_{A,C,Y} = \frac{n_{A,C,Y}}{\sum_{i=1}^{n} (SW_{i,D,C} \times F1_{D,C})}$$

Finally, multiplying this second scaling factor by the DHS sample weight and the first scaling factor yields the weight $W1_{i,D,A,C,Y}$ used in analyses for individual countries.

(E.6) $$W1_{i,D,A,C,Y} = SW_{i,D,C} \times F1_{D,C} \times F2_{A,C,Y}$$

Therefore, $\sum_{i=1}^{n} W1_{i,D,A,C,Y} = n_{A,C,Y}$. The analyses in which this weight is employed appear in Appendix B as well as the individual country data in Tables 3.3 and 3.4.

A further weighting factor is necessary when combining countries. The next section describes this additional weight.

Table A.1: Example of weighting scheme in individual country analyses

	Person 1	Person 2	Sum (where relevant)
Year of interview	1996	1991	--
D	2	1	--
Year of birth	1960	1960	--
Age assigned in panel at end of 1990	30	30	--
DHS sample weight ($SW_{i,D,C}$)	1.2	0.9	2.1
Proportion of panel sample just accounting for $SW_{i,D,C}$	57%	43%	100%
DHS sample size ($SS_{D,C}$)	10,000	3,000	13,000
$F1_{D,C}$	13,000/10,000	13,000/3,000	--
$SW_{i,D,C} \times F1_{D,C}$	1.56	3.9	5.46
Proportion of panel sample accounting for $SW_{i,D,C}$ and $SS_{D,C}$	29%	71%	100%
$F2_{A,C,Y}$	5.46/2	5.46/2	--
$W1_{i,D,A,C,Y}$	0.57	1.43	2

A.2 Weights for Relative Population Size by Age Group, Country, and Year

In parts of the analysis different countries are pooled. To reflect relative population sizes, I weight observations in this setting using another factor. After the panel has been constructed from the individual birth histories, I find the total number of observations in the panel for women of each age group in each country in each year between 1950 and 2006. I merge this to population size data for each age group, country, and year. Population size data come from the United Nations (UN) estimates. These age groups are in five year intervals and range from 15-19 to 45-49. The UN estimates are also only available in five-year increments starting in 1950. I create linear projections for each age group and country between each five-year increment in order to get estimates for the interim years.

Let $X_{A,C,Y}$ be the population size by age group (A), country (C), and year (Y). Therefore $\sum_{C=1}^{k} X_{A,C,Y}$ is the total population size for all k countries. Likewise, since $n_{A,C,Y}$ is the sample size in the panel for an individual country, age group, and year, $\sum_{C=1}^{k} n_{A,C,Y}$ is the summed sample over all countries. Since the goal is to weight different countries relative to each other, a third scaling factor ($F3$) for each age group, country, and year is:

(E.7) $$F3_{A,C.Y} = \frac{X_{A,C,Y}}{n_{A,C,Y}} \times \frac{\sum_{C=1}^{k} n_{A,C,Y}}{\sum_{C=1}^{k} X_{A,C,Y}}$$

The first term in this factor accounts for the relative population size of one country in relation to another, while the second term scales the weights so that they sum to the sample size. This is necessary so as not to reduce standard deviations on the basis of weights.

For analyses with pooled data by country, I employ a second weight ($W2$) which is equal to the first weight multiplied by $F3$:

(E.8) $$W2_{i,A,C,Y} = W1_{i,A,C,Y} \times F3_{A,C,Y}$$

Expanding this formula yields:

(E.9) $$W2_{i,A,C,Y} = \left[SW_{i,D,A,C,Y} \times F1_D \times \frac{n_{A,C,Y}}{\sum_{i=1}^{n} (SW_{i,D} \times F1_D)} \right] \times \left[\frac{X_{A,C,Y}}{n_{A,C,Y}} \times \frac{\sum_{C=1}^{k} n_{A,C,Y}}{\sum_{C=1}^{k} X_{A,C,Y}} \right]$$

Cancelling terms yields:

(E.10) $$W2_{i,A,C,Y} = \left[\frac{SW_{i,D,A,C,Y} \times F1_D}{\sum_{i=1}^{n} (SW_{i,D} \times F1_D)} \right] \times X_{A,C,Y} \times \left[\frac{\sum_{C=1}^{k} n_{A,C,Y}}{\sum_{C=1}^{k} X_{A,C,Y}} \right]$$

The first term in this equation is the proportion of the total sample weights for the age group, country, and year that individual *i* represents. The second term is the population size by age group, country, and year. Multiplying the first two terms together provides an estimate of the number of people in the population that person *i* represents. The third element of the equation provides a scaling factor such that the sum of the sample weights will yield the panel sample size (rather than the population size). When performing analyses with data grouped over several countries, $W2$ is employed. The results of these analyses appear in Figures 3.1 and 3.2, Tables 3.1 and 3.2, and the statistics for the pooled data in Tables 3.3 and 3.4.

A.3 Impact of Weights in Calculation of Statistics

A discussion of how the final weights are used in the calculation of statistics is important for comprehending their impact. In using the weights and obtaining standard deviations of these estimates for testing, I must make slight changes to standard statistics.

A.3.1 Weighting Age-Specific Fertility Rates

The age-specific fertility rate is defined as the total number of births to women during the age group divided by the total number of women-years spent in the age group. The equation for the unweighted ASFR for age group *A* is:

(E.11) $$ASFR_A = \frac{\sum_{i=1}^{n} B_{i,A}}{\sum_{i=1}^{n} Y_{i,A}}$$

Where $B_{i,A}$ is the number of births to woman *i* while in age group *A*, and $Y_{i,A}$ is the number of woman-years spent by woman *i* in age group *A*.

Weighting observations when calculating the ASFRs could follow two approaches. In the first approach, one weights births and sums these over the sample, then weights individual woman-years and sums these over the sample, and then divides the first sum by the second. Allow $w_{i,A}$ to refer to the weight for individual *i* in age group *A*. In individual country analyses this weight is *W*1. In analyses with data grouped by country this weight is *W*2. In this approach the weighted ASFR is:

(E.12) $$ASFR_A^W = \frac{\sum_{i=1}^{n} w_{i,A} B_{i,A}}{\sum_{i=1}^{n} w_{i,A} Y_{i,A}}$$

This approach follows the standard calculation of the ASFR and maintains the separation between births to an individual woman and that individual woman's contribution to overall woman-years. The problem with this approach is that there is no way to calculate a standard deviation. Calculation of a standard deviation is necessary if one wants to compare the ASFRs for age group *A* for two birth cohorts of women. I therefore turn to the second approach.

In the second approach, one calculates the number of births per woman-year for each woman in the age group and then weights this quotient. The sum of these weighted quotients divided by the sum of the weights is then the ASFR. This second method of calculating a weight ASFR is therefore:

(E.13) $$ASFR_A^W = \frac{\sum_{i=1}^{n} \left[w_{i,A} \left(\frac{B_{i,A}}{Y_{i,A}} \right) \right]}{\sum_{i=1}^{n} w_{i,A}}$$

If each age interval is one year long, there will be no difference between the first and second versions of the weighted ASFR. However, I am looking at 5-year age intervals, so there is a potential for slight differences between the two methods.

Note that the age-specific fertility rates are defined for five-year age groups. Therefore, the sum of the weights is over the number of weighted women, not the number of weighted woman-years.

To calculate the standard deviation of the second version of the weighted ASFR (in Equation (E.13)), let $b_{i,A} = \frac{B_{i,A}}{Y_{i,A}}$. Therefore,

(E.14) $$ASFR_A^W = \bar{b}_A^W = \frac{\sum_{i=1}^{n}\left(w_{i,A} \times b_{i,A}\right)}{\sum_{i=1}^{n} w_{i,A}}$$

The standard deviation is

(E.15) $$s_{ASFR_A^W} = \sqrt{\frac{\sum_{i=1}^{n} w_{i,A}(b_{i,A} - \bar{b}_A^W)^2}{\sum_{i=1}^{n} w_{i,A}}}$$

A.3.2 Weighting Cumulative Number of Births by Age Group

In calculating the cumulative number of births by age group, it is important to point out that I sum the weighted ASFRs for ages up to the age group of interest. Thus I calculate the average cumulative number of births by age *h* as

(E.16) $$C_h^W = \sum_{A=1}^{h} ASFR_A^W$$

To distinguish this approach from an alternative, consider Equation (E.16) written as

(E.17) $$C_h^W = \sum_{A=1}^{h}\left(\frac{\sum_{i=1}^{n}\left(w_{i,A} \times b_{i,A}\right)}{\sum_{i=1}^{n} w_{i,A}}\right)$$

An alternative method of calculating the weighted cumulative number of births would be to use the stated total number of births and the weight at just age *h*. This would result in the formula:

(E.18) $$C_h^W = \frac{\sum_{i=1}^{n}\left[w_{i,h} \sum_{A=1}^{h} b_{i,A} \right]}{\sum_{i=1}^{n} w_{i,h}}$$

Because this would result in differences when comparing ASFRs and cumulative number of births, I do not take this second approach.

A.3.3 Calculating t-Statistic for Differences between ASFRs by Cohort

The report contains statistics with which I compare the ASFRs for women born in different time periods. In order to test whether the difference between the two ASFRs is statistically significant, I calculate a t-statistic. In calculating this, one needs to find the standard deviation of the difference between weighted means. Consider two groups of women in the same country born at different times. Allow one group of women to be born in cohort *Q* and the other to be born in cohort *P*. One would like to test for the statistical significance of the difference between $ASFR_{Q,A}^W$ and $ASFR_{P,A}^W$. The null and alternative hypotheses are:

(E.19) $$H_0 : ASFR_{Q,A}^W - ASFR_{P,A}^W = 0$$

$$H_A : ASFR_{Q,A}^W - ASFR_{P,A}^W \neq 0$$

The test statistic is:

(E.20) $$t = \frac{ASFR_{Q,A}^W - ASFR_{P,A}^W}{s_{Q,P}}$$

Where

$$s_{Q,P} = \sqrt{\frac{s^2_{ASFR_{Q,A}^W}}{\sum_{i=1}^{n} w_{i,Q,A}} + \frac{s^2_{ASFR_{P,A}^W}}{\sum_{i=1}^{m} w_{i,P,A}}}$$

In the formula for $s_{Q,P}$, $w_{i,Q,A}$ is the weight for individual *i* in cohort *Q* in age group *A*, *n* is the number of observations in cohort *Q* in age group *A*, and *m* is the number of observations in cohort *P* in age group *A*.

Statistics calculated from sample sizes under 250 are suppressed (see Appendix C for suppressed ages and cohorts). Since sample sizes will be over 250, the critical value for a 5% confidence level will be 1.96.

Appendix B: Figures and Tables for Individual Countries

Appendix B presents figures for the cumulative and average number of births by mother's age and birth cohort, as well as tables for age-specific birth rates by mother's cohort and comparisons between cohorts. The figures mirror Figures 3.1 and 3.2, and the tables mirror Tables 3.1 and 3.2. When a sample for a specific age group, country, and birth cohort had fewer than 250 observations, the statistics for it are suppressed, because the small sample sizes may provide misleading statistics. Table C.1 (in Appendix C) lists all groups with suppressed statistics.

The figures in Appendix B only show data for birth cohorts 1940-1949, 1950-1959, 1960-1969, 1970-1979, and 1980-1989. Statistics are missing when the country's surveys do not cover the specific cohort and/or age group. While some countries have data for cohorts born between 1940 and/or after 1989, these statistics are also not shown due to lack of comparability with other cohorts in the time span.

In the figures for age-specific fertility rates by mother's birth cohort (Figure B.X.2), if for a specific cohort a country only has data for age 15-19 but not age 20-24, then a line showing that cohort's ASFR's is not shown. This is because the data for the age group 15-19 would only be represented as a single dot. In contrast, the figures for cumulative number of births by mother's age and birth cohort (Figure B.X.3) will have the data represented as a line connecting zero to the age 15-19 value.

In the tables showing comparisons between successive cohorts in age-specific fertility rates (Table B.X.2), the difference in means is calculated by subtracting the value for the later cohort from the earlier cohort. The ratio is calculated by dividing the value for the later cohort by the value of the earlier cohort.

All statistics are weighted according to $W1$, as defined in Appendix A. The listed sample sizes ("N" in Tables B.X.1) are the number of weighted observations contributing data to the specific age group, cohort, and country. These do not denote the number of woman-years covered by the statistics.

B.1 Benin

Figure B.1.1: Benin: Cumulative number of births, by mother's age and birth cohort

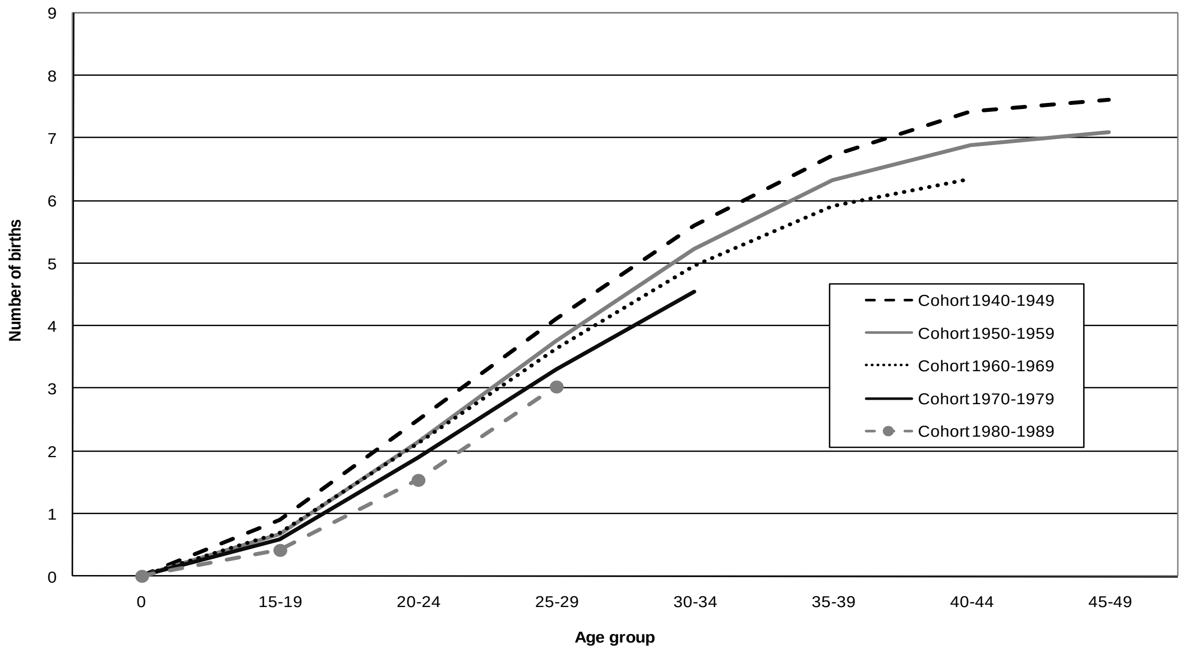

Figure B.1.2: Benin: Age-specific fertility rates, by mother's birth cohort

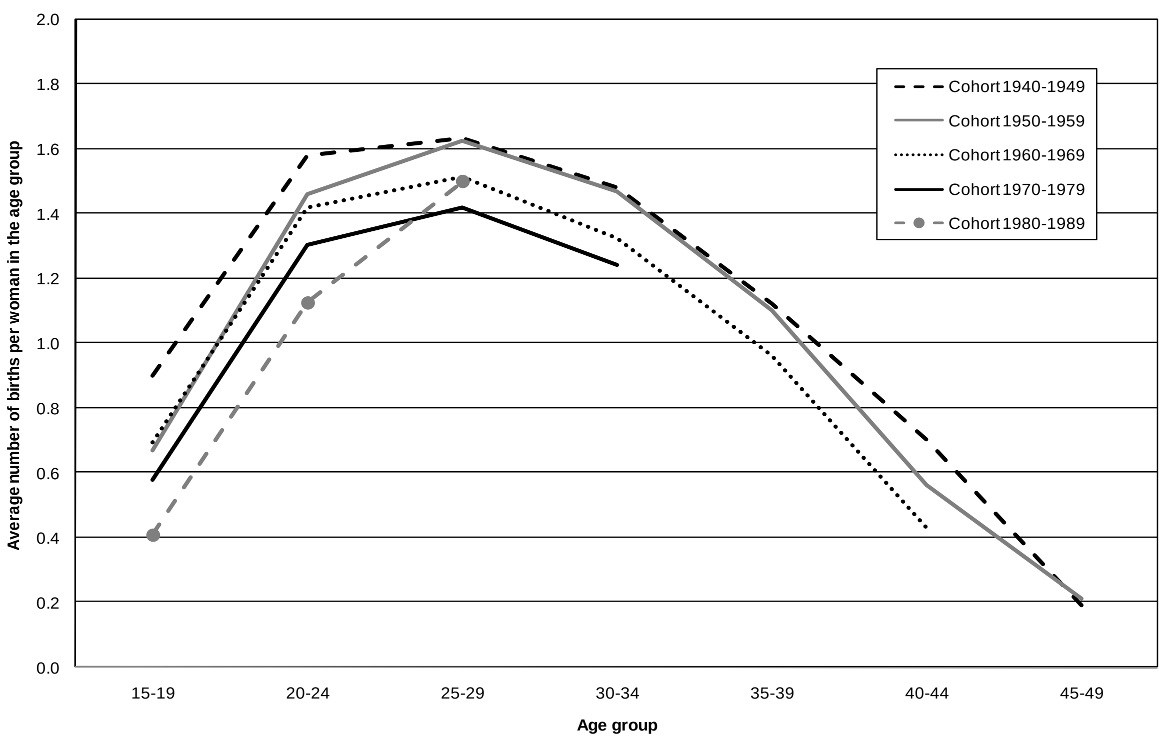

Table B.1.1: Benin: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.90	0.67	0.69	0.58
	Std. dev.	(1.06)	(0.85)	(0.86)	(0.79)
	N	314	2,272	663	10,088
20-24	Mean	1.58	1.46	1.42	1.30
	Std. dev.	(0.95)	(0.95)	(0.94)	(0.79)
	N	314	2,272	6,378	10,088
25-29	Mean	1.64	1.63	1.51	1.30
	Std. dev.	(0.91)	(0.92)	(0.96)	(1.06)
	N	314	2,272	6,378	8,543
30-34	Mean	1.48	1.47	1.33	1.25
	Std. dev.	(0.89)	(0.92)	(1.13)	(1.47)
	N	314	2,272	5,207	1,754
35-39	Mean	1.12	1.10	0.96	
	Std. dev.	(0.96)	(1.02)	(1.34)	
	N	314	2,272	3,077	
40-44	Mean	0.70	0.56	0.43	
	Std. dev.	(0.90)	(0.94)	(1.02)	
	N	314	1,606	998	
45-49	Mean	0.19	0.21		
	Std. dev.	(0.57)	(0.81)		
	N	314	663		

Table B.1.2: Benin: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	-0.23	0.02	-0.12	**-0.11**
	Ratio of means	0.75	1.03	0.83	**0.87**
	T-statistic for difference between means	(3.67)	(0.59)	(3.41)	
20-24	Difference in means	-0.12	-0.04	-0.12	**-0.09**
	Ratio of means	0.93	0.97	0.92	**0.94**
	T-statistic for difference between means	(2.07)	(1.89)	(8.11)	
25-29	Difference in means	-0.01	-0.11	-0.21	**-0.11**
	Ratio of means	0.99	0.93	0.86	**0.93**
	T-statistic for difference between means	(0.19)	(4.92)	(12.64)	
30-34	Difference in means	-0.01	-0.14	-0.08	**-0.08**
	Ratio of means	0.99	0.90	0.94	**0.94**
	T-statistic for difference between means	(0.27)	(5.79)	(2.08)	
35-39	Difference in means	-0.02	-0.14		**-0.08**
	Ratio of means	0.98	0.87		**0.93**
	T-statistic for difference between means	(0.31)	(4.44)		
40-44	Difference in means	-0.14	-0.13		**-0.14**
	Ratio of means	0.80	0.77		**0.78**
	T-statistic for difference between means	(2.54)	(3.29)		
45-49	Difference in means	0.02			**0.02**
	Ratio of means	1.12			**1.12**
	T-statistic for difference between means	(0.49)			
	Average of means	**-0.07**	**-0.09**	**-0.13**	
	Average ratio	**0.94**	**0.91**	**0.89**	

B.2 Burkina Faso

Figure B.2.1: Burkina Faso: Cumulative number of births, by mother's age and birth cohort

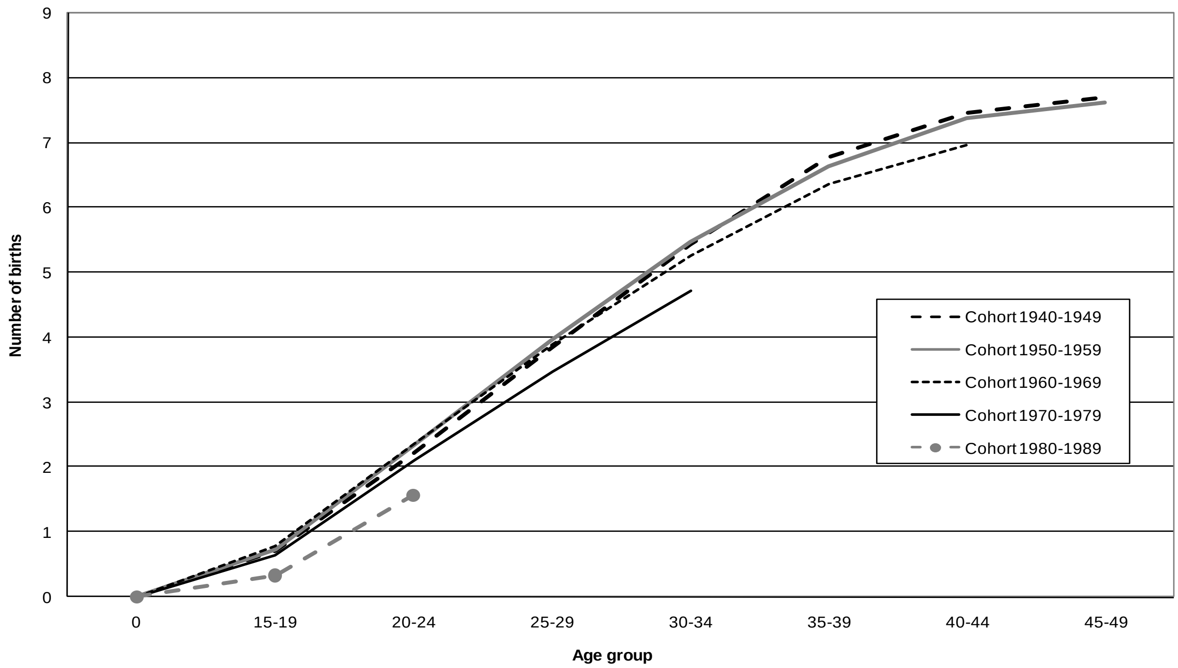

Figure B.2.2: Burkina Faso: Age-specific fertility rates, by mother's birth cohort

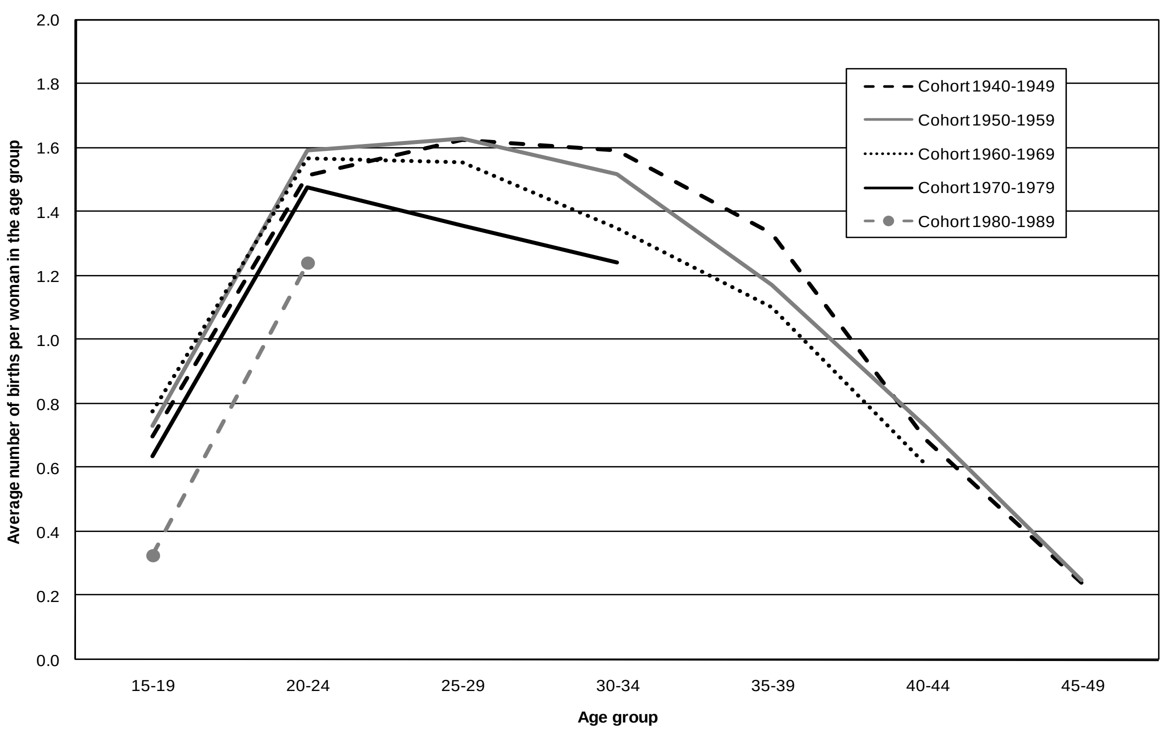

Table B.2.1: Burkina Faso: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.70	0.73	0.78	0.64
	Std. dev.	(0.83)	(0.85)	(0.83)	(0.78)
	N	624	3,589	6,733	8,275
20-24	Mean	1.52	1.59	1.57	1.48
	Std. dev.	(1.01)	(0.94)	(0.87)	(1.15)
	N	624	3,589	6,733	6,022
25-29	Mean	1.63	1.63	1.56	1.36
	Std. dev.	(0.98)	(0.88)	(1.03)	(1.34)
	N	624	3,589	6,190	2,892
30-34	Mean	1.59	1.52	1.35	1.24
	Std. dev.	(0.95)	(0.92)	(1.19)	(1.56)
	N	624	3,589	4,420	592
35-39	Mean	1.33	1.17	1.10	
	Std. dev.	(0.96)	(1.09)	(1.32)	
	N	624	3,207	2,215	
40-44	Mean	0.69	0.73	0.61	
	Std. dev.	(0.82)	(1.21)	(1.32)	
	N	624	2,133	442	
45-49	Mean	0.24	0.25		
	Std. dev.	(0.85)	(0.83)		
	N	465	810		

Table B.2.2: Burkina Faso: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	0.03	0.05	-0.14	**-0.02**
	Ratio of means	1.04	1.06	0.82	**0.98**
	T-statistic for difference between means	(0.87)	(2.67)	(10.36)	
20-24	Difference in means	0.08	-0.02	-0.09	**-0.01**
	Ratio of means	1.05	0.99	0.94	**0.99**
	T-statistic for difference between means	(1.78)	(1.26)	(5.04)	
25-29	Difference in means	0.00	-0.07	-0.20	**-0.09**
	Ratio of means	1.00	0.96	0.87	**0.94**
	T-statistic for difference between means	(0.10)	(3.63)	(7.10)	
30-34	Difference in means	-0.07	-0.17	-0.11	**-0.12**
	Ratio of means	0.95	0.89	0.92	**0.92**
	T-statistic for difference between means	(1.80)	(7.12)	(1.64)	
35-39	Difference in means	-0.16	-0.07		**-0.12**
	Ratio of means	0.88	0.94		**0.91**
	T-statistic for difference between means	(3.77)	(2.00)		
40-44	Difference in means	0.04	-0.12		**-0.04**
	Ratio of means	1.06	0.83		**0.95**
	T-statistic for difference between means	(1.01)	(1.77)		
45-49	Difference in means	0.01			**0.01**
	Ratio of means	1.04			**1.04**
	T-statistic for difference between means	(0.18)			
	Average of means	**-0.01**	**-0.07**	**-0.13**	
	Average ratio	**1.00**	**0.95**	**0.89**	

B.3 Burundi

Figure B.3.1: Burundi: Cumulative number of births, by mother's age and birth cohort

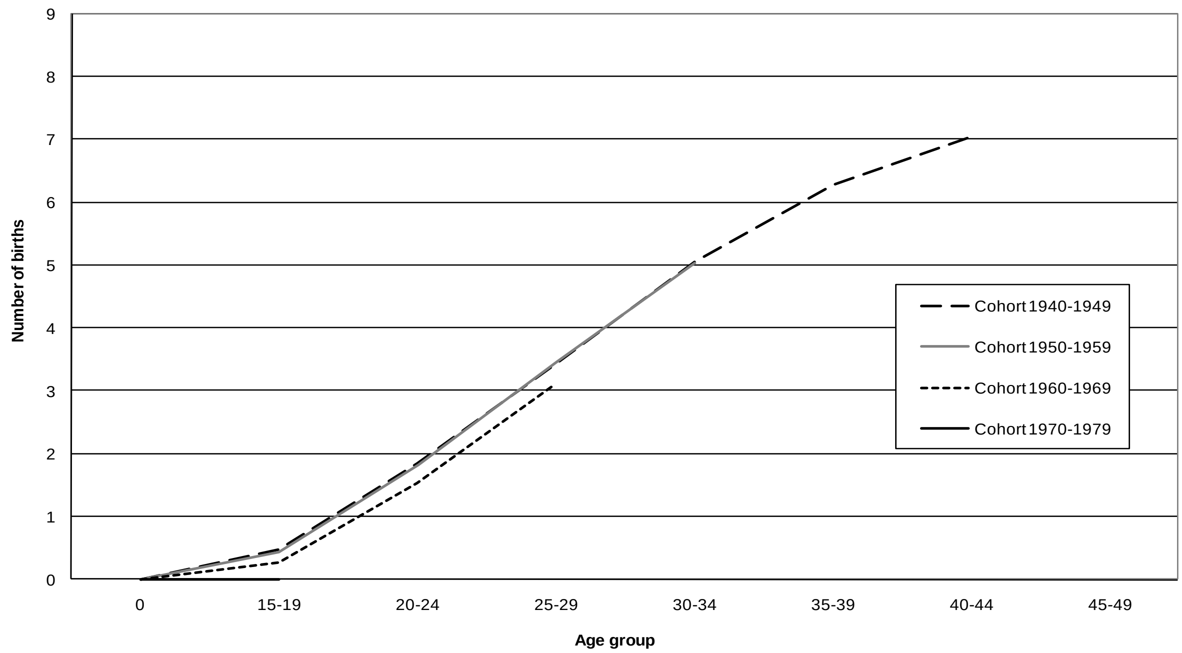

Figure B.3.2: Burundi: Age-specific fertility rates, by mother's birth cohort

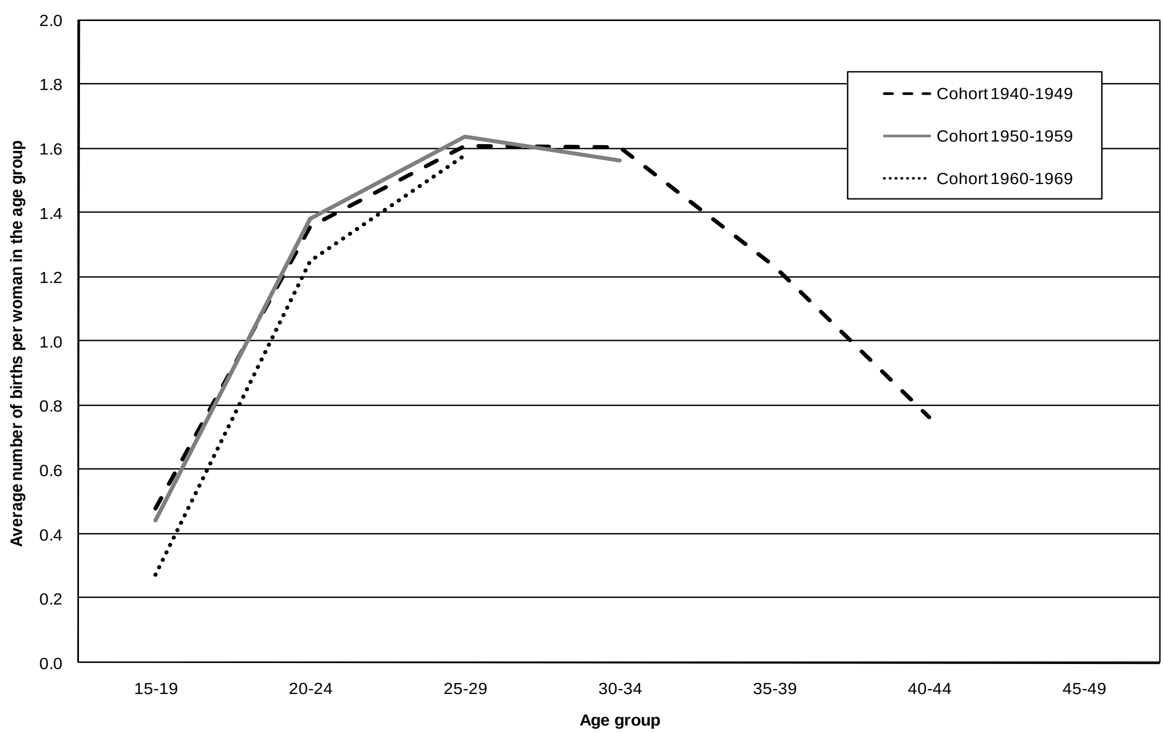

Table B.3.1: Burundi: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.48	0.44	0.27	
	Std. dev.	(0.77)	(0.72)	(0.57)	
	N	652	1,235	1,627	
20-24	Mean	1.36	1.38	1.25	
	Std. dev.	(0.99)	(0.97)	(1.23)	
	N	652	1,235	1,116	
25-29	Mean	1.61	1.64	1.58	
	Std. dev.	(1.00)	(0.91)	(1.84)	
	N	652	1,235	310	
30-34	Mean	1.61	1.57		
	Std. dev.	(0.95)	(1.31)		
	N	652	738		
35-39	Mean	1.23			
	Std. dev.	(0.98)			
	N	652			
40-44	Mean	0.77			
	Std. dev.	(1.11)			
	N	391			
45-49	Mean				
	Std. dev.				
	N				

Table B.3.2: Burundi: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort: 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	-0.04	-0.17		**-0.10**
	Ratio of means	0.92	0.62		**0.77**
	T-statistic for difference between means	(1.00)	(6.79)		
20-24	Difference in means	0.02	-0.13		**-0.05**
	Ratio of means	1.02	0.91		**0.96**
	T-statistic for difference between means	(0.52)	(2.85)		
25-29	Difference in means	0.03	-0.06		**-0.01**
	Ratio of means	1.02	0.96		**0.99**
	T-statistic for difference between means	(0.64)	(0.55)		
30-34	Difference in means	-0.04			**-0.04**
	Ratio of means	0.97			**0.97**
	T-statistic for difference between means	(0.68)			
35-39	Difference in means	0.42			**0.42**
	Ratio of means	1.34			**1.34**
	T-statistic for difference between means	(2.98)			
40-44	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means	**0.08**	**-0.12**		
	Average ratio	**1.06**	**0.83**		

B.4 Cameroon

Figure B.4.1: Cameroon: Cumulative number of births, by mother's age and birth Cohort

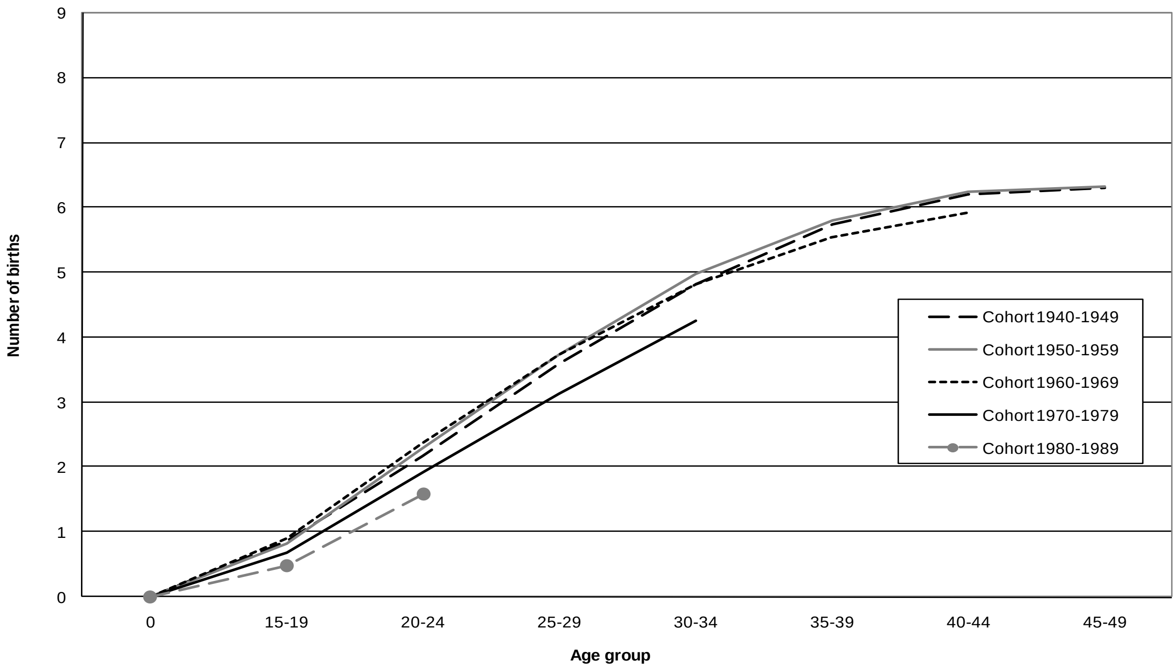

Figure B.4.2: Cameroon: Age-specific fertility rates, by mother's birth cohort

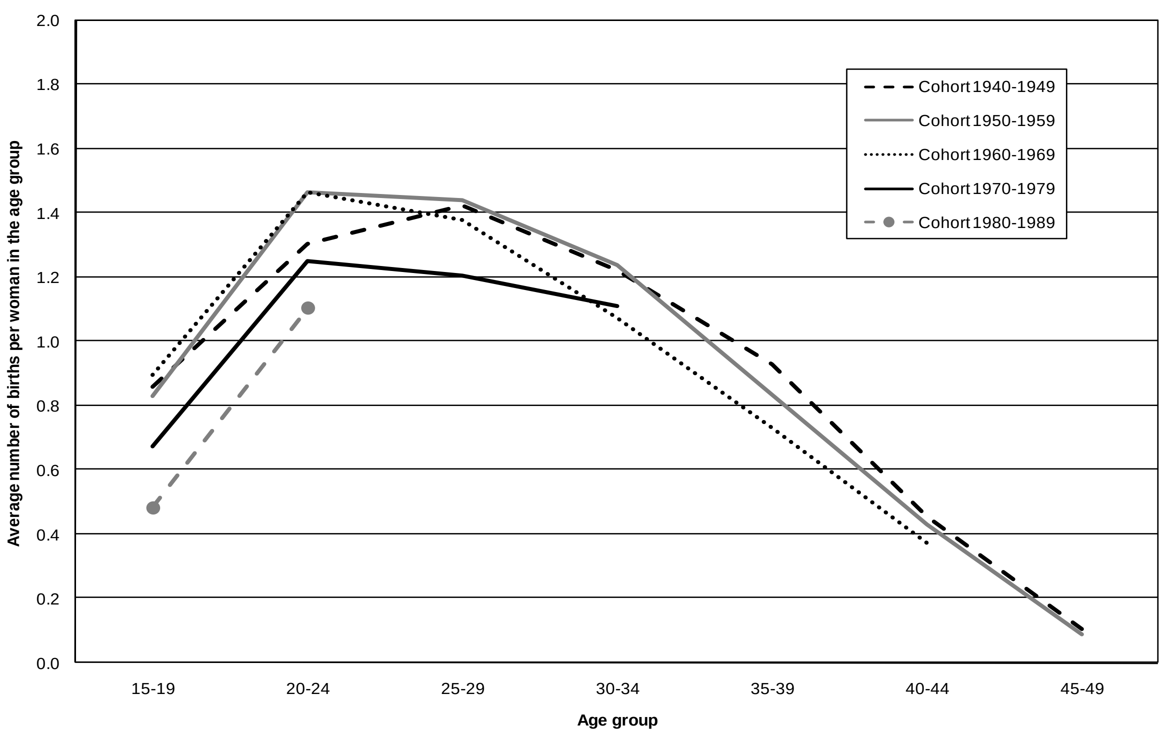

Table B.4.1: Cameroon: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.86	0.83	0.90	0.68
	Std. dev.	(0.96)	(0.90)	(0.92)	(0.88)
	N	487	2,327	4,800	6,522
20-24	Mean	1.31	1.47	1.46	1.25
	Std. dev.	(1.06)	(1.03)	(1.04)	(1.32)
	N	487	2,327	4,800	4,361
25-29	Mean	1.43	1.44	1.38	1.21
	Std. dev.	(1.11)	(1.03)	(1.15)	(1.47)
	N	487	2,327	3,915	2,358
30-34	Mean	1.22	1.24	1.08	1.11
	Std. dev.	(1.06)	(1.08)	(1.27)	(1.55)
	N	487	2,327	2,555	574
35-39	Mean	0.93	0.83	0.73	
	Std. dev.	(0.99)	(1.08)	(1.23)	
	N	487	1,787	1,378	
40-44	Mean	0.46	0.43	0.37	
	Std. dev.	(0.79)	(0.95)	(0.95)	
	N	487	1,055	338	
45-49	Mean	0.11	0.09		
	Std. dev.	(0.47)	(0.47)		
	N	288	455		

Table B.4.2: Cameroon: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	-0.03	0.06	-0.22	**-0.06**
	Ratio of means	0.97	1.08	0.75	**0.93**
	T-statistic for difference between means	(0.63)	(2.77)	(12.78)	
20-24	Difference in means	0.16	0.00	-0.21	**-0.02**
	Ratio of means	1.12	1.00	0.86	**0.99**
	T-statistic for difference between means	(3.06)	(0.11)	(8.50)	
25-29	Difference in means	0.02	-0.07	-0.17	**-0.07**
	Ratio of means	1.01	0.95	0.88	**0.95**
	T-statistic for difference between means	(0.35)	(2.33)	(4.79)	
30-34	Difference in means	0.02	-0.16	0.04	**-0.04**
	Ratio of means	1.01	0.87	1.03	**0.97**
	T-statistic for difference between means	(0.33)	(4.85)	(0.54)	
35-39	Difference in means	-0.10	-0.10		**-0.10**
	Ratio of means	0.89	0.88		**0.89**
	T-statistic for difference between means	(1.92)	(2.39)		
40-44	Difference in means	-0.03	-0.05		**-0.04**
	Ratio of means	0.93	0.88		**0.91**
	T-statistic for difference between means	(0.64)	(0.90)		
45-49	Difference in means	-0.02			**-0.02**
	Ratio of means	0.82			**0.82**
	T-statistic for difference between means	(0.54)			
	Average of means	**0.00**	**-0.05**	**-0.14**	
	Average ratio	**0.97**	**0.94**	**0.88**	

B.5 Central African Republic

Figure B.5.1: Central African Republic: Cumulative number of births, by mother's age and birth cohort

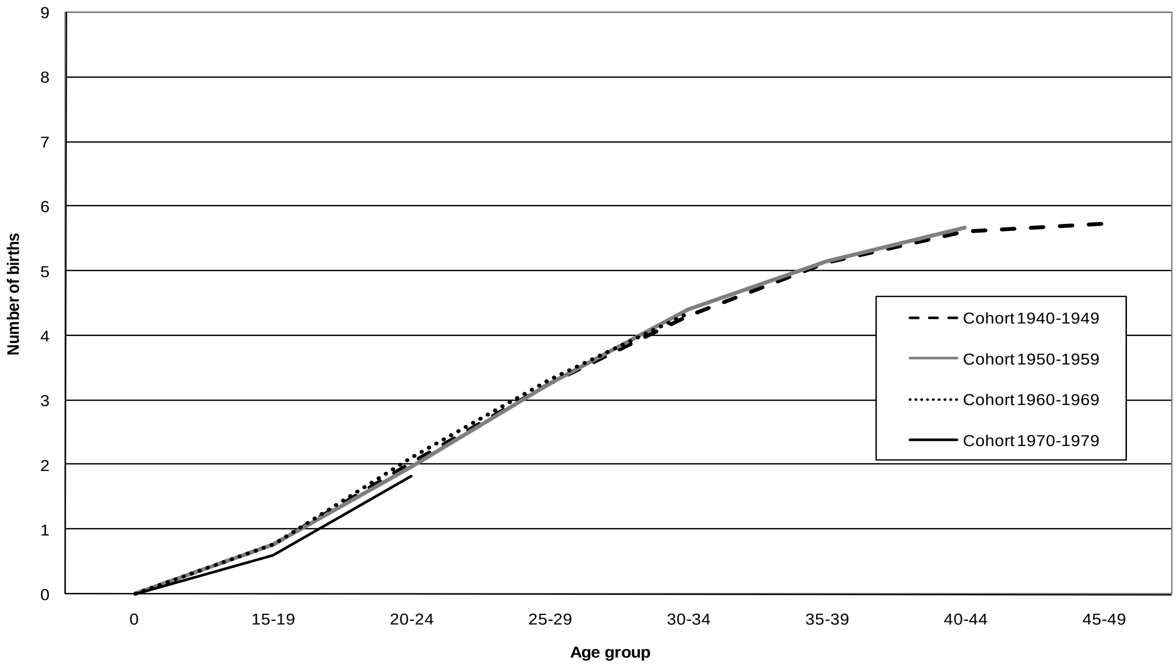

Figure B.5.2: Central African Republic: Age-specific fertility rates, by mother's birth cohort

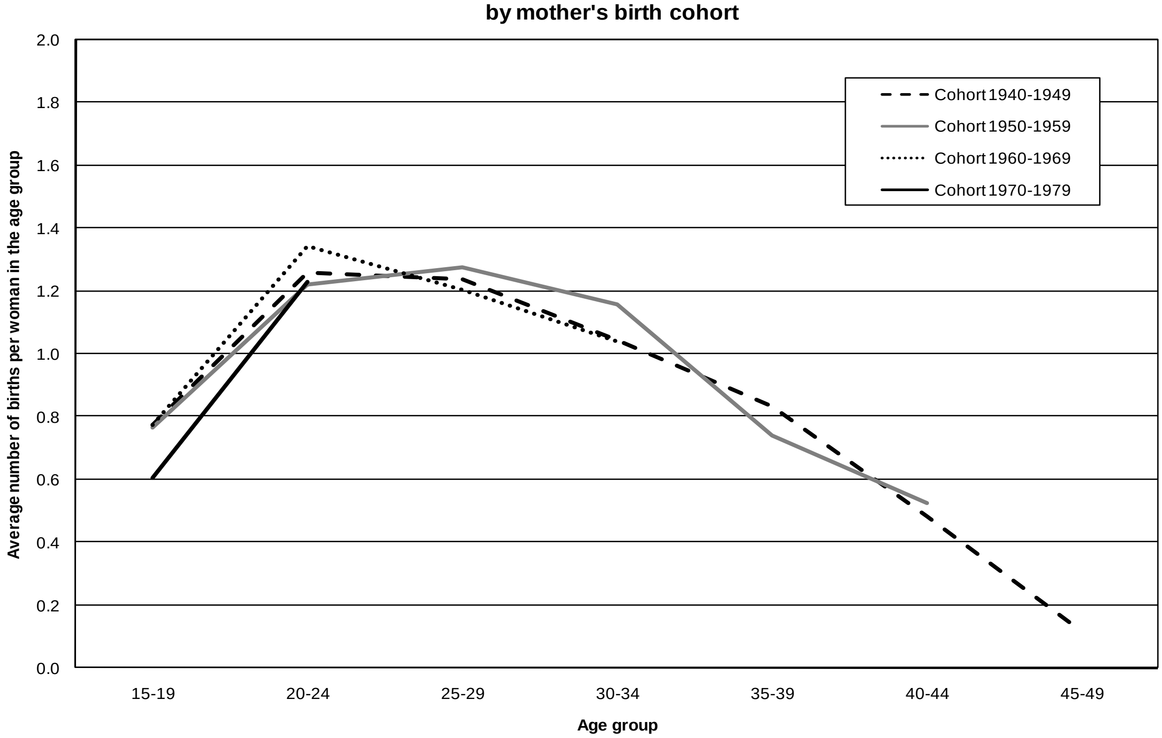

Table B.5.1: Central African Republic: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.77	0.76	0.77	0.60
	Std. dev.	(0.98)	(0.90)	(0.88)	(0.88)
	N	429	1,164	1,890	2,253
20-24	Mean	1.26	1.22	1.34	1.23
	Std. dev.	(1.12)	(1.05)	(1.00)	(1.45)
	N	429	1,164	1,890	937
25-29	Mean	1.24	1.28	1.20	
	Std. dev.	(1.06)	(1.05)	(1.23)	
	N	429	1,164	1,753	
30-34	Mean	1.04	1.16	1.04	
	Std. dev.	(1.03)	(1.06)	(1.42)	
	N	429	1,164	697	
35-39	Mean	0.83	0.74		
	Std. dev.	(0.96)	(1.12)		
	N	429	1,041		
40-44	Mean	0.48	0.52		
	Std. dev.	(0.82)	(1.22)		
	N	429	383		
45-49	Mean	0.12			
	Std. dev.	(0.51)			
	N	373			

Table B.5.2: Central African Republic: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	-0.01	0.01	-0.17	**-0.06**
	Ratio of means	0.98	1.02	0.78	**0.93**
	T-statistic for difference between means	(0.22)	(0.37)	(6.20)	
20-24	Difference in means	-0.04	0.12	-0.12	**-0.01**
	Ratio of means	0.97	1.10	0.91	**1.00**
	T-statistic for difference between means	(0.63)	(3.23)	(2.18)	
25-29	Difference in means	0.04	-0.07		**-0.02**
	Ratio of means	1.03	0.94		**0.99**
	T-statistic for difference between means	(0.67)	(1.72)		
30-34	Difference in means	0.11	-0.12		**0.00**
	Ratio of means	1.11	0.90		**1.00**
	T-statistic for difference between means	(1.94)	(1.91)		
35-39	Difference in means	-0.09			**-0.09**
	Ratio of means	0.89			**0.89**
	T-statistic for difference between means	(1.55)			
40-44	Difference in means	0.04			**0.04**
	Ratio of means	1.09			**1.09**
	T-statistic for difference between means	(0.55)			
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means	**0.01**	**-0.01**	**-0.14**	
	Average ratio	**1.01**	**0.99**	**0.85**	

B.6 Chad

Figure B.6.1: Chad: Cumulative number of births, by mother's age and birth cohort

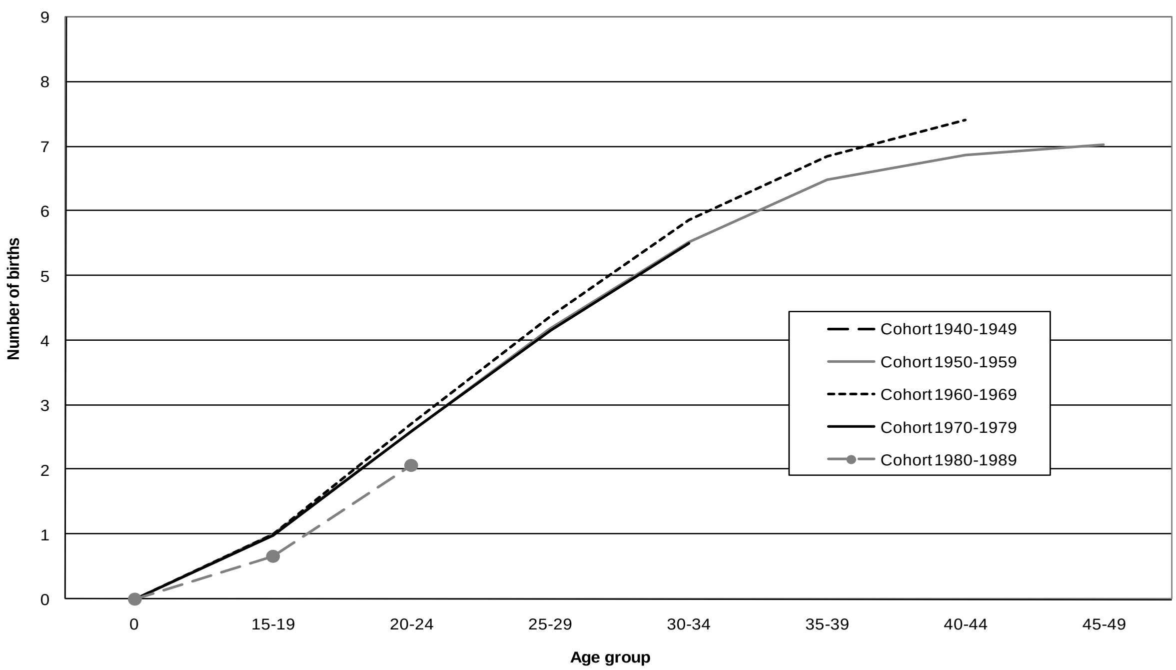

Figure B.6.2: Chad: Age-specific fertility rates, by mother's birth cohort

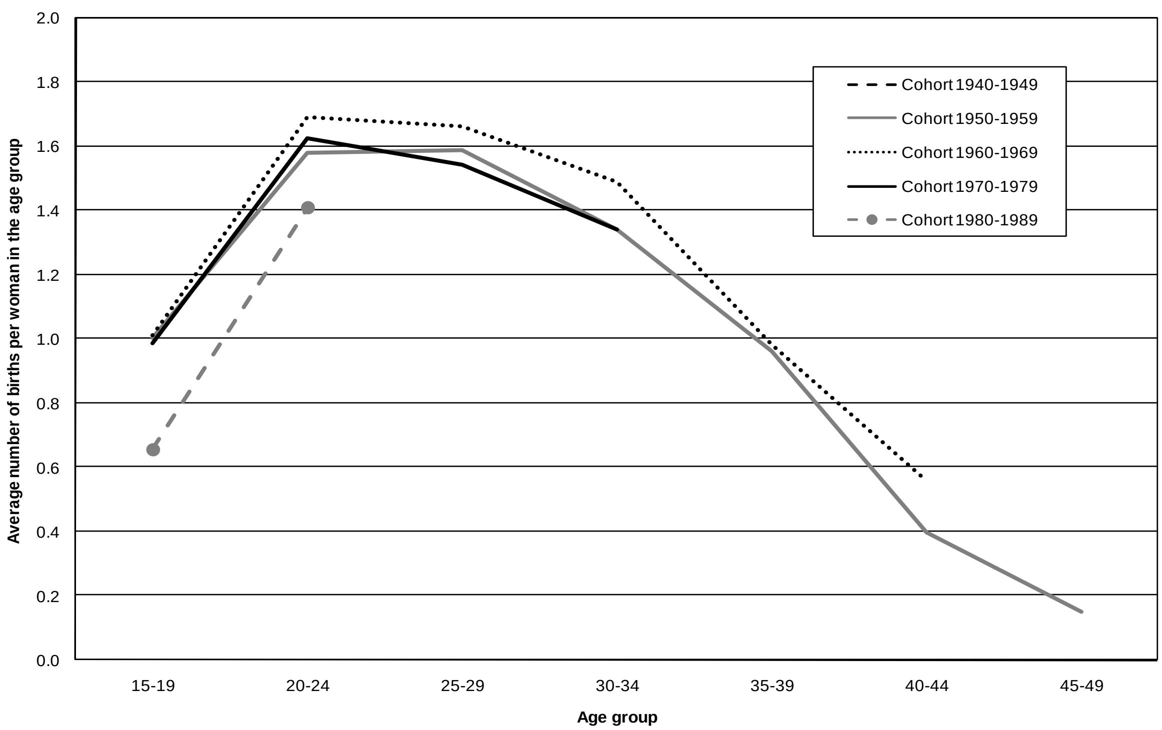

Table B.6.1: Chad: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean		1.00	1.01	0.99
	Std. dev.		(1.04)	(0.97)	(0.95)
	N		1,840	3,208	5,023
20-24	Mean		1.58	1.69	1.62
	Std. dev.		(1.04)	(0.96)	(1.15)
	N		1,840	3,208	3,979
25-29	Mean		1.59	1.67	1.54
	Std. dev.		(1.01)	(0.96)	(1.48)
	N		1,840	3,208	2,315
30-34	Mean		1.34	1.49	1.34
	Std. dev.		(1.04)	(1.27)	(1.54)
	N		1,840	2,492	529
35-39	Mean		0.96	0.98	
	Std. dev.		(1.01)	(1.29)	
	N		1,840	1,381	
40-44	Mean		0.40	0.56	
	Std. dev.		(0.89)	(1.10)	
	N		1,399	316	
45-49	Mean		0.15		
	Std. dev.		(0.78)		
	N		721		

Table B.6.2: Chad: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means		0.01	-0.02	**-0.01**
	Ratio of means		1.01	0.98	**0.99**
	T-statistic for difference between means		(0.28)	(1.02)	
20-24	Difference in means		0.11	-0.07	**0.02**
	Ratio of means		1.07	0.96	**1.02**
	T-statistic for difference between means		(3.82)	(2.76)	
25-29	Difference in means		0.08	-0.12	**-0.02**
	Ratio of means		1.05	0.93	**0.99**
	T-statistic for difference between means		(2.66)	(3.51)	
30-34	Difference in means		0.15	-0.15	**0.00**
	Ratio of means		1.11	0.90	**1.01**
	T-statistic for difference between means		(4.28)	(2.12)	
35-39	Difference in means		0.02		**0.02**
	Ratio of means		1.02		**1.02**
	T-statistic for difference between means		(0.53)		
40-44	Difference in means		0.16		**0.16**
	Ratio of means		1.39		**1.39**
	T-statistic for difference between means		(2.39)		
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means		**0.09**	**-0.09**	
	Average ratio		**1.11**	**0.94**	

B.7 Comoros

Figure B.7.1: Comoros: Cumulative number of births, by mother's age and birth cohort

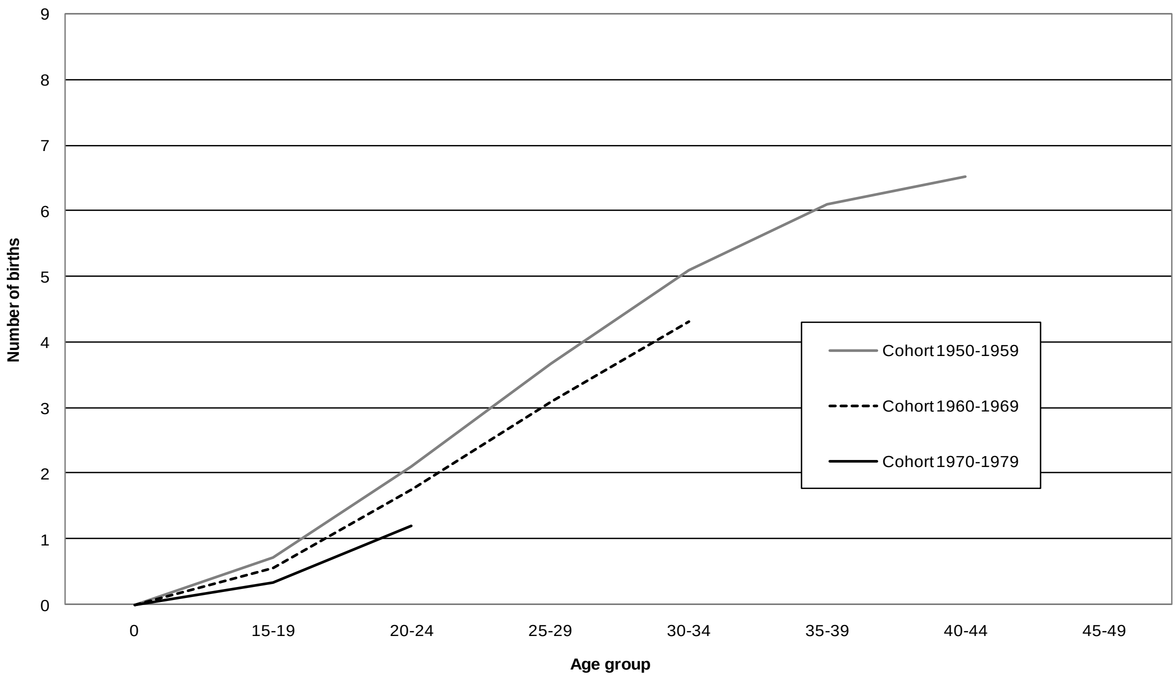

Figure B.7.2: Comoros: Age-specific fertility rates, by mother's birth cohort

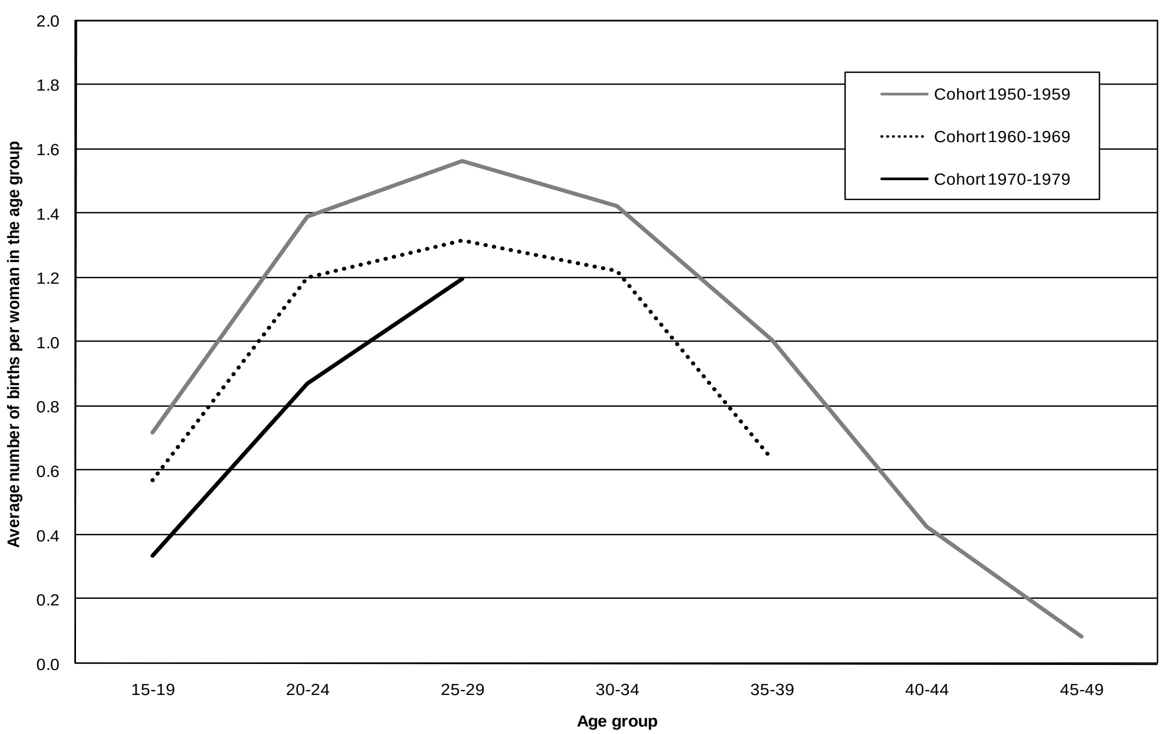

Table B.7.1: Comoros: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean		0.72	0.57	0.34
	Std. dev.		(0.99)	(0.91)	(0.74)
	N		528	789	1,304
20-24	Mean		1.39	1.20	0.87
	Std. dev.		(1.16)	(1.18)	(1.27)
	N		528	789	685
25-29	Mean		1.56	1.32	
	Std. dev.		(1.21)	(1.21)	
	N		528	789	
30-34	Mean		1.42	1.22	
	Std. dev.		(1.18)	(1.41)	
	N		528	454	
35-39	Mean		1.01		
	Std. dev.		(1.11)		
	N		528		
40-44	Mean		0.43		
	Std. dev.		(0.89)		
	N		250		
45-49	Mean				
	Std. dev.				
	N				

Table B.7.2: Comoros: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means		-0.15	-0.24	**-0.19**
	Ratio of means		0.79	0.59	**0.69**
	T-statistic for difference between means		(2.76)	(6.13)	
20-24	Difference in means		-0.19	-0.33	**-0.26**
	Ratio of means		0.86	0.72	**0.79**
	T-statistic for difference between means		(2.88)	(5.18)	
25-29	Difference in means		-0.25		**-0.25**
	Ratio of means		0.84		**0.84**
	T-statistic for difference between means		(3.60)		
30-34	Difference in means		-0.20		**-0.20**
	Ratio of means		0.86		**0.86**
	T-statistic for difference between means		(2.38)		
35-39	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
40-44	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means		**-0.20**	**-0.28**	
	Average ratio		**0.84**	**0.66**	

B.8 Congo

Figure B.8.1: Congo: Cumulative number of births, by mother's age and birth cohort

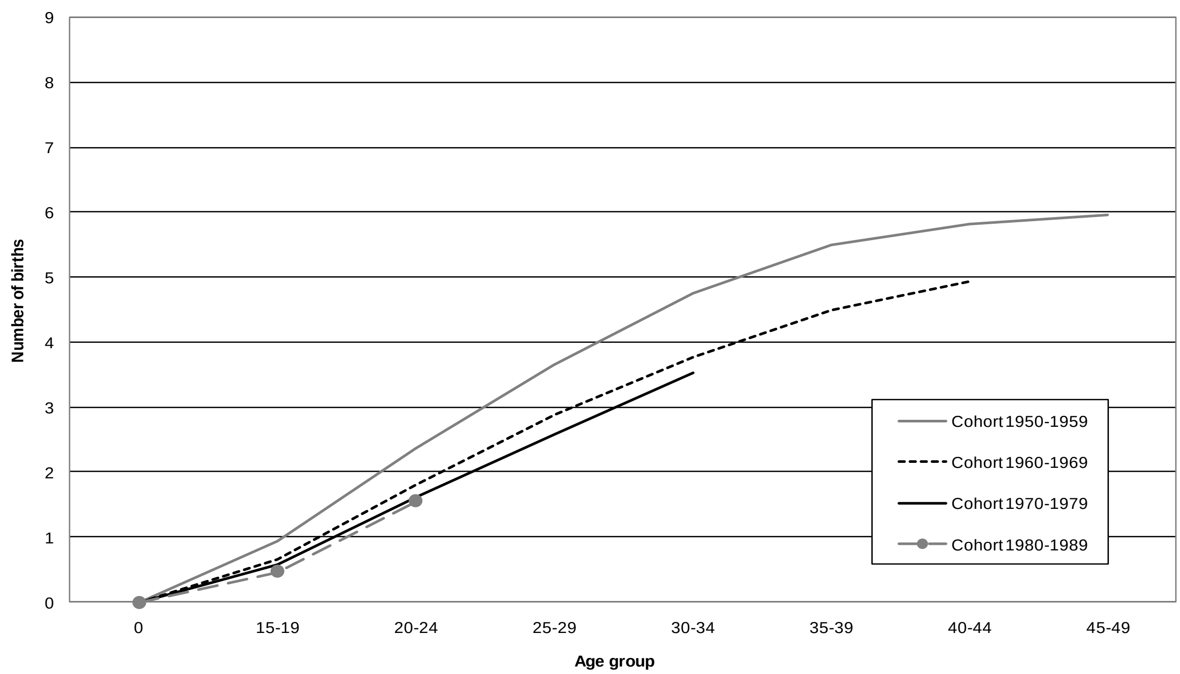

Figure B.8.2: Congo: Age-specific fertility rates, by mother's birth cohort

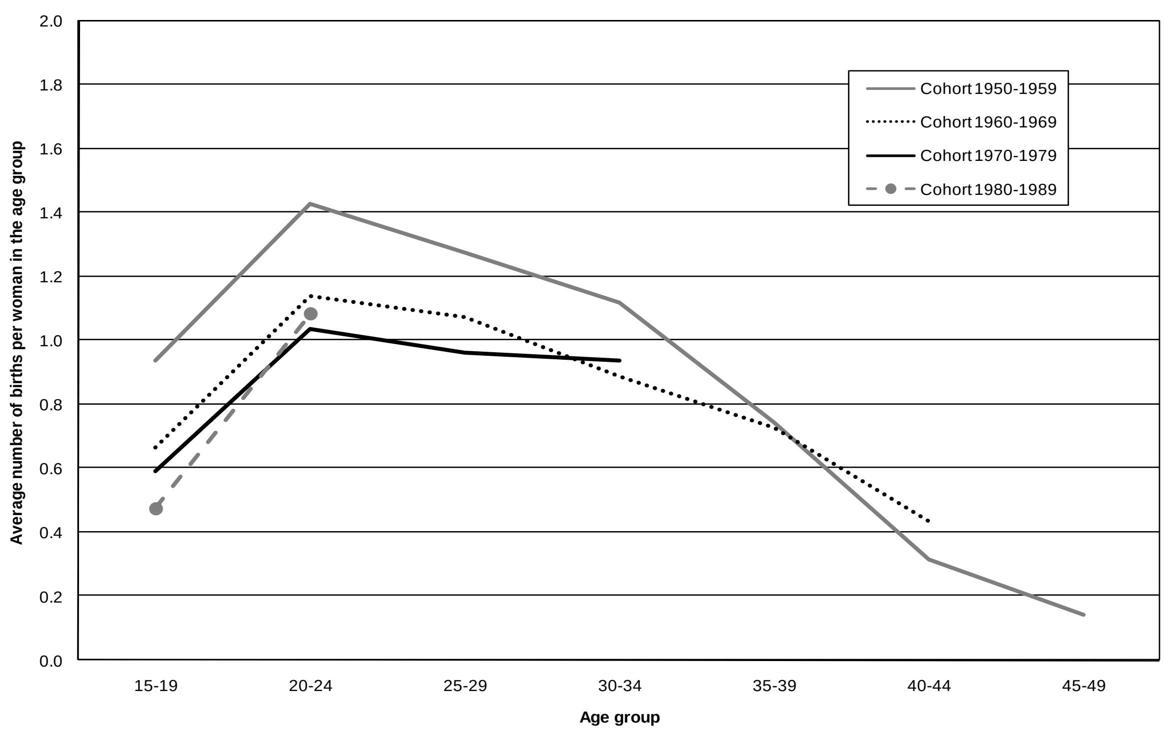

Table B.8.1: Congo: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		1940-1949	1950-1959	1960-1969	1970-1979
15-19	Mean		0.94	0.67	0.59
	Std. dev.		(0.91)	(0.77)	(0.71)
	N		344	1,312	2,144
20-24	Mean		1.43	1.14	1.04
	Std. dev.		(0.95)	(0.88)	(0.83)
	N		344	1,312	2,144
25-29	Mean		1.28	1.07	0.96
	Std. dev.		(0.92)	(0.87)	(1.05)
	N		344	1,312	2,144
30-34	Mean		1.12	0.89	0.94
	Std. dev.		(0.94)	(0.84)	(1.27)
	N		344	1,312	935
35-39	Mean		0.75	0.73	
	Std. dev.		(0.77)	(1.09)	
	N		344	1,312	
40-44	Mean		0.31	0.44	
	Std. dev.		(0.58)	(1.03)	
	N		344	525	
45-49	Mean		0.14		
	Std. dev.		(0.63)		
	N		344		

Table B.8.2: Congo: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means		-0.27	-0.07	**-0.17**
	Ratio of means		0.71	0.89	**0.80**
	T-statistic for difference between means		(5.06)	(2.81)	
20-24	Difference in means		-0.29	-0.10	**-0.20**
	Ratio of means		0.80	0.91	**0.85**
	T-statistic for difference between means		(5.11)	(3.39)	
25-29	Difference in means		-0.21	-0.11	**-0.16**
	Ratio of means		0.84	0.90	**0.87**
	T-statistic for difference between means		(3.74)	(3.32)	
30-34	Difference in means		-0.23	0.05	**-0.09**
	Ratio of means		0.80	1.06	**0.93**
	T-statistic for difference between means		(4.10)	(1.04)	
35-39	Difference in means		-0.02		**-0.02**
	Ratio of means		0.98		**0.98**
	T-statistic for difference between means		(0.32)		
40-44	Difference in means		0.12		**0.12**
	Ratio of means		1.39		**1.39**
	T-statistic for difference between means		(2.25)		
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means		**-0.15**	**-0.06**	
	Average ratio		**0.92**	**0.94**	

B.9 Côte d'Ivoire

Figure B.9.1: Côte d'Ivoire: Cumulative number of births, by mother's age and birth cohort

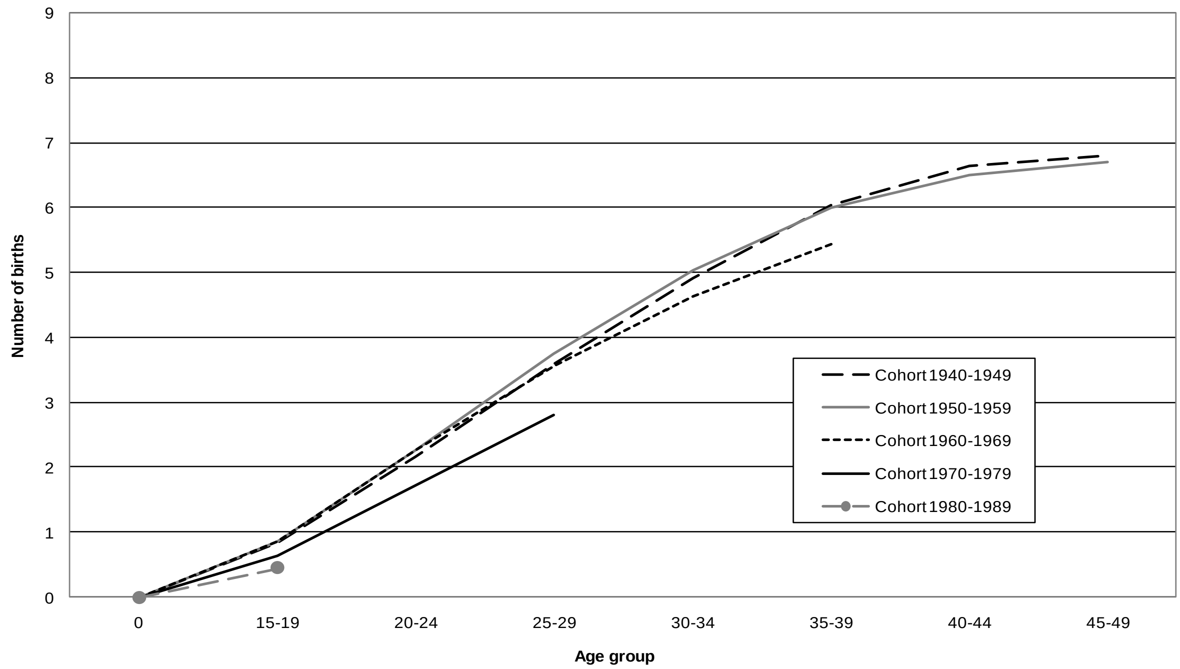

Figure B.9.2: Côte D'Ivoire: Age-specific fertility rates, by mother's birth cohort

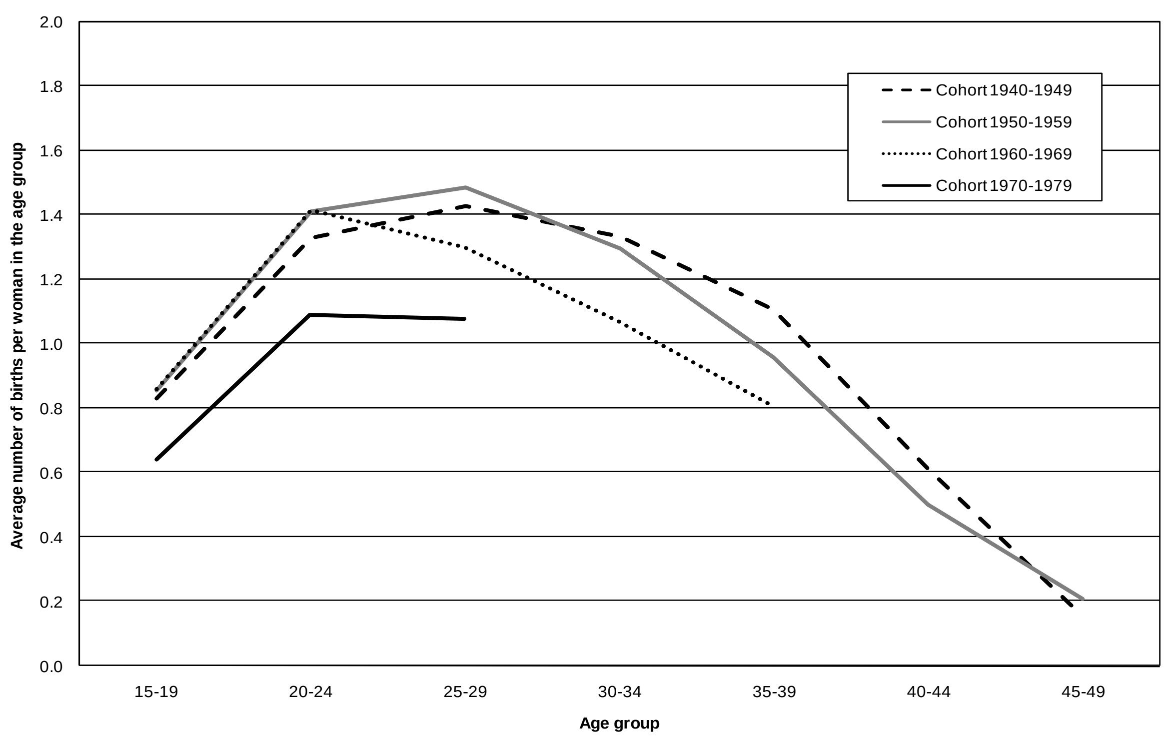

Table B.9.1: Côte D'Ivoire: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.83	0.86	0.86	0.64
	Std. dev.	(0.98)	(0.92)	(0.89)	(0.84)
	N	543	1,887	3,410	4,282
20-24	Mean	1.33	1.41	1.42	1.09
	Std. dev.	(1.03)	(1.00)	(0.93)	(1.26)
	N	543	1,887	3,410	2,610
25-29	Mean	1.43	1.49	1.30	1.08
	Std. dev.	(1.06)	(0.98)	(1.07)	(1.45)
	N	543	1,887	3,174	695
30-34	Mean	1.34	1.30	1.07	
	Std. dev.	(1.03)	(1.01)	(1.29)	
	N	543	1,887	1,852	
35-39	Mean	1.11	0.96	0.81	
	Std. dev.	(1.07)	(1.11)	(1.28)	
	N	543	1,745	465	
40-44	Mean	0.61	0.50		
	Std. dev.	(0.86)	(1.03)		
	N	543	1,022		
45-49	Mean	0.16	0.21		
	Std. dev.	(0.55)	(0.66)		
	N	413	279		

Table B.9.2: Côte D'Ivoire: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	0.02	0.00	-0.22	**-0.06**
	Ratio of means	1.03	1.00	0.75	**0.93**
	T-statistic for difference between means	(0.47)	(0.11)	(10.83)	
20-24	Difference in means	0.08	0.00	-0.32	**-0.08**
	Ratio of means	1.06	1.00	0.77	**0.95**
	T-statistic for difference between means	(1.67)	(0.14)	(11.05)	
25-29	Difference in means	0.06	-0.19	-0.22	**-0.12**
	Ratio of means	1.04	0.87	0.83	**0.91**
	T-statistic for difference between means	(1.12)	(6.34)	(3.78)	
30-34	Difference in means	-0.04	-0.22		**-0.13**
	Ratio of means	0.97	0.83		**0.90**
	T-statistic for difference between means	(0.82)	(5.94)		
35-39	Difference in means	-0.15	-0.15		**-0.15**
	Ratio of means	0.86	0.84		**0.85**
	T-statistic for difference between means	(2.88)	(2.33)		
40-44	Difference in means	-0.12			**-0.12**
	Ratio of means	0.81			**0.81**
	T-statistic for difference between means	(2.37)			
45-49	Difference in means	0.05			**0.05**
	Ratio of means	1.34			**1.34**
	T-statistic for difference between means	(1.09)			
	Average of means	**-0.01**	**-0.11**	**-0.25**	
	Average ratio	**1.02**	**0.91**	**0.78**	

B.10 Gabon

Figure B.10.1: Gabon: Cumulative number of births, by mother's age and birth cohort

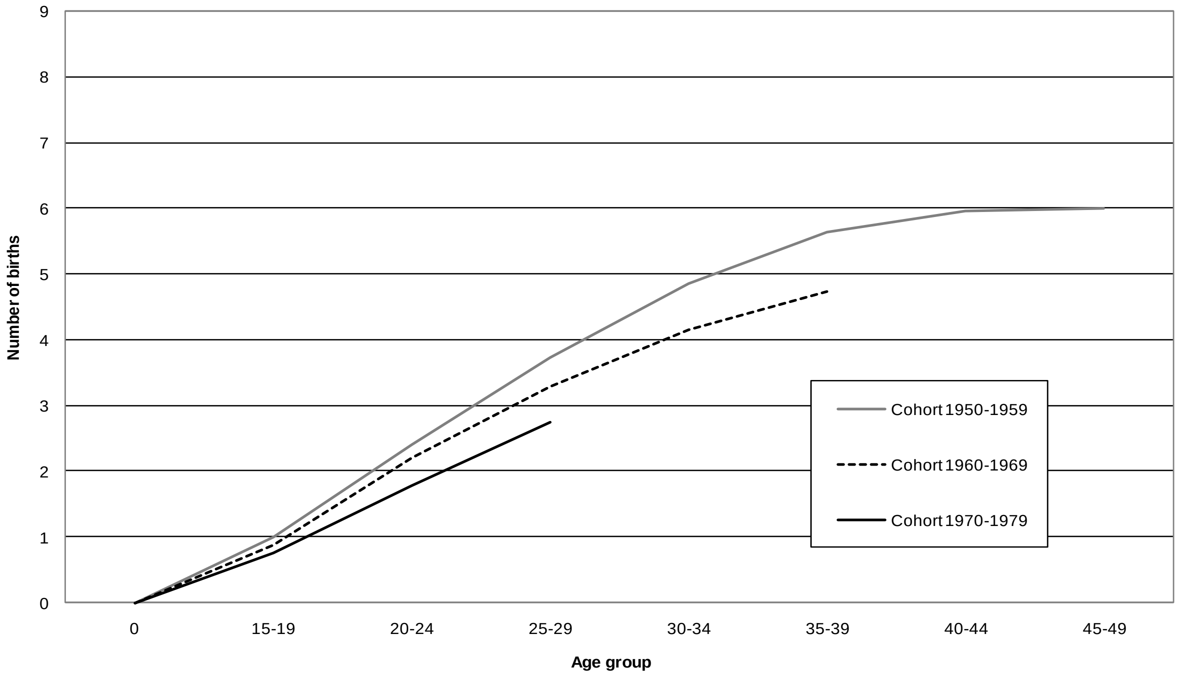

Figure B.10.2: Gabon: Age-specific fertility rates, by mother's birth cohort

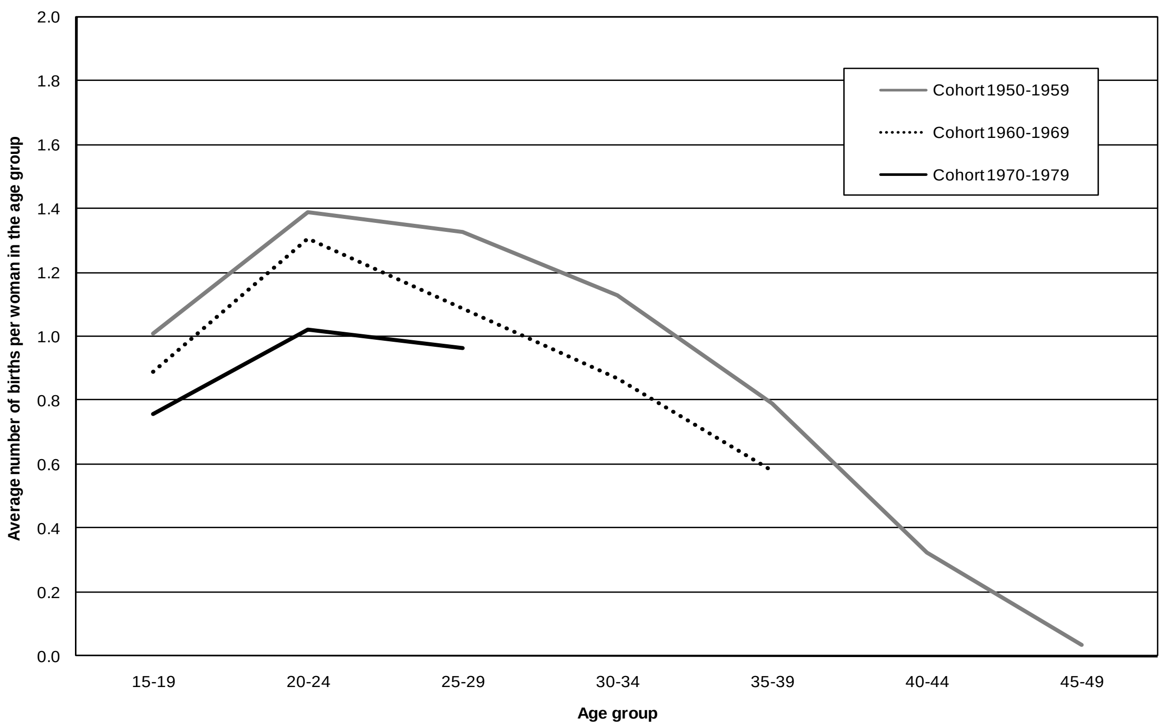

Table B.10.1: Gabon: Age-specific fertility rates by mother's age group and birth cohort

Age group		1940-1949	1950-1959	1960-1969	1970-1979
		Mother's Birth Cohort			
15-19	Mean		1.01	0.89	0.76
	Std. dev.		(0.97)	(0.89)	(0.81)
	N		762	1,500	2,054
20-24	Mean		1.39	1.31	1.02
	Std. dev.		(1.04)	(1.03)	(1.20)
	N		762	1,500	2,054
25-29	Mean		1.33	1.09	0.96
	Std. dev.		(1.05)	(1.01)	(1.42)
	N		762	1,500	916
30-34	Mean		1.13	0.87	
	Std. dev.		(1.06)	(1.11)	
	N		762	1,500	
35-39	Mean		0.79	0.58	
	Std. dev.		(1.00)	(1.16)	
	N		762	656	
40-44	Mean		0.32		
	Std. dev.		(0.89)		
	N		762		
45-49	Mean		0.03		
	Std. dev.		(0.29)		
	N		269		

Table B.10.2: Gabon: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort: 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means		-0.12	-0.13	**-0.13**
	Ratio of means		0.88	0.85	**0.87**
	T-statistic for difference between means		(2.80)	(4.56)	
20-24	Difference in means		-0.08	-0.29	**-0.18**
	Ratio of means		0.94	0.78	**0.86**
	T-statistic for difference between means		(1.77)	(7.61)	
25-29	Difference in means		-0.24	-0.13	**-0.18**
	Ratio of means		0.82	0.88	**0.85**
	T-statistic for difference between means		(5.10)	(2.37)	
30-34	Difference in means		-0.26		**-0.26**
	Ratio of means		0.77		**0.77**
	T-statistic for difference between means		(5.42)		
35-39	Difference in means		-0.21		**-0.21**
	Ratio of means		0.73		**0.73**
	T-statistic for difference between means		(3.64)		
40-44	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means		**-0.18**	**-0.18**	
	Average ratio		**0.83**	**0.84**	

B.11 Ghana

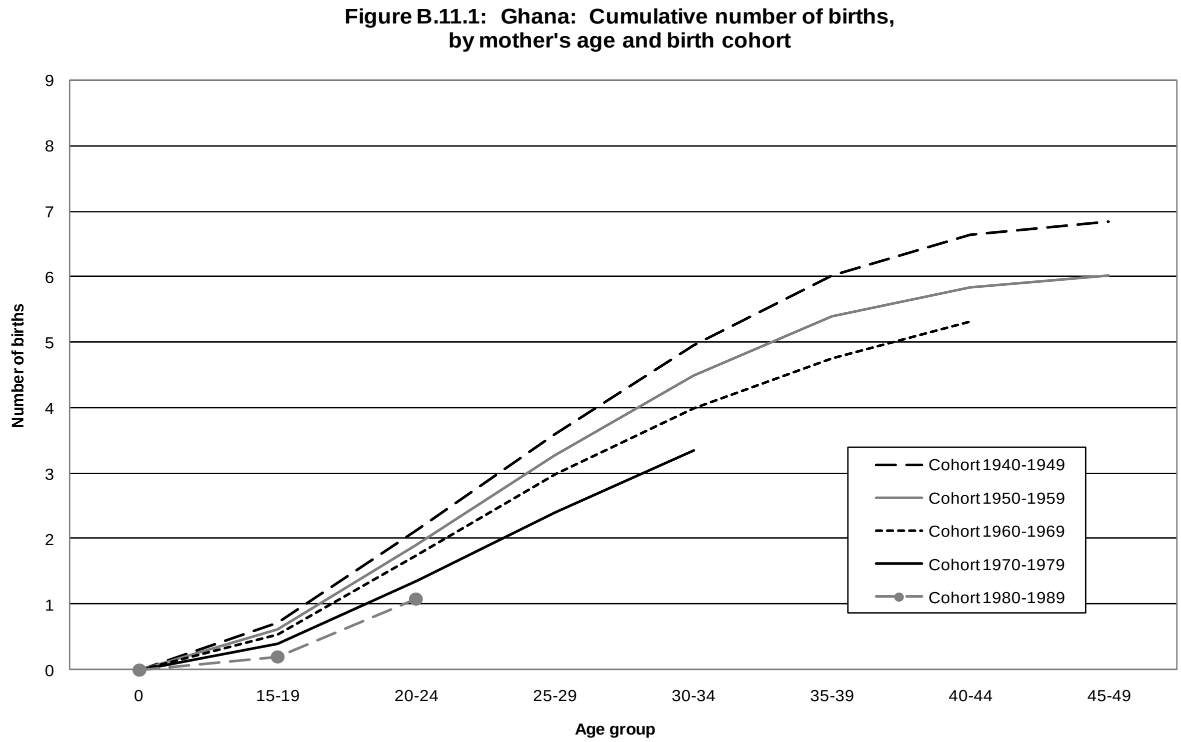

Figure B.11.1: Ghana: Cumulative number of births,
by mother's age and birth cohort
9
8
7
6
5
4
3
2
1
0
Number of births
0
15-19
20-24
25-29
30-34
35-39
40-44
45-49
Age group
Cohort 1940-1949
Cohort 1950-1959
Cohort 1960-1969
Cohort 1970-1979
Cohort 1980-1989

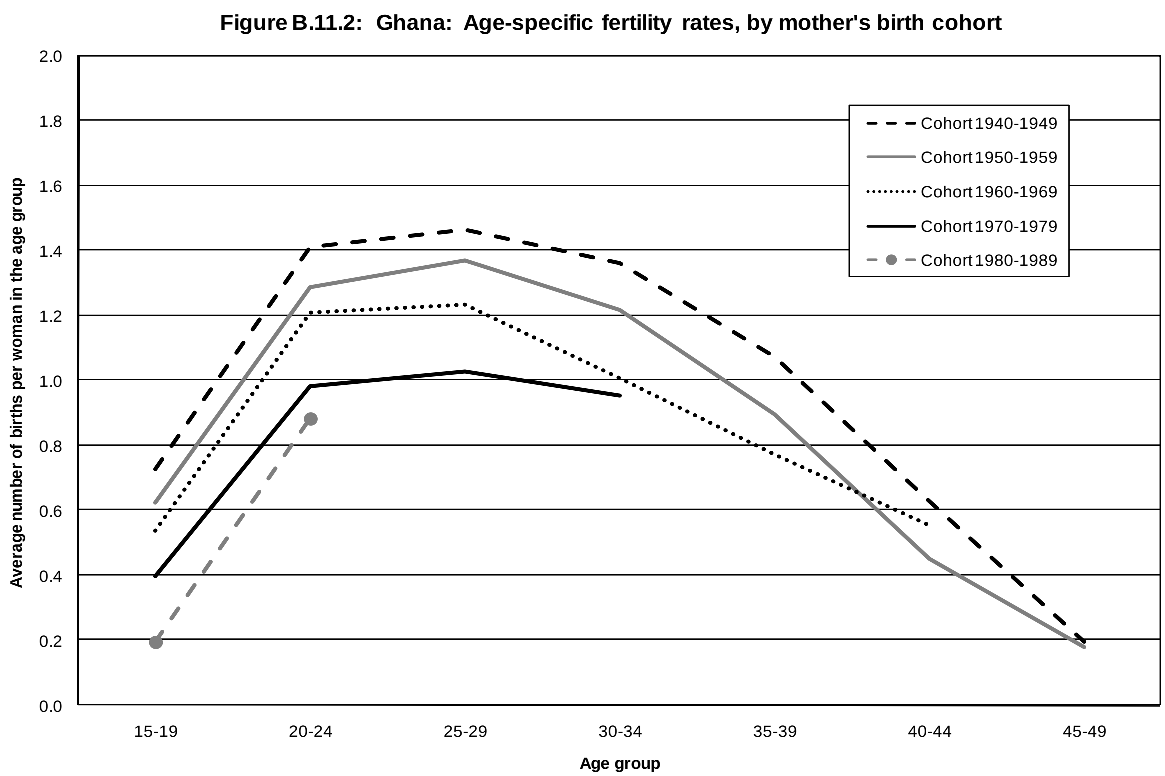

Figure B.11.2: Ghana: Age-specific fertility rates, by mother's birth cohort
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Average number of births per woman in the age group
15-19
20-24
25-29
30-34
35-39
40-44
45-49
Age group
Cohort 1940-1949
Cohort 1950-1959
Cohort 1960-1969
Cohort 1970-1979
Cohort 1980-1989

Table B.11.1: Ghana: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.73	0.62	0.54	0.40
	Std. dev.	(0.88)	(0.78)	(0.72)	(0.67)
	N	1,218	3,830	6,075	5,483
20-24	Mean	1.41	1.29	1.21	0.98
	Std. dev.	(0.96)	(0.90)	(0.97)	(1.10)
	N	1,218	3,830	5,695	3,672
25-29	Mean	1.46	1.37	1.23	1.03
	Std. dev.	(0.91)	(0.88)	(1.13)	(1.29)
	N	1,218	3,830	4,361	1,859
30-34	Mean	1.36	1.22	1.01	0.95
	Std. dev.	(0.91)	(1.09)	(1.13)	(1.56)
	N	1,218	3,482	2,671	420
35-39	Mean	1.07	0.90	0.77	
	Std. dev.	(0.93)	(1.14)	(1.26)	
	N	1,218	2,524	1,347	
40-44	Mean	0.63	0.45	0.56	
	Std. dev.	(0.99)	(0.89)	(1.26)	
	N	1,027	1,417	291	
45-49	Mean	0.20	0.18		
	Std. dev.	(0.73)	(0.72)		
	N	510	570		

Table B.11.2: Ghana: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	-0.10	-0.08	-0.14	**-0.11**
	Ratio of means	0.86	0.87	0.73	**0.82**
	T-statistic for difference between means	(3.64)	(5.26)	(11.11)	
20-24	Difference in means	-0.13	-0.08	-0.23	**-0.14**
	Ratio of means	0.91	0.94	0.81	**0.89**
	T-statistic for difference between means	(4.03)	(3.95)	(10.31)	
25-29	Difference in means	-0.09	-0.14	-0.21	**-0.15**
	Ratio of means	0.94	0.90	0.83	**0.89**
	T-statistic for difference between means	(3.15)	(6.13)	(6.01)	
30-34	Difference in means	-0.14	-0.21	-0.05	**-0.14**
	Ratio of means	0.90	0.83	0.95	**0.89**
	T-statistic for difference between means	(4.34)	(7.44)	(0.67)	
35-39	Difference in means	-0.18	-0.12		**-0.15**
	Ratio of means	0.84	0.86		**0.85**
	T-statistic for difference between means	(5.03)	(2.97)		
40-44	Difference in means	-0.18	0.10		**-0.04**
	Ratio of means	0.72	1.23		**0.97**
	T-statistic for difference between means	(4.56)	(1.35)		
45-49	Difference in means	-0.02			**-0.02**
	Ratio of means	0.91			**0.91**
	T-statistic for difference between means	(0.38)			
	Average of means	**-0.12**	**-0.09**	**-0.16**	
	Average ratio	**0.87**	**0.94**	**0.83**	

B.12 Guinea

Figure B.12.1: Guinea: Cumulative number of births, by mother's age and birth cohort

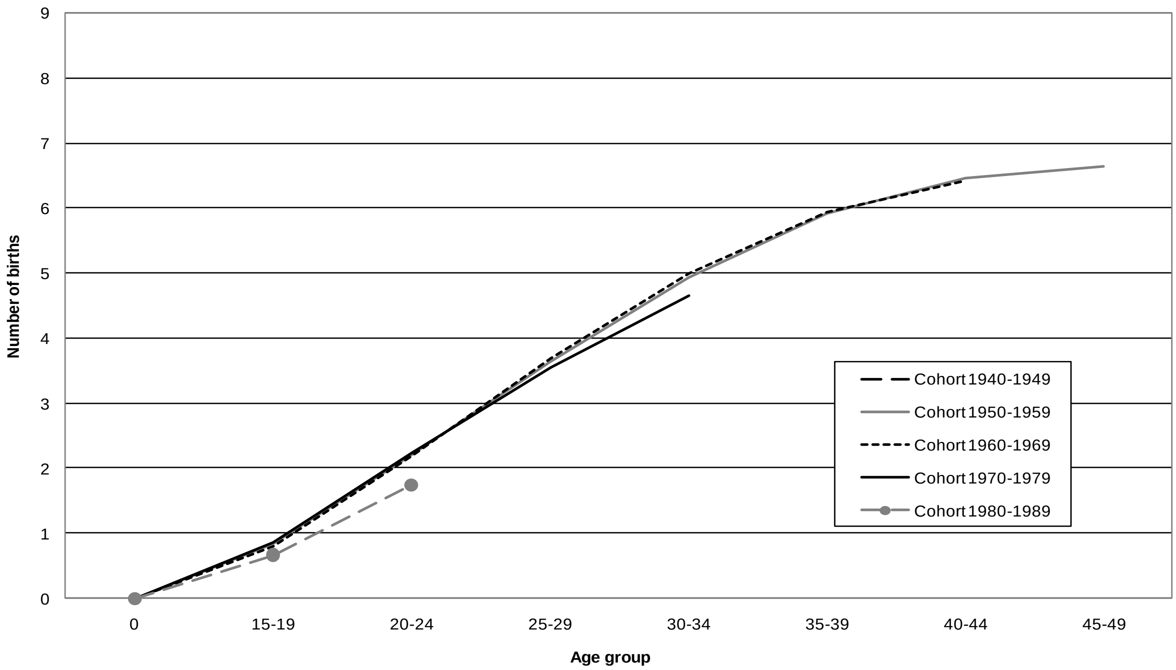

Figure B.12.2: Guinea: Age-specific fertiliy rates, by mother's birth cohort

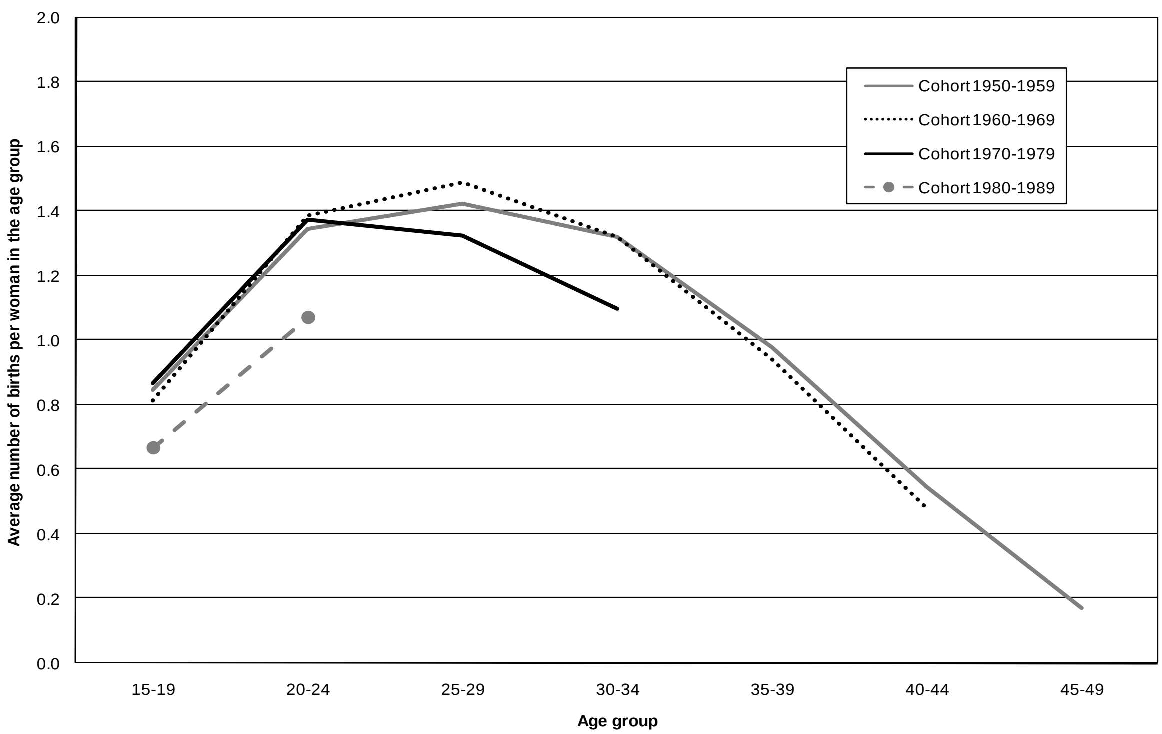

Table B.12.1: Guinea: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean		0.85	0.81	0.87
	Std. dev.		(0.92)	(0.89)	(0.85)
	N		1,759	3,743	4,790
20-24	Mean		1.35	1.39	1.37
	Std. dev.		(0.93)	(0.90)	(1.01)
	N		1,759	3,743	4,403
25-29	Mean		1.43	1.49	1.32
	Std. dev.		(0.94)	(0.89)	(1.26)
	N		1,759	3,743	3,203
30-34	Mean		1.32	1.32	1.10
	Std. dev.		(0.92)	(1.06)	(1.24)
	N		1,759	3,337	995
35-39	Mean		0.98	0.94	
	Std. dev.		(0.93)	(1.27)	
	N		1,759	2,325	
40-44	Mean		0.55	0.48	
	Std. dev.		(0.88)	(1.02)	
	N		1,482	681	
45-49	Mean		0.17		
	Std. dev.		(0.64)		
	N		917		

Table B.12.2: Guinea: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	 1950-1959 to 1960-1969	 1960-1969 to 1970-1979	 Average
15-19	Difference in means		-0.04	0.05	**0.01**
	Ratio of means		0.96	1.07	**1.01**
	T-statistic for difference between means		(1.43)	(2.85)	
20-24	Difference in means		0.04	-0.01	**0.01**
	Ratio of means		1.03	0.99	**1.01**
	T-statistic for difference between means		(1.52)	(0.67)	
25-29	Difference in means		0.07	-0.17	**-0.05**
	Ratio of means		1.05	0.89	**0.97**
	T-statistic for difference between means		(2.49)	(6.28)	
30-34	Difference in means		0.00	-0.23	**-0.11**
	Ratio of means		1.00	0.83	**0.92**
	T-statistic for difference between means		(0.09)	(5.23)	
35-39	Difference in means		-0.04		**-0.04**
	Ratio of means		0.96		**0.96**
	T-statistic for difference between means		(1.15)		
40-44	Difference in means		-0.07		**-0.07**
	Ratio of means		0.88		**0.88**
	T-statistic for difference between means		(1.51)		
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means		**-0.01**	**-0.09**	
	Average ratio		**0.98**	**0.94**	

B.13 Kenya

Figure B.13.1: Kenya: Cumulative number of births, by mother's age and birth cohort

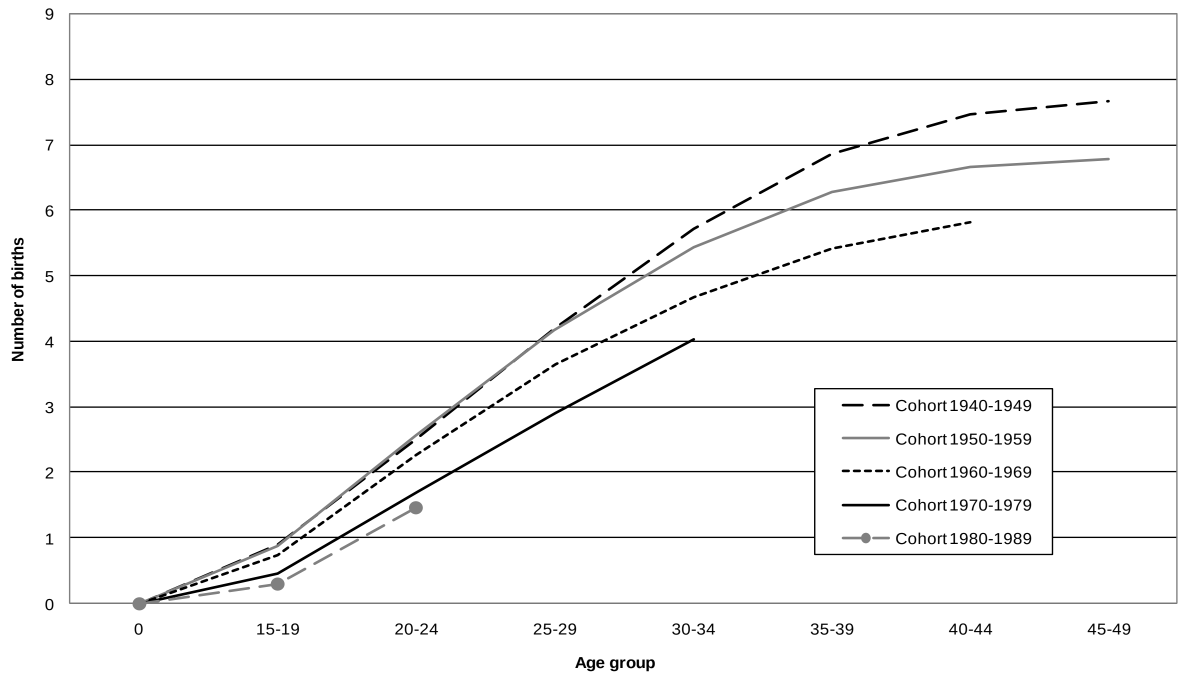

Figure B.13.2: Kenya: Age-specific fertiliy rates, by mother's birth cohort

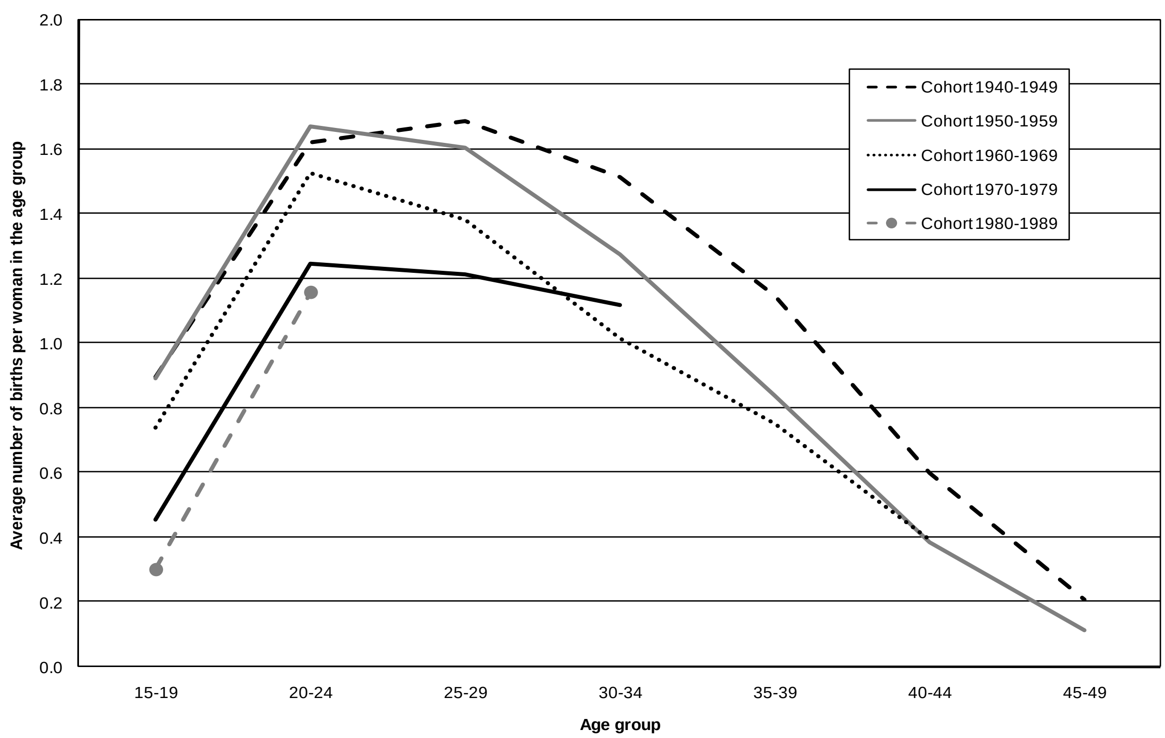

Table B.13.1: Kenya: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.90	0.89	0.74	0.45
	Std. dev.	(0.97)	(0.92)	(0.84)	(0.73)
	N	1,957	5,416	9,207	9,698
20-24	Mean	1.62	1.67	1.53	1.25
	Std. dev.	(1.04)	(1.00)	(1.08)	(1.23)
	N	1,957	5,416	8,803	5,817
25-29	Mean	1.69	1.61	1.38	1.21
	Std. dev.	(0.99)	(0.98)	(1.18)	(1.41)
	N	1,957	5,416	6,811	2,682
30-34	Mean	1.51	1.28	1.02	1.12
	Std. dev.	(1.06)	(1.10)	(1.18)	(1.72)
	N	1,957	5,093	3,821	620
35-39	Mean	1.15	0.84	0.75	
	Std. dev.	(1.03)	(1.15)	(1.28)	
	N	1,957	3,723	1,814	
40-44	Mean	0.60	0.39	0.39	
	Std. dev.	(1.01)	(0.88)	(1.10)	
	N	1,746	1,909	442	
45-49	Mean	0.21	0.12		
	Std. dev.	(0.79)	(0.61)		
	N	863	711		

Table B.13.2: Kenya: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort: 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	0.00	-0.15	-0.29	**-0.15**
	Ratio of means	1.00	0.83	0.61	**0.81**
	T-statistic for difference between means	(0.08)	(9.93)	(25.03)	
20-24	Difference in means	0.05	-0.14	-0.28	**-0.12**
	Ratio of means	1.03	0.91	0.82	**0.92**
	T-statistic for difference between means	(1.86)	(8.02)	(14.18)	
25-29	Difference in means	-0.08	-0.22	-0.17	**-0.16**
	Ratio of means	0.95	0.86	0.88	**0.90**
	T-statistic for difference between means	(3.16)	(11.36)	(5.55)	
30-34	Difference in means	-0.24	-0.26	0.10	**-0.13**
	Ratio of means	0.84	0.80	1.10	**0.91**
	T-statistic for difference between means	(8.35)	(10.60)	(1.42)	
35-39	Difference in means	-0.31	-0.09		**-0.20**
	Ratio of means	0.73	0.90		**0.81**
	T-statistic for difference between means	(10.25)	(2.41)		
40-44	Difference in means	-0.21	0.01		**-0.10**
	Ratio of means	0.65	1.02		**0.83**
	T-statistic for difference between means	(6.69)	(0.11)		
45-49	Difference in means	-0.09			**-0.09**
	Ratio of means	0.56			**0.56**
	T-statistic for difference between means	(2.60)			
	Average of means	**-0.13**	**-0.14**	**-0.16**	
	Average ratio	**0.82**	**0.89**	**0.85**	

B.14 Lesotho

Figure B.14.1: Lesotho: Cumulative number of births, by mother's age and birth cohort

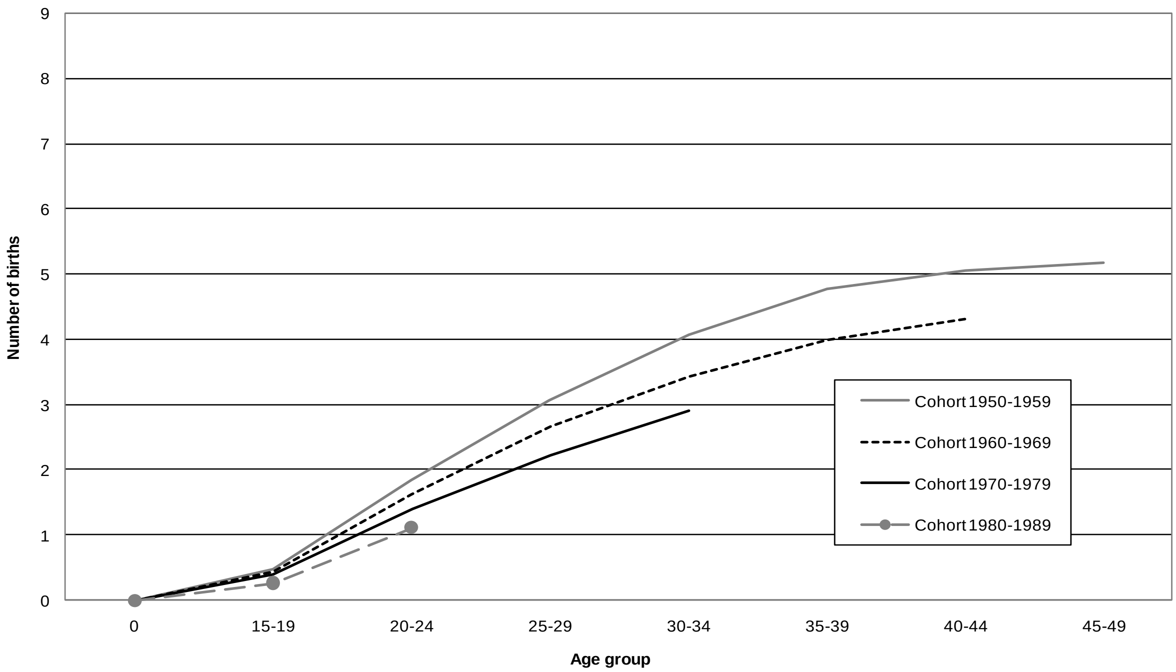

Figure B.14.2: Lesotho: Age-specific fertiliy rates, by mother's birth cohort

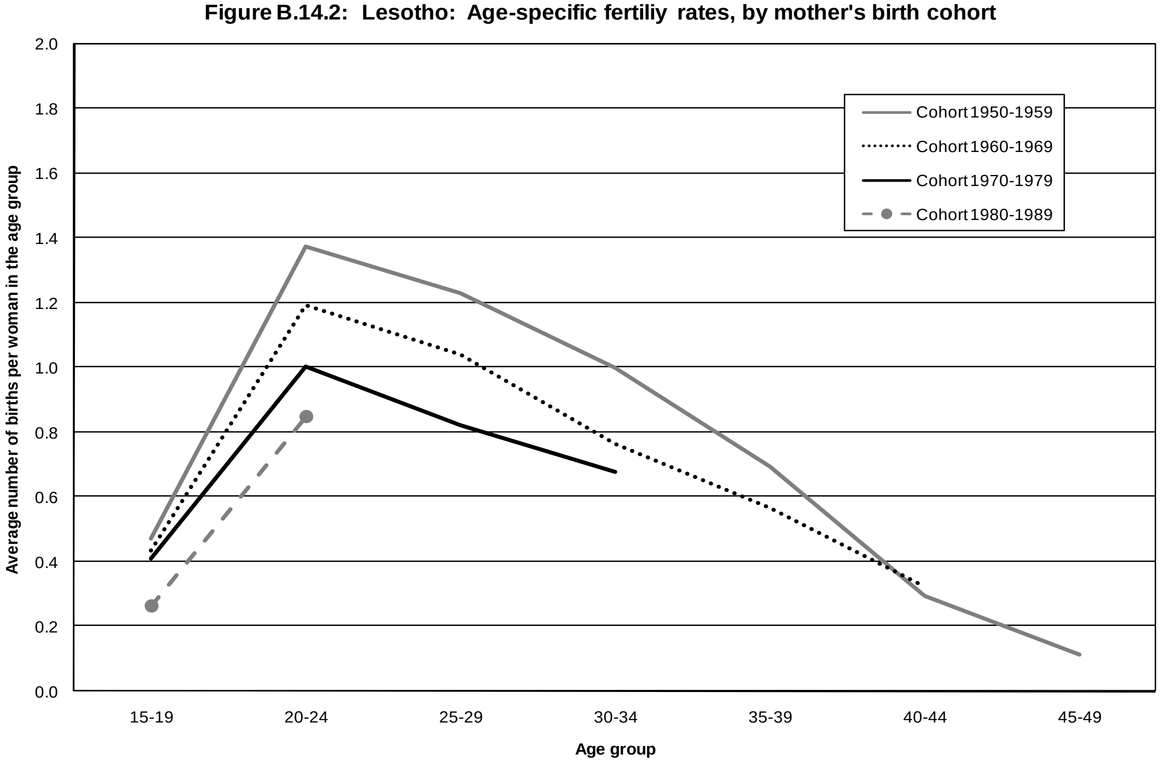

Table B.14.1: Lesotho: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean		0.47	0.43	0.41
	Std. dev.		(0.62)	(0.63)	(0.59)
	N		592	1,455	1,847
20-24	Mean		1.38	1.19	1.00
	Std. dev.		(0.82)	(0.82)	(0.81)
	N		592	1,455	1,847
25-29	Mean		1.23	1.04	0.82
	Std. dev.		(0.81)	(0.82)	(1.05)
	N		592	1,455	1,620
30-34	Mean		1.00	0.76	0.68
	Std. dev.		(0.83)	(0.78)	(1.16)
	N		592	1,455	668
35-39	Mean		0.69	0.57	
	Std. dev.		(0.78)	(0.94)	
	N		592	1,329	
40-44	Mean		0.29	0.33	
	Std. dev.		(0.58)	(0.93)	
	N		592	586	
45-49	Mean		0.11		
	Std. dev.		(0.53)		
	N		475		

Table B.14.2: Lesotho: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means		-0.04	-0.03	**-0.03**
	Ratio of means		0.92	0.94	**0.93**
	T-statistic for difference between means		(1.21)	(1.21)	
20-24	Difference in means		-0.18	-0.19	**-0.19**
	Ratio of means		0.87	0.84	**0.85**
	T-statistic for difference between means		(4.63)	(6.58)	
25-29	Difference in means		-0.19	-0.22	**-0.20**
	Ratio of means		0.84	0.79	**0.82**
	T-statistic for difference between means		(4.83)	(6.48)	
30-34	Difference in means		-0.24	-0.08	**-0.16**
	Ratio of means		0.76	0.89	**0.83**
	T-statistic for difference between means		(5.95)	(1.71)	
35-39	Difference in means		-0.12		**-0.12**
	Ratio of means		0.82		**0.82**
	T-statistic for difference between means		(2.99)		
40-44	Difference in means		0.03		**0.03**
	Ratio of means		1.11		**1.11**
	T-statistic for difference between means		(0.73)		
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means		**-0.12**	**-0.13**	
	Average ratio		**0.89**	**0.87**	

B.15 Liberia

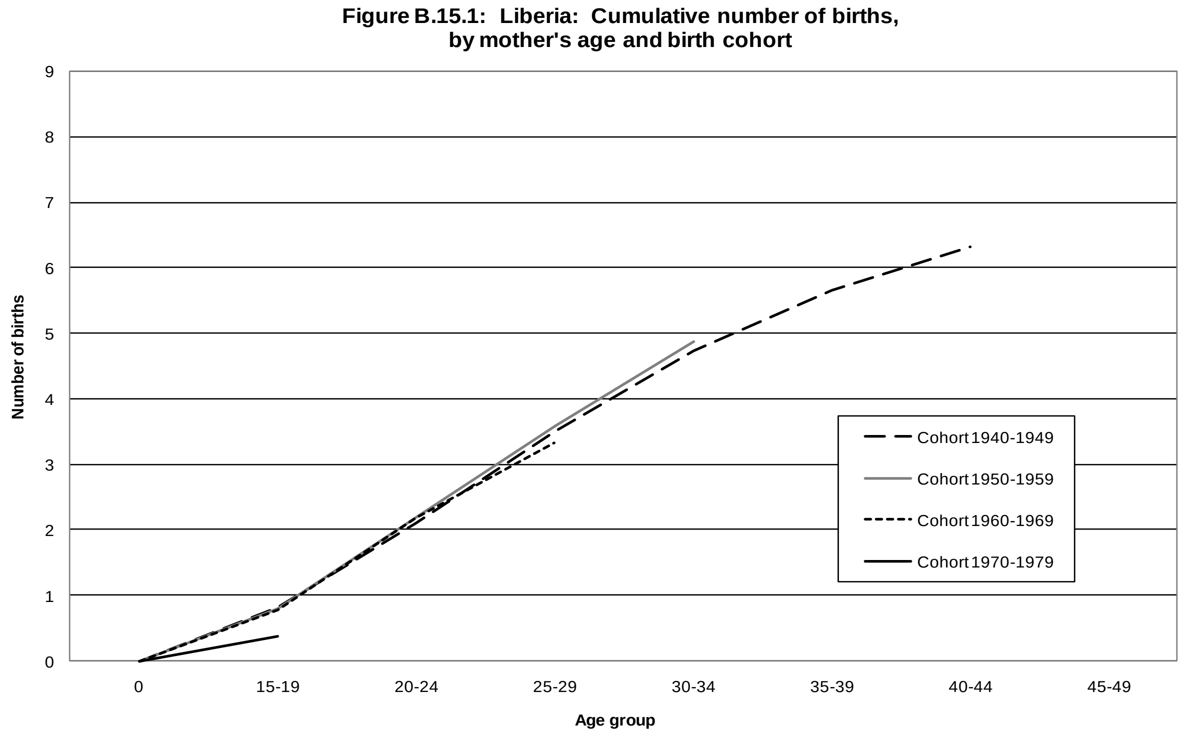

Figure B.15.1: Liberia: Cumulative number of births, by mother's age and birth cohort
Number of births
9
8
7
6
5
4
3
2
1
0
0
15-19
20-24
25-29
30-34
35-39
40-44
45-49
Age group
Cohort 1940-1949
Cohort 1950-1959
Cohort 1960-1969
Cohort 1970-1979

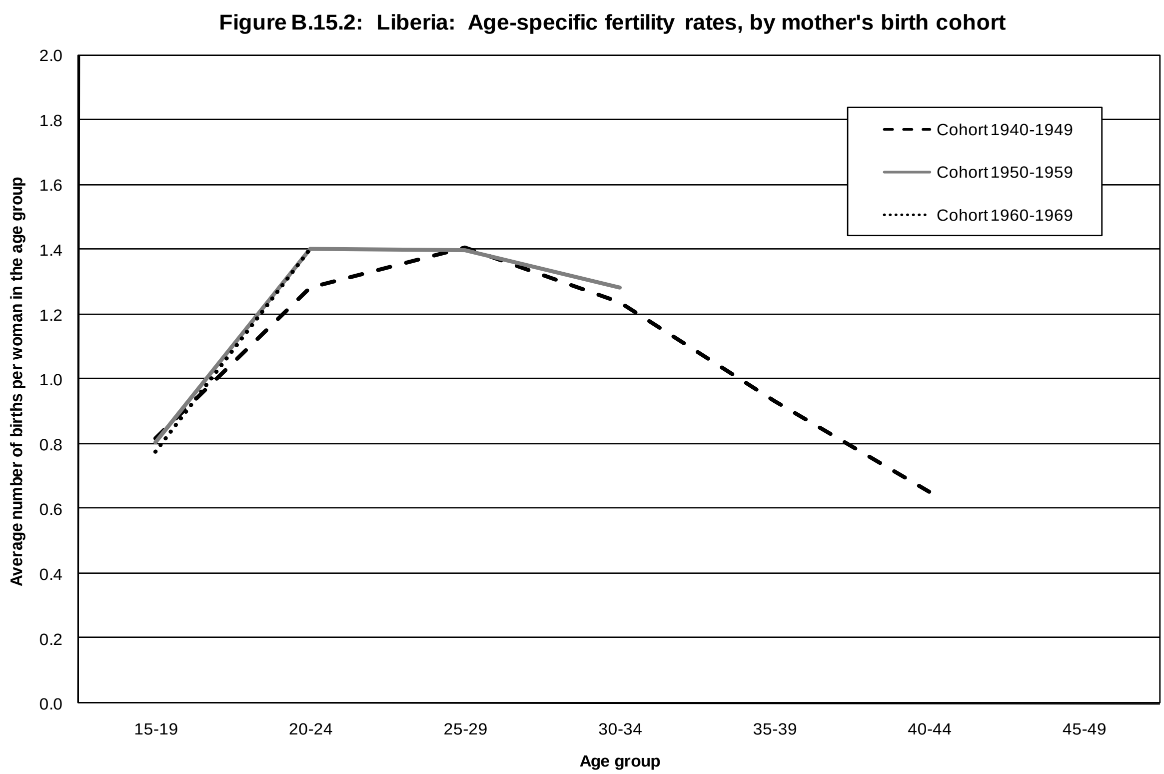

Figure B.15.2: Liberia: Age-specific fertility rates, by mother's birth cohort
Average number of births per woman in the age group
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
15-19
20-24
25-29
30-34
35-39
40-44
45-49
Age group
Cohort 1940-1949
Cohort 1950-1959
Cohort 1960-1969

Table B.15.1: Liberia: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.82	0.81	0.78	
	Std. dev.	(0.99)	(0.96)	(0.89)	
	N	908	1,652	2,109	
20-24	Mean	1.28	1.40	1.41	
	Std. dev.	(1.15)	(1.06)	(1.47)	
	N	908	1,652	1,173	
25-29	Mean	1.41	1.40		
	Std. dev.	(1.10)	(1.12)		
	N	908	1,652		
30-34	Mean	1.24	1.28		
	Std. dev.	(1.06)	(1.53)		
	N	908	810		
35-39	Mean	0.93			
	Std. dev.	(1.07)			
	N	908			
40-44	Mean	0.65			
	Std. dev.	(1.40)			
	N	448			
45-49	Mean				
	Std. dev.				
	N				

Table B.15.2: Liberia: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	-0.01	-0.03		**-0.02**
	Ratio of means	0.98	0.96		**0.97**
	T-statistic for difference between means	(0.33)	(0.96)		
20-24	Difference in means	0.12	0.00		**0.06**
	Ratio of means	1.09	1.00		**1.05**
	T-statistic for difference between means	(2.56)	(0.06)		
25-29	Difference in means	-0.01			**-0.01**
	Ratio of means	0.99			**0.99**
	T-statistic for difference between means	(0.20)			
30-34	Difference in means	0.05			**0.05**
	Ratio of means	1.04			**1.04**
	T-statistic for difference between means	(0.71)			
35-39	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
40-44	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means	**0.04**	**-0.01**		
	Average ratio	**1.03**	**0.98**		

B.16 Madagascar

Figure B.16.1: Madagascar: Cumulative number of births, by mother's age and birth cohort

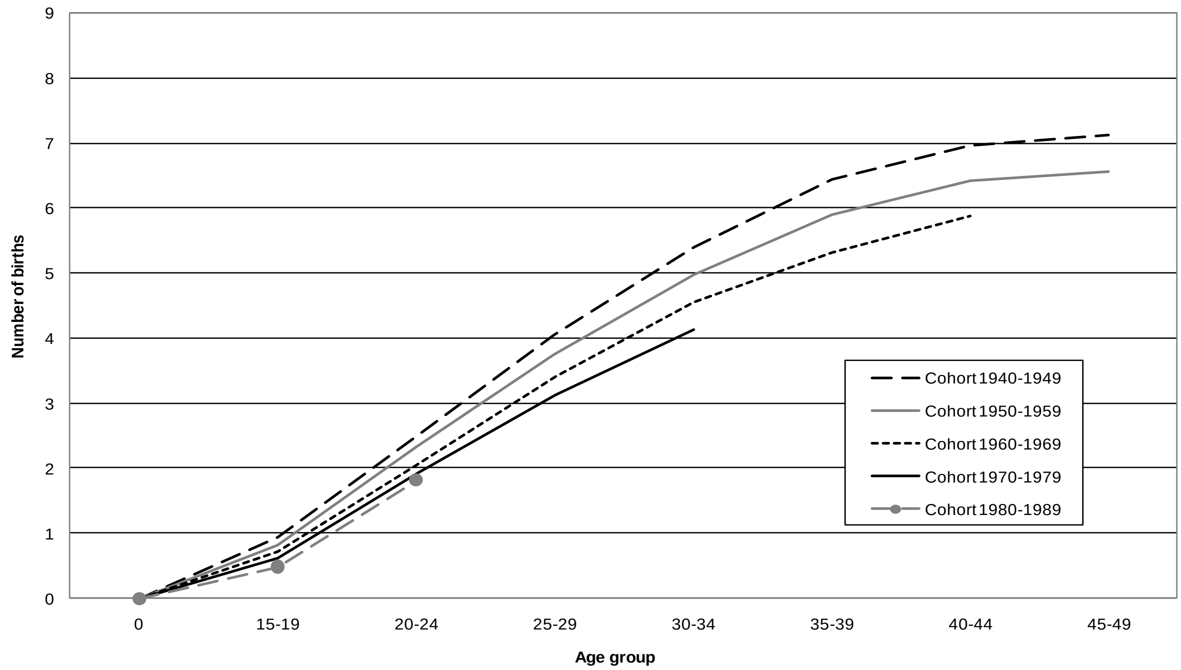

Figure B.16.2: Madagascar: Age-specific fertiliy rates, by mother's birth cohort

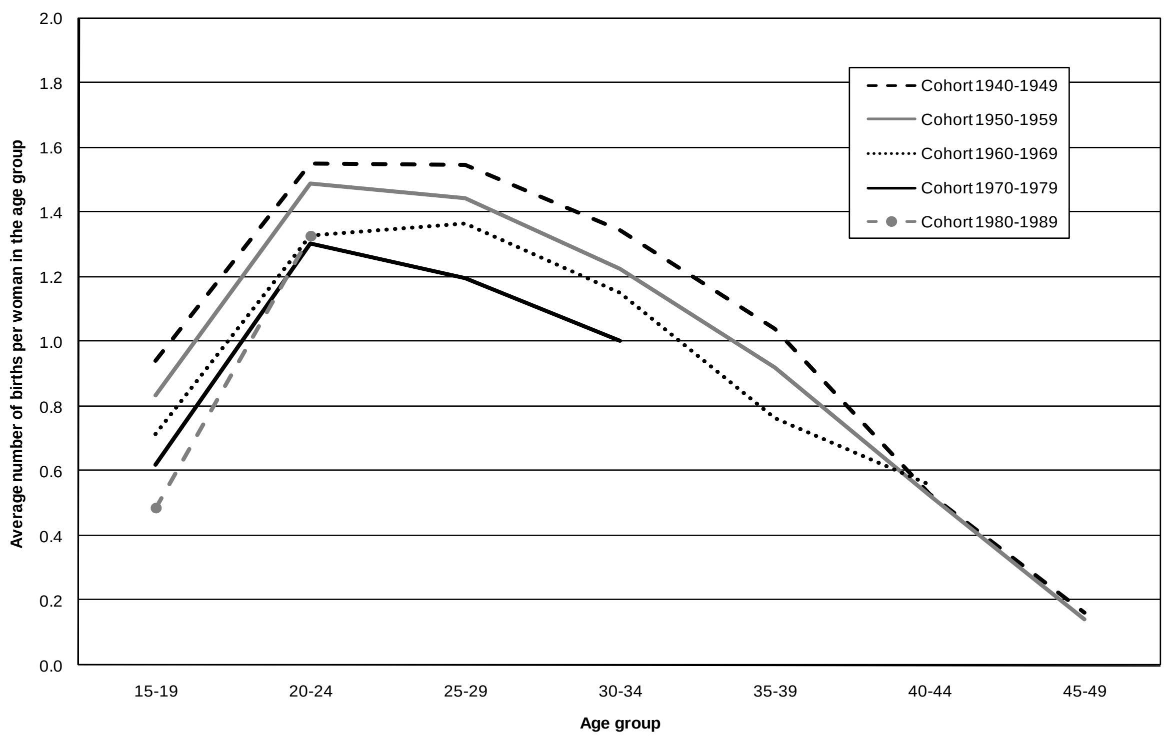

Table B.16.1: Madagascar: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.94	0.83	0.72	0.62
	Std. dev.	(1.06)	(0.99)	(0.93)	(0.88)
	N	691	3,517	5,967	7,268
20-24	Mean	1.55	1.49	1.33	1.31
	Std. dev.	(1.17)	(1.15)	(1.08)	(1.25)
	N	691	3,517	5,967	4,597
25-29	Mean	1.55	1.44	1.37	1.20
	Std. dev.	(1.19)	(1.08)	(1.17)	(1.34)
	N	691	3,517	5,189	2,414
30-34	Mean	1.35	1.23	1.15	1.01
	Std. dev.	(1.15)	(1.07)	(1.28)	(1.47)
	N	691	3,517	3,301	742
35-39	Mean	1.04	0.92	0.76	
	Std. dev.	(1.10)	(1.14)	(1.20)	
	N	691	2,963	1,748	
40-44	Mean	0.53	0.52	0.56	
	Std. dev.	(0.83)	(1.07)	(1.28)	
	N	691	1,661	584	
45-49	Mean	0.16	0.14		
	Std. dev.	(0.70)	(0.70)		
	N	422	666		

Table B.16.2: Madagascar: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort: 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	-0.11	-0.12	-0.10	**-0.11**
	Ratio of means	0.88	0.86	0.87	**0.87**
	T-statistic for difference between means	(2.53)	(5.70)	(6.05)	
20-24	Difference in means	-0.06	-0.16	-0.03	**-0.08**
	Ratio of means	0.96	0.89	0.98	**0.94**
	T-statistic for difference between means	(1.30)	(6.65)	(1.12)	
25-29	Difference in means	-0.11	-0.08	-0.17	**-0.12**
	Ratio of means	0.93	0.95	0.88	**0.92**
	T-statistic for difference between means	(2.18)	(3.16)	(5.36)	
30-34	Difference in means	-0.12	-0.07	-0.15	**-0.11**
	Ratio of means	0.91	0.94	0.87	**0.91**
	T-statistic for difference between means	(2.57)	(2.59)	(2.49)	
35-39	Difference in means	-0.12	-0.15		**-0.14**
	Ratio of means	0.88	0.83		**0.86**
	T-statistic for difference between means	(2.62)	(4.35)		
40-44	Difference in means	0.00	0.03		**0.01**
	Ratio of means	0.99	1.06		**1.03**
	T-statistic for difference between means	(0.07)	(0.55)		
45-49	Difference in means	-0.02			**-0.02**
	Ratio of means	0.87			**0.87**
	T-statistic for difference between means	(0.47)			
	Average of means	**-0.08**	**-0.09**	**-0.11**	
	Average ratio	**0.92**	**0.92**	**0.90**	

B.17 Malawi

Figure B.17.1: Malawi: Cumulative number of births, by mother's age and birth cohort

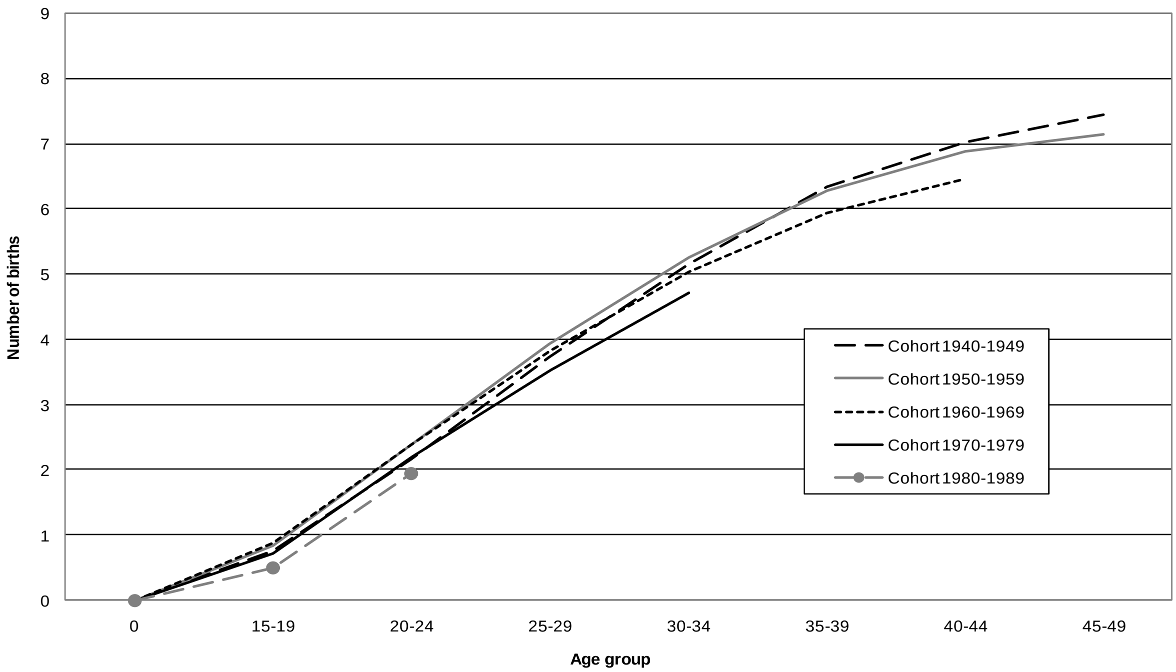

Figure B.17.2: Malawi: Age-specific fertility rates, by mother's birth cohort

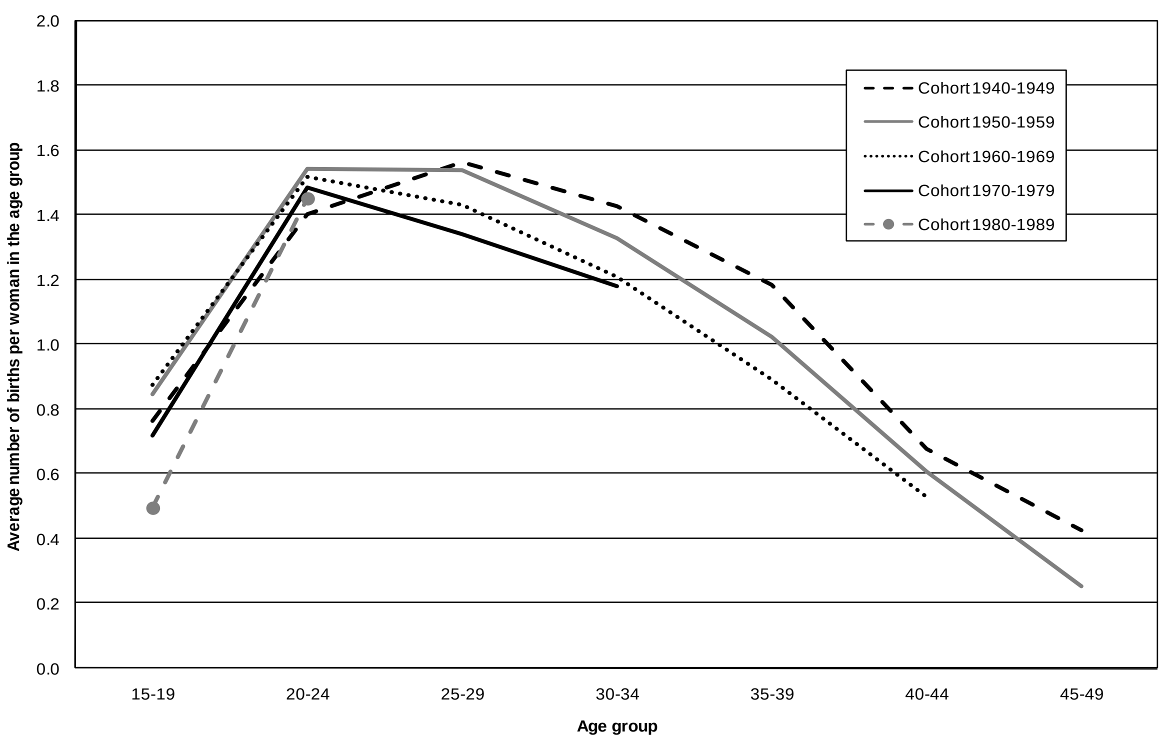

Table B.17.1: Malawi: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.77	0.85	0.88	0.72
	Std. dev.	(1.01)	(0.92)	(0.88)	(0.82)
	N	504	3,280	6,562	10,249
20-24	Mean	1.40	1.54	1.52	1.49
	Std. dev.	(1.05)	(0.99)	(0.96)	(1.16)
	N	504	3,280	6,562	8,823
25-29	Mean	1.56	1.54	1.43	1.34
	Std. dev.	(1.03)	(0.99)	(1.03)	(1.34)
	N	504	3,280	5,886	5,070
30-34	Mean	1.43	1.33	1.21	1.18
	Std. dev.	(1.08)	(1.00)	(1.14)	(1.49)
	N	504	3,280	4,830	1,016
35-39	Mean	1.19	1.02	0.89	
	Std. dev.	(1.03)	(1.06)	(1.29)	
	N	504	2,851	2,963	
40-44	Mean	0.68	0.61	0.53	
	Std. dev.	(0.90)	(1.04)	(1.15)	
	N	504	2,236	607	
45-49	Mean	0.43	0.26		
	Std. dev.	(1.22)	(0.80)		
	N	250	1,125		

Table B.17.2: Malawi: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	0.08	0.03	-0.16	**-0.02**
	Ratio of means	1.10	1.03	0.82	**0.99**
	T-statistic for difference between means	(1.67)	(1.44)	(11.56)	
20-24	Difference in means	0.14	-0.02	-0.03	**0.03**
	Ratio of means	1.10	0.98	0.98	**1.02**
	T-statistic for difference between means	(2.79)	(1.11)	(1.89)	
25-29	Difference in means	-0.02	-0.11	-0.09	**-0.07**
	Ratio of means	0.98	0.93	0.94	**0.95**
	T-statistic for difference between means	(0.51)	(4.90)	(3.87)	
30-34	Difference in means	-0.10	-0.12	-0.03	**-0.08**
	Ratio of means	0.93	0.91	0.98	**0.94**
	T-statistic for difference between means	(1.94)	(5.02)	(0.57)	
35-39	Difference in means	-0.16	-0.13		**-0.15**
	Ratio of means	0.86	0.87		**0.87**
	T-statistic for difference between means	(3.22)	(4.22)		
40-44	Difference in means	-0.07	-0.08		**-0.07**
	Ratio of means	0.90	0.87		**0.89**
	T-statistic for difference between means	(1.53)	(1.51)		
45-49	Difference in means	-0.17			**-0.17**
	Ratio of means	0.60			**0.60**
	T-statistic for difference between means	(2.14)			
	Average of means	**-0.04**	**-0.07**	**-0.08**	
	Average ratio	**0.93**	**0.93**	**0.93**	

B.18 Mali

Figure B.18.1: Mali: Cumulative number of births, by mother's age and birth cohort

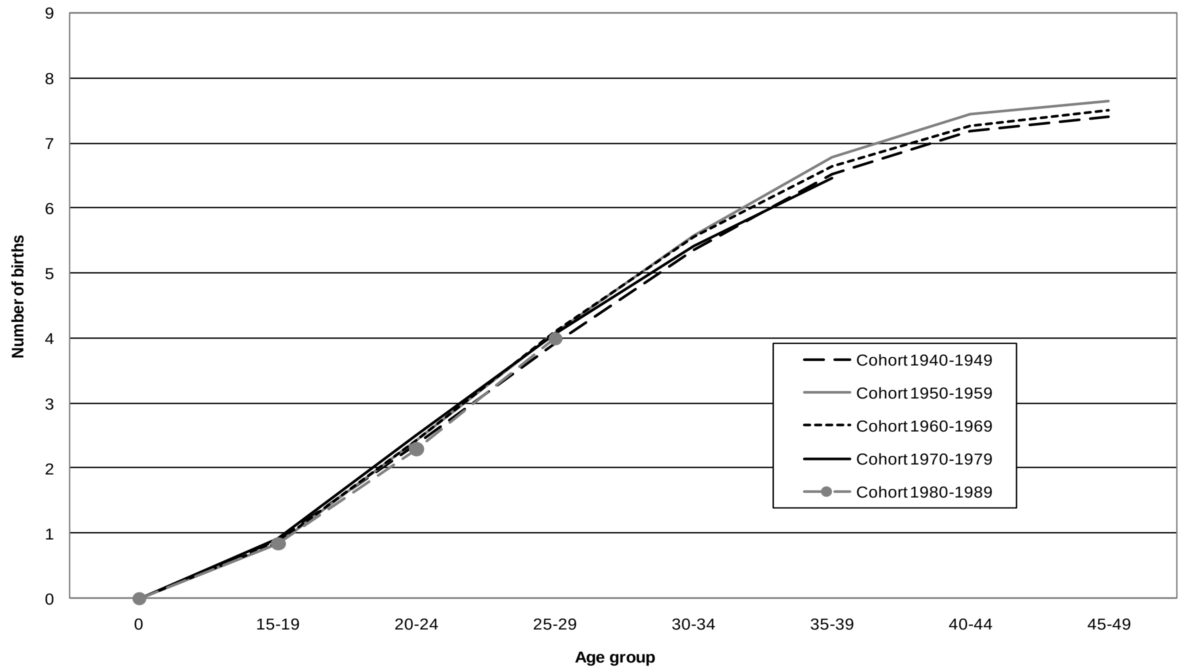

Figure B.18.2: Mali: Age-specific fertiliy rates, by mother's birth cohort

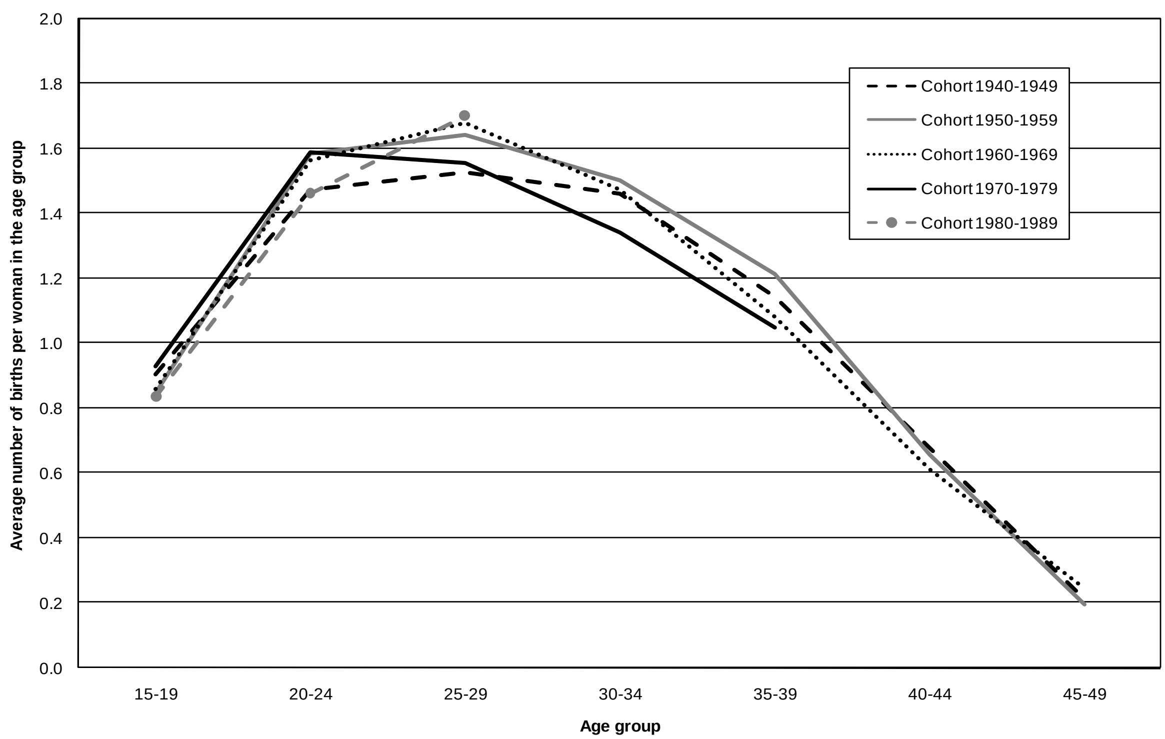

Table B.18.1: Mali: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.91	0.85	0.86	0.93
	Std. dev.	(1.02)	(0.98)	(0.96)	(0.98)
	N	958	5,650	10,700	12,581
20-24	Mean	1.48	1.58	1.56	1.59
	Std. dev.	(1.13)	(1.05)	(1.09)	(1.04)
	N	958	5,650	10,220	11,569
25-29	Mean	1.53	1.64	1.68	1.56
	Std. dev.	(1.10)	(1.01)	(1.06)	(1.14)
	N	958	5,650	9,493	9,932
30-34	Mean	1.46	1.50	1.47	1.34
	Std. dev.	(1.14)	(1.20)	(1.08)	(1.47)
	N	958	5,113	8,469	4,639
35-39	Mean	1.15	1.21	1.08	1.05
	Std. dev.	(1.09)	(1.15)	(1.13)	(2.04)
	N	958	4,180	7,032	788
40-44	Mean	0.68	0.66	0.61	
	Std. dev.	(1.16)	(0.98)	(1.19)	
	N	648	3,255	3,308	
45-49	Mean	0.21	0.20	0.24	
	Std. dev.	(0.81)	(0.75)	(1.11)	
	N	360	2,140	730	

Table B.18.2: Mali: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort: 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	-0.06	0.01	0.07	**0.01**
	Ratio of means	0.93	1.02	1.08	**1.01**
	T-statistic for difference between means	(1.67)	(0.87)	(5.60)	
20-24	Difference in means	0.11	-0.02	0.02	**0.04**
	Ratio of means	1.07	0.99	1.02	**1.03**
	T-statistic for difference between means	(2.78)	(1.09)	(1.69)	
25-29	Difference in means	0.11	0.04	-0.12	**0.01**
	Ratio of means	1.07	1.02	0.93	**1.01**
	T-statistic for difference between means	(2.98)	(2.13)	(7.75)	
30-34	Difference in means	0.04	-0.03	-0.13	**-0.04**
	Ratio of means	1.03	0.98	0.91	**0.97**
	T-statistic for difference between means	(0.93)	(1.48)	(5.17)	
35-39	Difference in means	0.07	-0.13	-0.03	**-0.03**
	Ratio of means	1.06	0.89	0.97	**0.97**
	T-statistic for difference between means	(1.74)	(5.88)	(0.41)	
40-44	Difference in means	-0.02	-0.05		**-0.03**
	Ratio of means	0.97	0.93		**0.95**
	T-statistic for difference between means	(0.44)	(1.71)		
45-49	Difference in means	-0.02	0.05		**0.02**
	Ratio of means	0.92	1.25		**1.08**
	T-statistic for difference between means	(0.39)	(1.09)		
	Average of means	**0.03**	**-0.02**	**-0.04**	
	Average ratio	**1.01**	**1.01**	**0.98**	

B.19 Mozambique

Figure B.19.1: Mozambique: Cumulative number of births, by mother's age and birth cohort

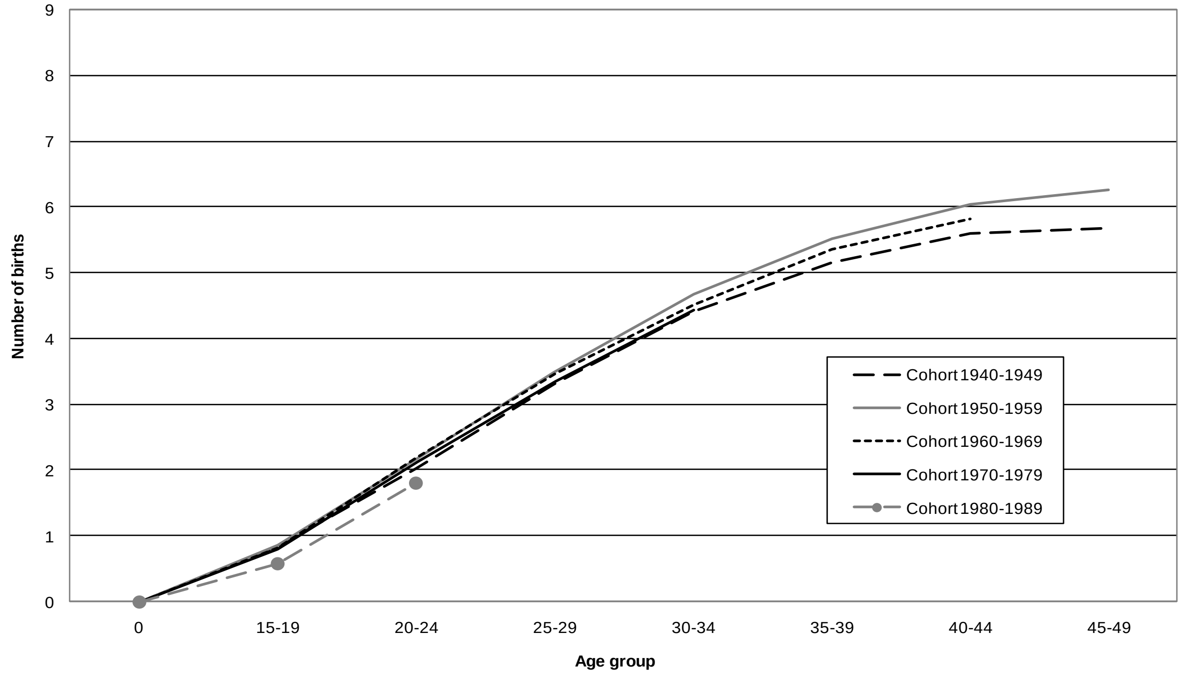

Figure B.19.2: Mozambique: Age-specific fertility rates, by mother's birth cohort

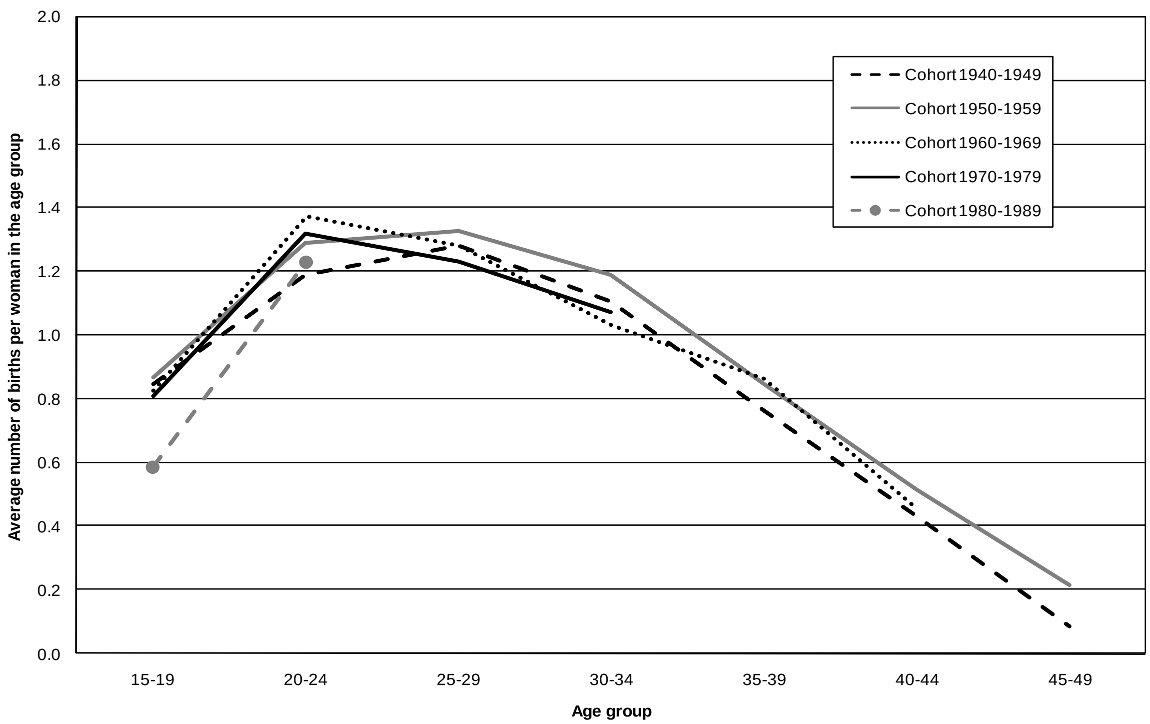

Table B.19.1: Mozambique: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.85	0.87	0.83	0.81
	Std. dev.	(1.03)	(1.01)	(0.94)	(0.86)
	N	272	2,582	5,222	7,435
20-24	Mean	1.19	1.29	1.37	1.32
	Std. dev.	(1.07)	(1.03)	(0.96)	(1.08)
	N	272	2,582	5,222	6,029
25-29	Mean	1.28	1.33	1.28	1.23
	Std. dev.	(1.13)	(0.99)	(0.96)	(1.40)
	N	272	2,582	5,222	3,353
30-34	Mean	1.10	1.19	1.03	1.07
	Std. dev.	(0.99)	(1.07)	(1.07)	(1.46)
	N	272	2,582	4,103	773
35-39	Mean	0.76	0.85	0.86	
	Std. dev.	(0.94)	(0.97)	(1.31)	
	N	272	2,582	2,247	
40-44	Mean	0.43	0.52	0.45	
	Std. dev.	(0.72)	(0.88)	(1.08)	
	N	272	1,849	561	
45-49	Mean	0.09	0.22		
	Std. dev.	(0.35)	(0.74)		
	N	272	832		

Table B.19.2: Mozambique: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort: 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	0.03	-0.05	-0.02	**-0.01**
	Ratio of means	1.03	0.95	0.98	**0.99**
	T-statistic for difference between means	(0.40)	(1.94)	(0.95)	
20-24	Difference in means	0.11	0.08	-0.05	**0.04**
	Ratio of means	1.09	1.06	0.96	**1.04**
	T-statistic for difference between means	(1.54)	(3.44)	(2.80)	
25-29	Difference in means	0.05	-0.05	-0.05	**-0.02**
	Ratio of means	1.04	0.97	0.96	**0.99**
	T-statistic for difference between means	(0.70)	(1.96)	(1.84)	
30-34	Difference in means	0.09	-0.16	0.04	**-0.01**
	Ratio of means	1.08	0.87	1.04	**1.00**
	T-statistic for difference between means	(1.40)	(5.93)	(0.76)	
35-39	Difference in means	0.09	0.01		**0.05**
	Ratio of means	1.12	1.02		**1.07**
	T-statistic for difference between means	(1.50)	(0.39)		
40-44	Difference in means	0.09	-0.07		**0.01**
	Ratio of means	1.21	0.87		**1.04**
	T-statistic for difference between means	(1.85)	(1.32)		
45-49	Difference in means	0.13			**0.13**
	Ratio of means	2.55			**2.55**
	T-statistic for difference between means	(3.97)			
	Average of means	**0.08**	**-0.04**	**-0.02**	
	Average ratio	**1.30**	**0.96**	**0.99**	

B.20 Namibia

Figure B.20.1: Namibia: Cumulative number of births, by mother's age and birth cohort

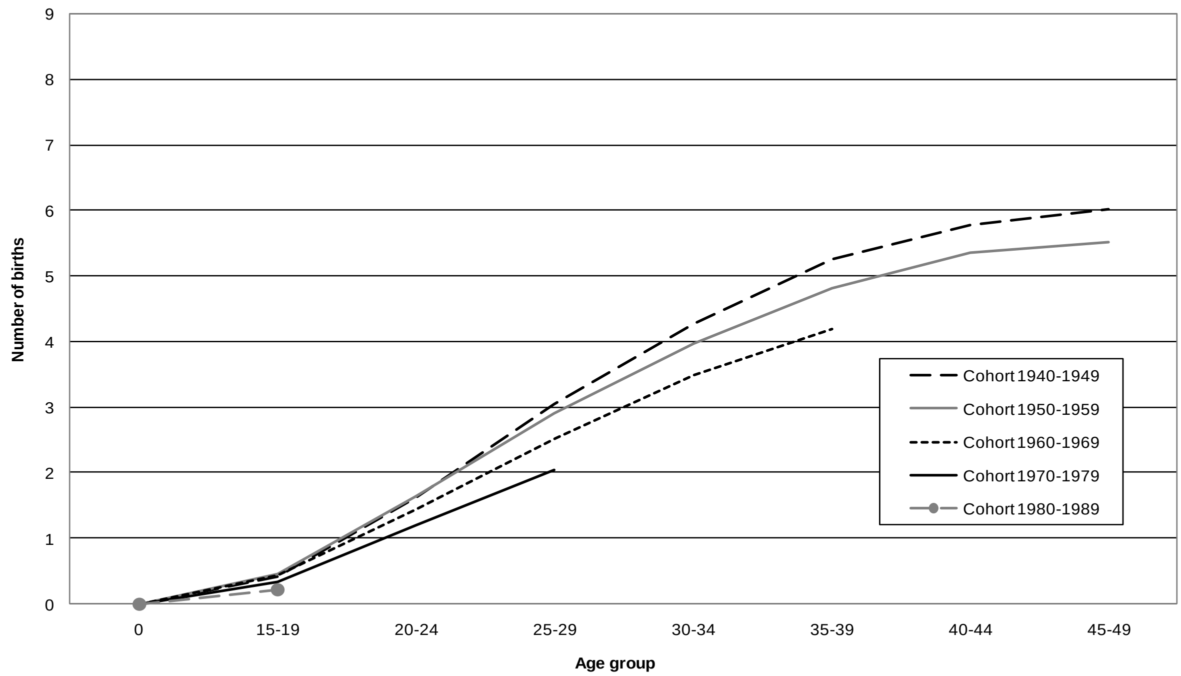

Figure B.20.2: Namibia: Age-specific fertility rates, by mother's birth cohort

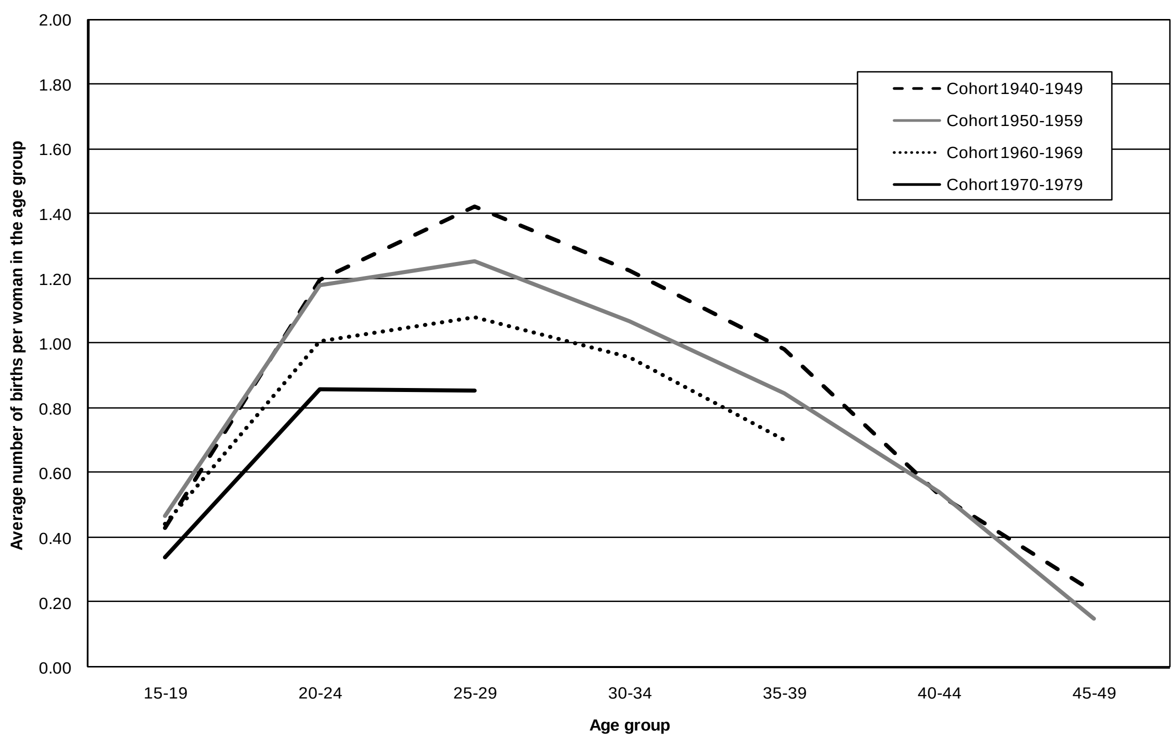

Table B.20.1: Namibia: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.43	0.47	0.44	0.34
	Std. dev.	(0.76)	(0.73)	(0.69)	(0.61)
	N	555	2,063	3,554	4,051
20-24	Mean	1.20	1.18	1.01	0.86
	Std. dev.	(1.05)	(0.99)	(0.92)	(1.17)
	N	555	2,063	3,554	2,666
25-29	Mean	1.42	1.25	1.08	0.85
	Std. dev.	(1.02)	(0.96)	(1.10)	(1.20)
	N	555	2,063	2,871	963
30-34	Mean	1.23	1.07	0.96	
	Std. dev.	(1.05)	(0.96)	(1.28)	
	N	555	2,063	1,874	
35-39	Mean	0.98	0.85	0.70	
	Std. dev.	(1.01)	(1.08)	(1.13)	
	N	555	1,616	708	
40-44	Mean	0.53	0.54		
	Std. dev.	(0.80)	(1.12)		
	N	555	996		
45-49	Mean	0.23	0.15		
	Std. dev.	(0.79)	(0.67)		
	N	283	292		

Table B.20.2: Namibia: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	0.04	-0.03	-0.10	**-0.03**
	Ratio of means	1.09	0.94	0.77	**0.93**
	T-statistic for difference between means	(1.07)	(1.33)	(6.87)	
20-24	Difference in means	-0.02	-0.17	-0.15	**-0.11**
	Ratio of means	0.99	0.86	0.85	**0.90**
	T-statistic for difference between means	(0.36)	(6.39)	(5.52)	
25-29	Difference in means	-0.17	-0.17	-0.23	**-0.19**
	Ratio of means	0.88	0.86	0.79	**0.84**
	T-statistic for difference between means	(3.54)	(5.82)	(5.21)	
30-34	Difference in means	-0.16	-0.11		**-0.13**
	Ratio of means	0.87	0.90		**0.88**
	T-statistic for difference between means	(3.20)	(3.06)		
35-39	Difference in means	-0.14	-0.14		**-0.14**
	Ratio of means	0.86	0.83		**0.85**
	T-statistic for difference between means	(2.71)	(2.83)		
40-44	Difference in means	0.01			**0.01**
	Ratio of means	1.02			**1.02**
	T-statistic for difference between means	(0.24)			
45-49	Difference in means	-0.08			**-0.08**
	Ratio of means	0.65			**0.65**
	T-statistic for difference between means	(1.31)			
	Average of means	**-0.07**	**-0.12**	**-0.16**	
	Average ratio	**0.91**	**0.88**	**0.80**	

B.21 Niger

Figure B.21.1: Niger: Cumulative number of births, by mother's age and birth cohort

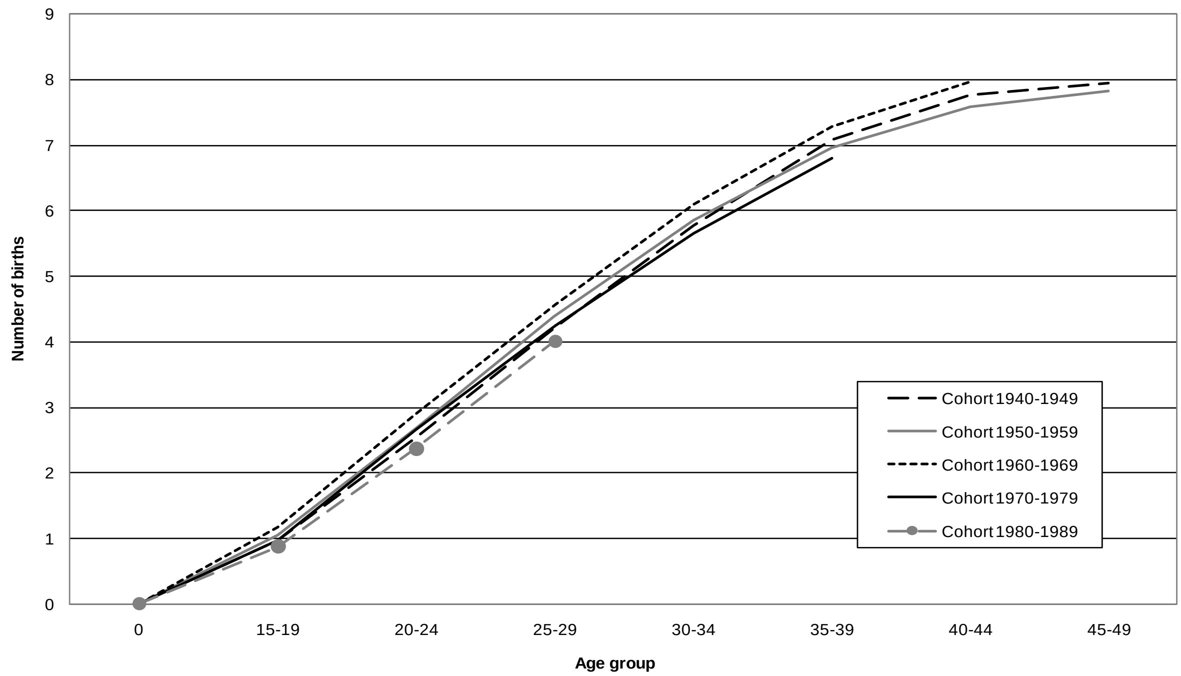

Figure B.21.2: Niger: Age-specific fertility rates, by mother's birth cohort

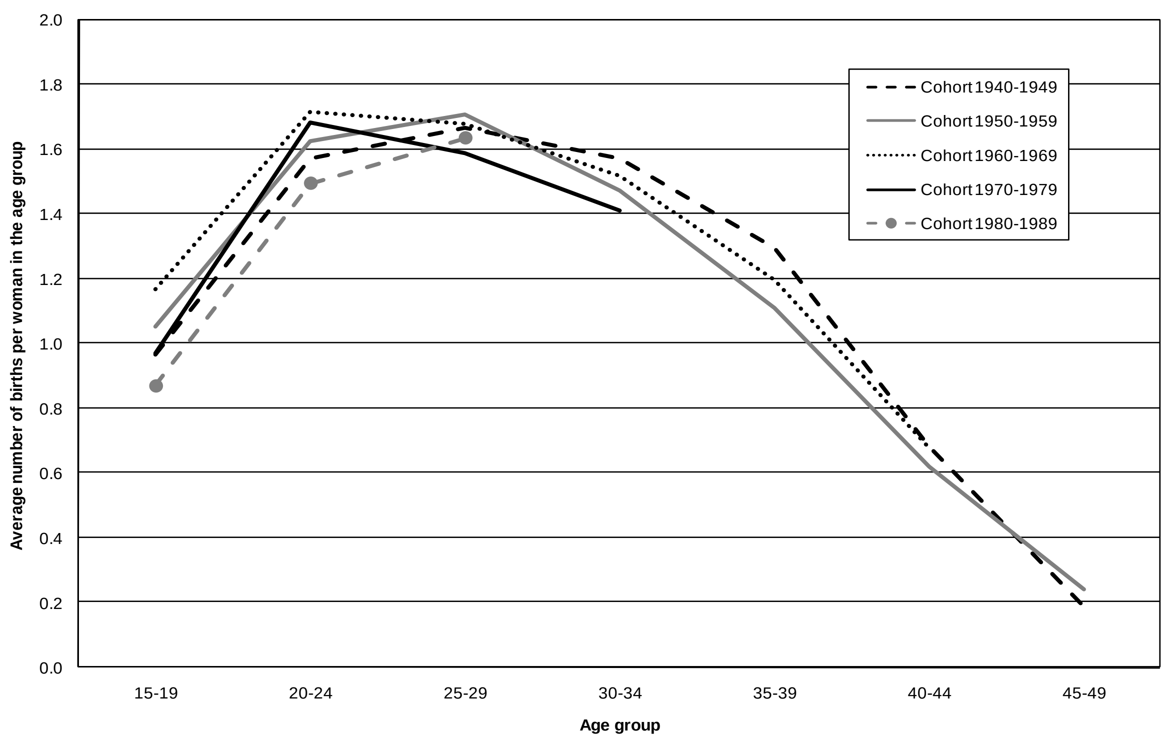

Table B.21.1: Niger: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.97	1.05	1.17	0.97
	Std. dev.	(1.02)	(1.00)	(1.00)	(0.99)
	N	646	2,906	6,367	7,518
20-24	Mean	1.57	1.62	1.72	1.68
	Std. dev.	(1.07)	(0.98)	(0.97)	(1.33)
	N	646	2,906	6,367	5,180
25-29	Mean	1.67	1.71	1.68	1.59
	Std. dev.	(1.04)	(1.01)	(1.18)	(1.27)
	N	646	2,906	5,557	3,230
30-34	Mean	1.58	1.47	1.52	1.41
	Std. dev.	(1.03)	(1.01)	(1.40)	(1.41)
	N	646	2,906	3,706	1,236
35-39	Mean	1.30	1.11	1.20	
	Std. dev.	(1.04)	(1.18)	(1.27)	
	N	646	2,421	2,083	
40-44	Mean	0.68	0.62	0.68	
	Std. dev.	(0.88)	(1.24)	(1.20)	
	N	646	1,346	778	
45-49	Mean	0.19	0.24		
	Std. dev.	(0.67)	(0.85)		
	N	422	488		

Table B.21.2: Niger: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	0.08	0.12	-0.20	**0.00**
	Ratio of means	1.09	1.11	0.83	**1.01**
	T-statistic for difference between means	(1.92)	(5.20)	(11.72)	
20-24	Difference in means	0.05	0.09	-0.03	**0.04**
	Ratio of means	1.03	1.06	0.98	**1.02**
	T-statistic for difference between means	(1.10)	(4.25)	(1.50)	
25-29	Difference in means	0.04	-0.03	-0.09	**-0.03**
	Ratio of means	1.02	0.98	0.95	**0.98**
	T-statistic for difference between means	(0.85)	(1.20)	(3.32)	
30-34	Difference in means	-0.10	0.05	-0.11	**-0.06**
	Ratio of means	0.93	1.03	0.93	**0.96**
	T-statistic for difference between means	(2.34)	(1.63)	(2.37)	
35-39	Difference in means	-0.19	0.09		**-0.05**
	Ratio of means	0.85	1.08		**0.97**
	T-statistic for difference between means	(4.02)	(2.47)		
40-44	Difference in means	-0.07	0.06		**0.00**
	Ratio of means	0.90	1.10		**1.00**
	T-statistic for difference between means	(1.35)	(1.09)		
45-49	Difference in means	0.05			**0.05**
	Ratio of means	1.27			**1.27**
	T-statistic for difference between means	(1.02)			
	Average of means	**-0.02**	**0.06**	**-0.11**	
	Average ratio	**1.02**	**1.06**	**0.92**	

B.22 Nigeria

Figure B.22.1: Nigeria: Cumulative number of births, by mother's age and birth cohort

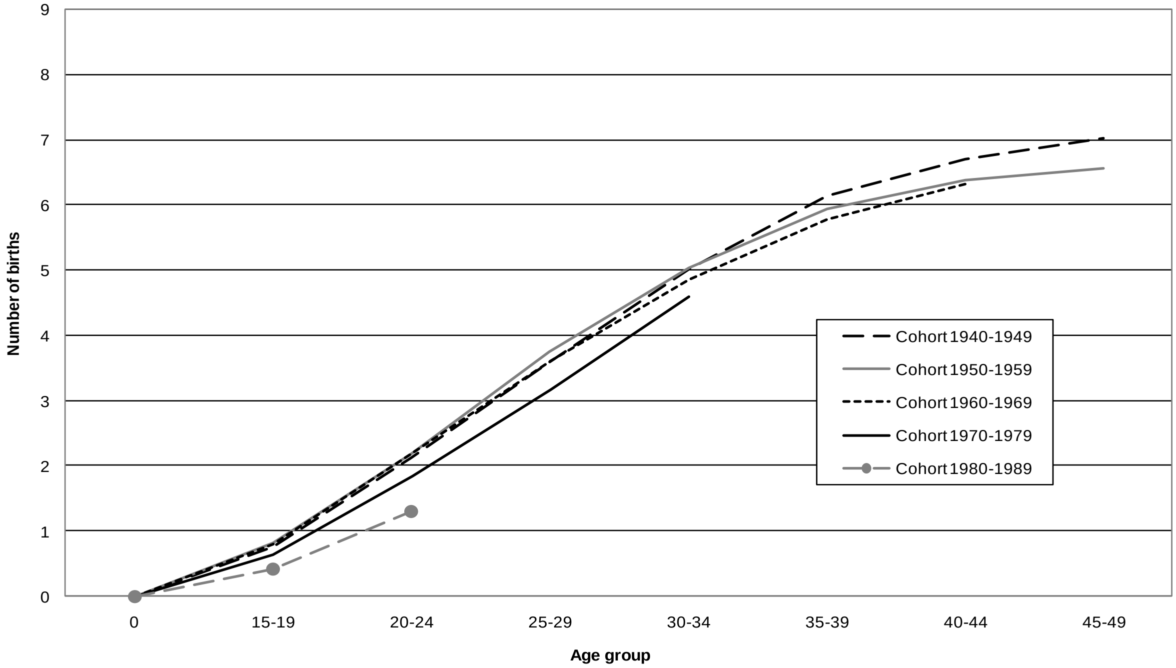

Figure B.22.2: Nigeria: Age-specific fertility rates, by mother's birth cohort

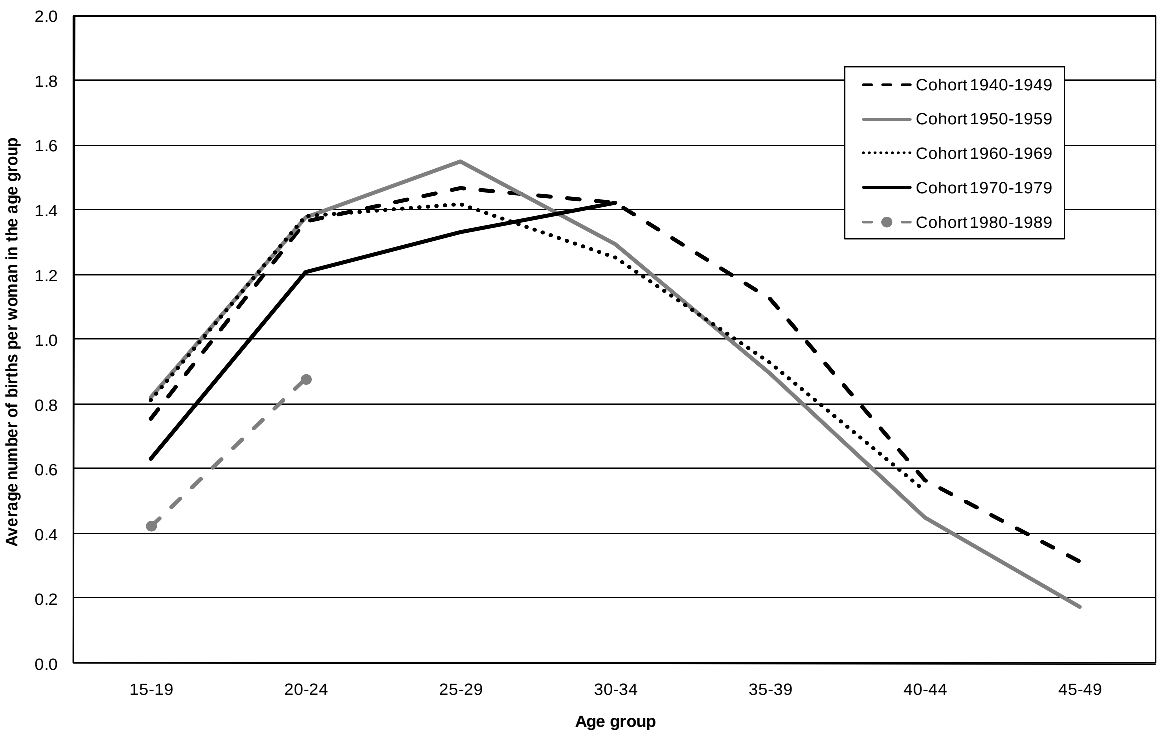

Table B.22.1: Nigeria: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.76	0.82	0.81	0.63
	Std. dev.	(0.99)	(1.00)	(0.97)	(0.92)
	N	1,107	4,085	7,136	7,442
20-24	Mean	1.37	1.38	1.38	1.21
	Std. dev.	(1.09)	(1.06)	(1.13)	(1.15)
	N	1,107	4,085	7,136	5,146
25-29	Mean	1.47	1.55	1.42	1.34
	Std. dev.	(1.04)	(1.01)	(1.14)	(1.50)
	N	1,107	4,085	5,455	3,196
30-34	Mean	1.42	1.30	1.25	1.43
	Std. dev.	(1.04)	(1.14)	(1.18)	(2.00)
	N	1,107	4,085	3,378	644
35-39	Mean	1.13	0.90	0.93	
	Std. dev.	(1.03)	(1.11)	(1.36)	
	N	1,107	2,945	2,068	
40-44	Mean	0.57	0.45	0.54	
	Std. dev.	(1.08)	(0.94)	(1.35)	
	N	1,107	1,746	499	
45-49	Mean	0.31	0.18		
	Std. dev.	(0.99)	(0.76)		
	N	412	917		

Table B.22.2: Nigeria: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	0.06	-0.01	-0.18	**-0.04**
	Ratio of means	1.08	0.99	0.78	**0.95**
	T-statistic for difference between means	(1.87)	(0.38)	(11.52)	
20-24	Difference in means	0.01	0.00	-0.17	**-0.05**
	Ratio of means	1.01	1.00	0.88	**0.96**
	T-statistic for difference between means	(0.35)	(0.17)	(8.27)	
25-29	Difference in means	0.08	-0.13	-0.08	**-0.04**
	Ratio of means	1.06	0.91	0.94	**0.97**
	T-statistic for difference between means	(2.32)	(5.97)	(2.73)	
30-34	Difference in means	-0.13	-0.04	0.17	**0.00**
	Ratio of means	0.91	0.97	1.14	**1.00**
	T-statistic for difference between means	(3.59)	(1.54)	(2.12)	
35-39	Difference in means	-0.23	0.03		**-0.10**
	Ratio of means	0.79	1.04		**0.92**
	T-statistic for difference between means	(6.25)	(0.92)		
40-44	Difference in means	-0.12	0.08		**-0.02**
	Ratio of means	0.80	1.19		**0.99**
	T-statistic for difference between means	(2.94)	(1.31)		
45-49	Difference in means	-0.14			**-0.14**
	Ratio of means	0.56			**0.56**
	T-statistic for difference between means	(2.55)			
	Average of means	**-0.07**	**-0.01**	**-0.07**	
	Average ratio	**0.89**	**1.02**	**0.93**	

B.23 Rwanda

Figure B.23.1: Rwanda: Cumulative number of births, by mother's age and birth cohort

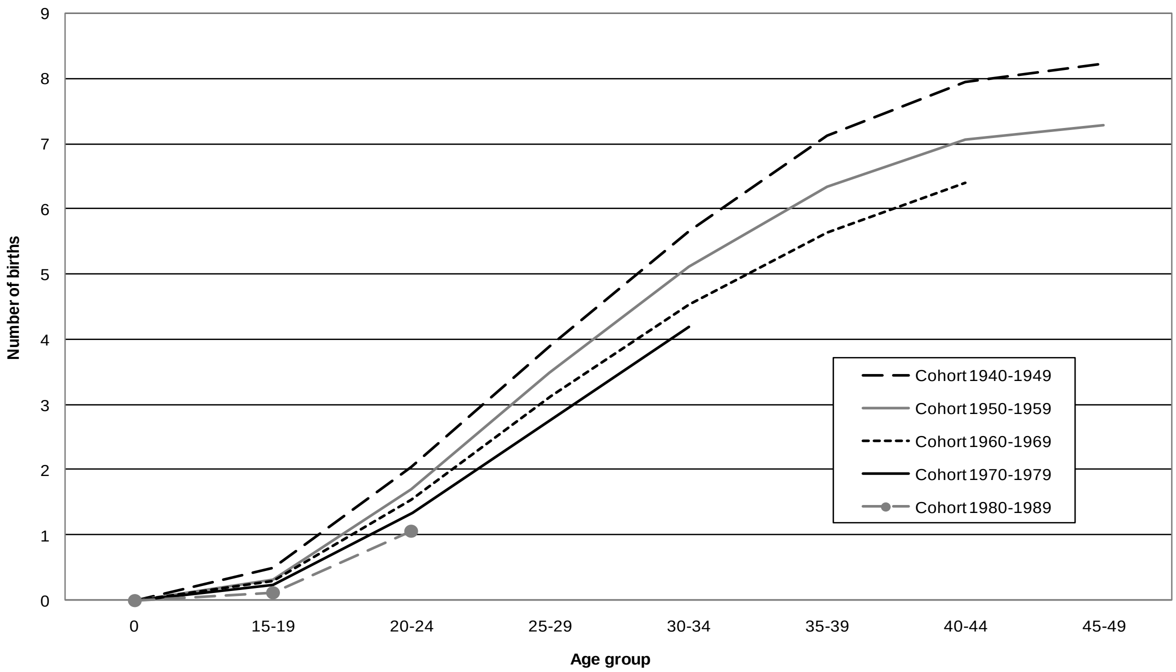

Figure B.23.2: Rwanda: Age-specific fertility rates, by mother's birth cohort

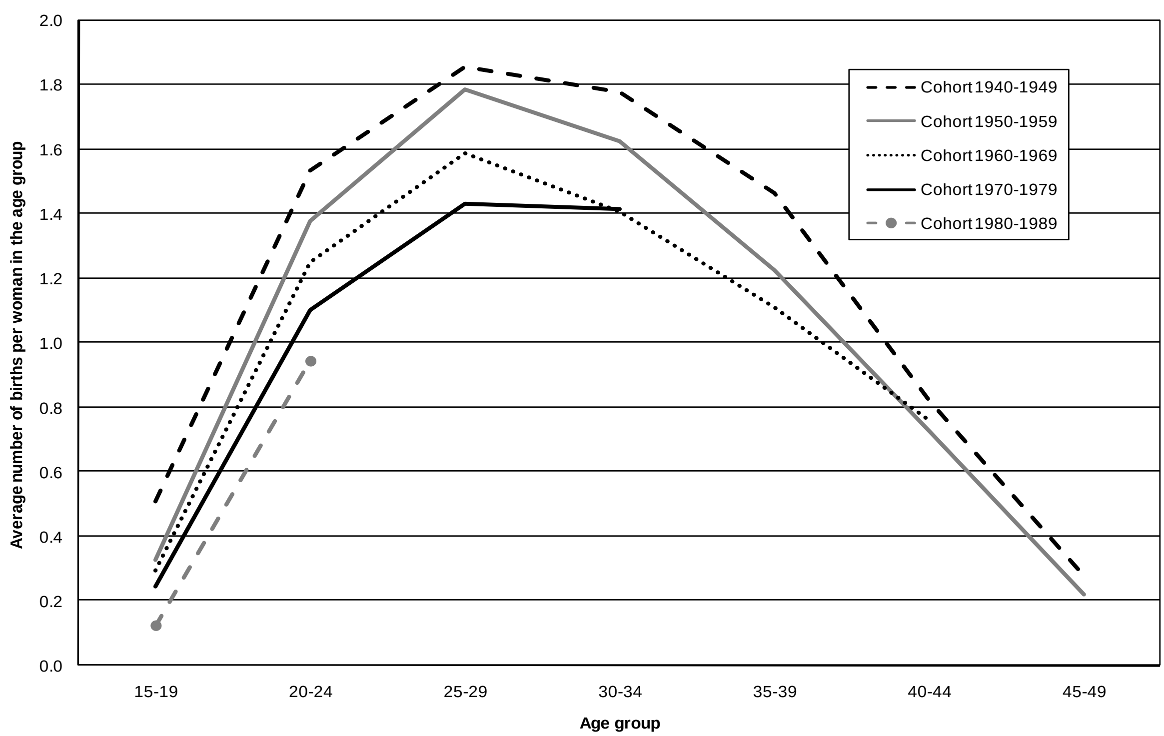

Table B.23.1: Rwanda: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.51	0.33	0.29	0.24
	Std. dev.	(0.76)	(0.64)	(0.60)	(0.54)
	N	598	3,626	6,751	8,481
20-24	Mean	1.53	1.38	1.25	1.10
	Std. dev.	(0.98)	(0.98)	(1.00)	(1.14)
	N	598	3,626	6,751	6,465
25-29	Mean	1.86	1.79	1.59	1.43
	Std. dev.	(0.94)	(0.92)	(1.07)	(1.33)
	N	598	3,626	5,796	4,060
30-34	Mean	1.78	1.63	1.41	1.42
	Std. dev.	(0.98)	(0.94)	(1.22)	(1.42)
	N	598	3,626	4,337	1,156
35-39	Mean	1.47	1.23	1.11	
	Std. dev.	(0.96)	(1.05)	(1.22)	
	N	598	2,876	2,770	
40-44	Mean	0.82	0.73	0.76	
	Std. dev.	(0.86)	(1.10)	(1.25)	
	N	598	1,999	863	
45-49	Mean	0.28	0.22		
	Std. dev.	(0.83)	(0.79)		
	N	278	1,006		

Table B.23.2: Rwanda: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	-0.18	-0.03	-0.05	**-0.09**
	Ratio of means	0.65	0.90	0.83	**0.79**
	T-statistic for difference between means	(5.51)	(2.60)	(5.36)	
20-24	Difference in means	-0.15	-0.13	-0.15	**-0.14**
	Ratio of means	0.90	0.91	0.88	**0.90**
	T-statistic for difference between means	(3.56)	(6.35)	(7.83)	
25-29	Difference in means	-0.07	-0.20	-0.15	**-0.14**
	Ratio of means	0.96	0.89	0.90	**0.92**
	T-statistic for difference between means	(1.65)	(9.69)	(6.09)	
30-34	Difference in means	-0.15	-0.22	0.01	**-0.12**
	Ratio of means	0.91	0.86	1.01	**0.93**
	T-statistic for difference between means	(3.52)	(9.11)	(0.26)	
35-39	Difference in means	-0.24	-0.11		**-0.18**
	Ratio of means	0.84	0.91		**0.87**
	T-statistic for difference between means	(5.50)	(3.75)		
40-44	Difference in means	-0.10	0.03		**-0.03**
	Ratio of means	0.88	1.05		**0.97**
	T-statistic for difference between means	(2.22)	(0.68)		
45-49	Difference in means	-0.06			**-0.06**
	Ratio of means	0.79			**0.79**
	T-statistic for difference between means	(1.05)			
	Average of means	**-0.14**	**-0.11**	**-0.08**	
	Average ratio	**0.85**	**0.92**	**0.91**	

B.24 Senegal

Figure B.24.1: Senegal: Cumulative number of births, by mother's age and birth cohort

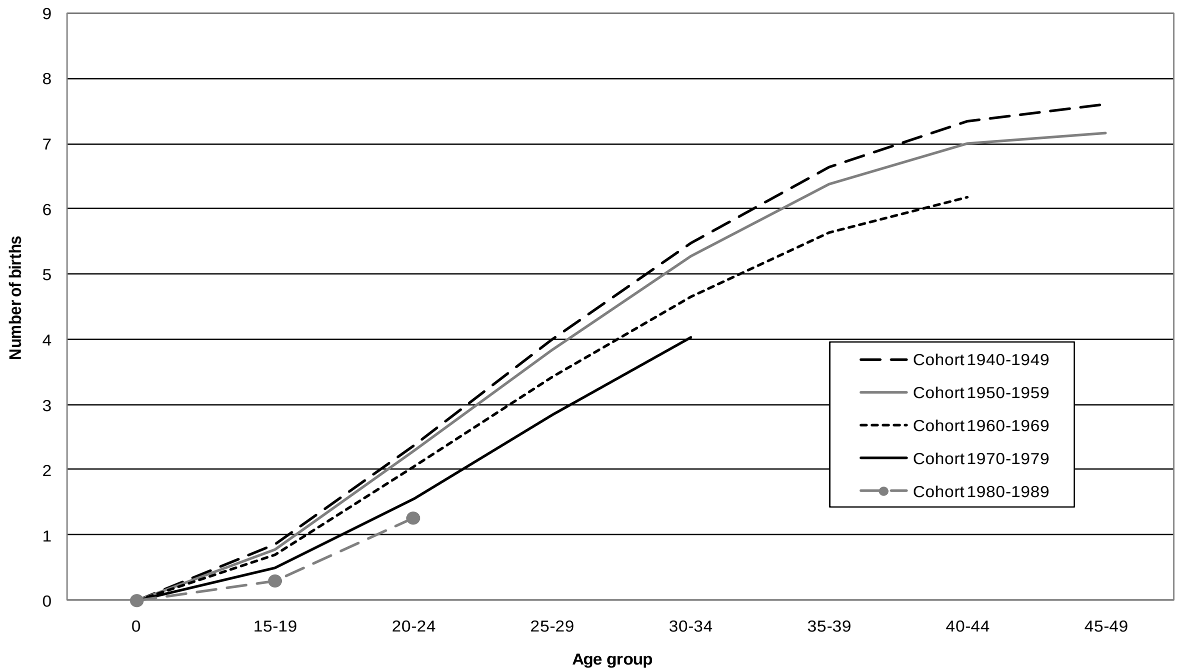

Figure B.24.2: Senegal: Age-specific fertility rates, by mother's birth cohort

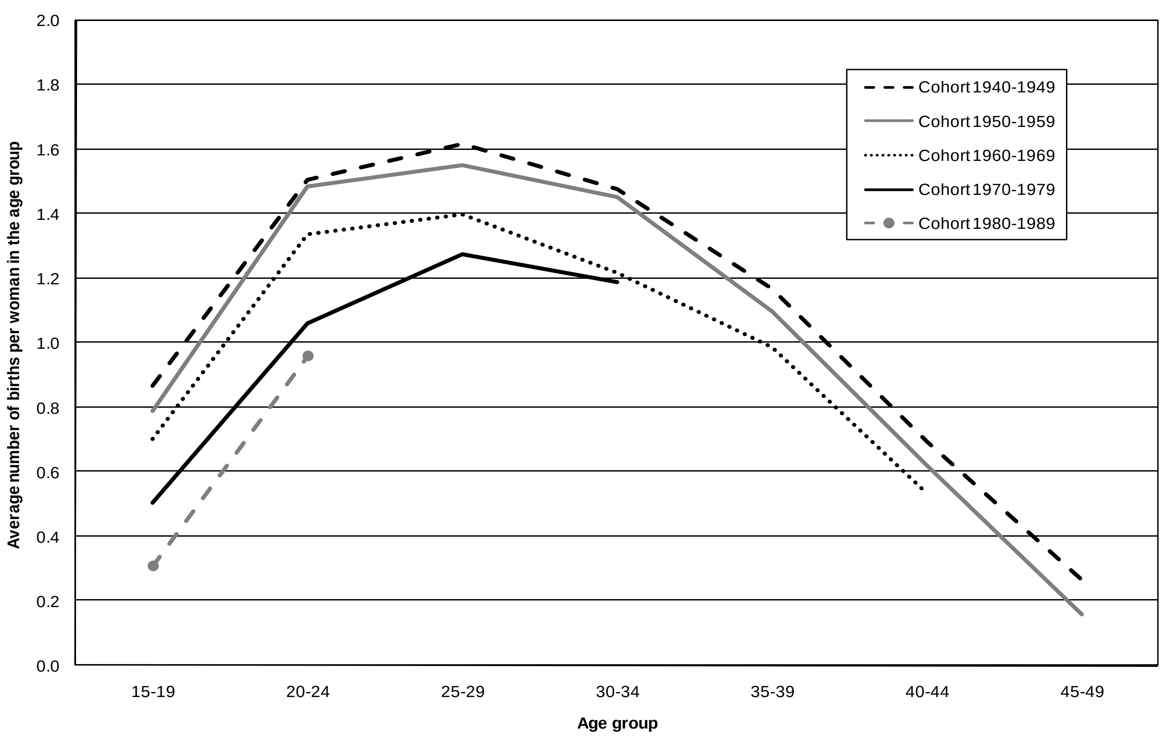

Table B.24.1: Senegal: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.87	0.79	0.71	0.50
	Std. dev.	(0.94)	(0.89)	(0.88)	(0.79)
	N	1,095	5,185	9,605	11,169
20-24	Mean	1.51	1.49	1.34	1.06
	Std. dev.	(0.97)	(0.96)	(1.06)	(1.14)
	N	1,095	5,185	8,230	7,937
25-29	Mean	1.62	1.55	1.40	1.28
	Std. dev.	(0.96)	(0.97)	(1.08)	(1.54)
	N	1,095	5,185	6,764	3,968
30-34	Mean	1.48	1.46	1.22	1.19
	Std. dev.	(0.97)	(1.10)	(1.17)	(1.50)
	N	1,095	4,246	4,769	1,128
35-39	Mean	1.17	1.10	0.99	
	Std. dev.	(1.01)	(1.04)	(1.43)	
	N	1,095	3,361	2,447	
40-44	Mean	0.70	0.62	0.54	
	Std. dev.	(0.97)	(1.08)	(1.16)	
	N	745	2,048	618	
45-49	Mean	0.27	0.16		
	Std. dev.	(0.79)	(0.73)		
	N	433	790		

Table B.24.2: Senegal: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	-0.08	-0.09	-0.20	**-0.12**
	Ratio of means	0.91	0.89	0.71	**0.84**
	T-statistic for difference between means	(2.43)	(5.62)	(17.24)	
20-24	Difference in means	-0.02	-0.15	-0.28	**-0.15**
	Ratio of means	0.99	0.90	0.79	**0.89**
	T-statistic for difference between means	(0.56)	(8.40)	(16.03)	
25-29	Difference in means	-0.07	-0.15	-0.12	**-0.11**
	Ratio of means	0.96	0.90	0.91	**0.92**
	T-statistic for difference between means	(2.03)	(8.15)	(4.46)	
30-34	Difference in means	-0.02	-0.24	-0.03	**-0.10**
	Ratio of means	0.98	0.84	0.98	**0.93**
	T-statistic for difference between means	(0.69)	(9.88)	(0.63)	
35-39	Difference in means	-0.07	-0.11		**-0.09**
	Ratio of means	0.94	0.90		**0.92**
	T-statistic for difference between means	(1.88)	(3.34)		
40-44	Difference in means	-0.08	-0.09		**-0.08**
	Ratio of means	0.89	0.86		**0.88**
	T-statistic for difference between means	(1.77)	(1.63)		
45-49	Difference in means	-0.11			**-0.11**
	Ratio of means	0.59			**0.59**
	T-statistic for difference between means	(2.36)			
	Average of means	**-0.06**	**-0.14**	**-0.16**	
	Average ratio	**0.90**	**0.88**	**0.85**	

B.25 South Africa

Figure B.25.1: South Africa: Cumulative number of births, by mother's age and birth cohort

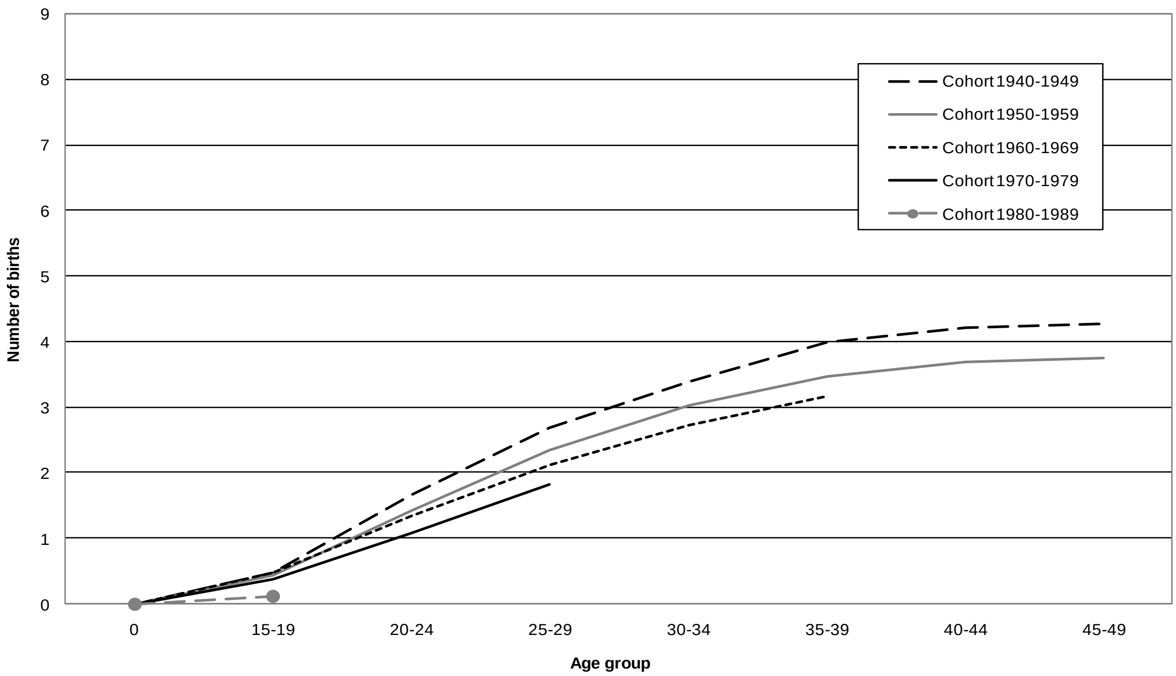

Figure B.25.2: South Africa: Age-specific fertility rates, by mother's birth cohort

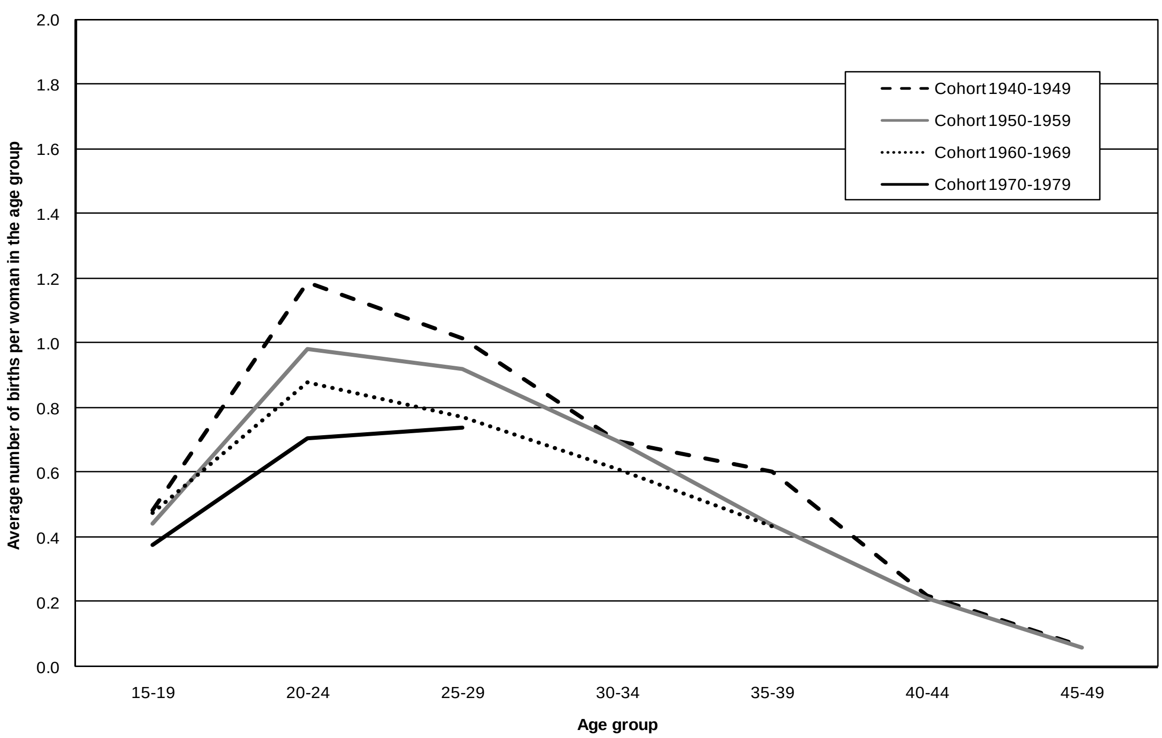

Table B.25.1: South Africa: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.48	0.44	0.48	0.38
	Std. dev.	(0.74)	(0.67)	(0.67)	(0.57)
	N	253	2,512	3,326	3,984
20-24	Mean	1.19	0.98	0.88	0.71
	Std. dev.	(1.08)	(0.89)	(0.81)	(1.04)
	N	253	2,512	3,326	3,139
25-29	Mean	1.02	0.92	0.78	0.74
	Std. dev.	(0.97)	(0.85)	(0.76)	(1.41)
	N	253	2,512	3,326	1,088
30-34	Mean	0.70	0.70	0.61	
	Std. dev.	(0.81)	(0.81)	(0.95)	
	N	253	2,512	2,603	
35-39	Mean	0.61	0.44	0.43	
	Std. dev.	(0.80)	(0.69)	(1.14)	
	N	253	2,512	977	
40-44	Mean	0.22	0.22		
	Std. dev.	(0.53)	(0.70)		
	N	253	1,880		
45-49	Mean	0.06	0.06		
	Std. dev.	(0.28)	(0.40)		
	N	253	660		

Table B.25.2: South Africa: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	-0.04	0.03	-0.10	**-0.04**
	Ratio of means	0.92	1.07	0.79	**0.93**
	T-statistic for difference between means	(0.83)	(1.88)	(6.84)	
20-24	Difference in means	-0.21	-0.10	-0.18	**-0.16**
	Ratio of means	0.83	0.90	0.80	**0.84**
	T-statistic for difference between means	(2.97)	(4.48)	(7.50)	
25-29	Difference in means	-0.10	-0.14	-0.04	**-0.09**
	Ratio of means	0.90	0.84	0.95	**0.90**
	T-statistic for difference between means	(1.53)	(6.71)	(0.79)	
30-34	Difference in means	0.00	-0.09		**-0.04**
	Ratio of means	1.00	0.88		**0.94**
	T-statistic for difference between means	(0.00)	(3.51)		
35-39	Difference in means	-0.17	-0.01		**-0.09**
	Ratio of means	0.73	0.99		**0.86**
	T-statistic for difference between means	(3.17)	(0.15)		
40-44	Difference in means	0.00			**0.00**
	Ratio of means	0.98			**0.98**
	T-statistic for difference between means	(0.12)			
45-49	Difference in means	0.00			**0.00**
	Ratio of means	0.95			**0.95**
	T-statistic for difference between means	(0.14)			
	Average of means	**-0.07**	**-0.06**	**-0.10**	
	Average ratio	**0.90**	**0.94**	**0.85**	

B.26 Tanzania

Figure B.26.1: Tanzania: Cumulative number of births, by mother's age and birth cohort

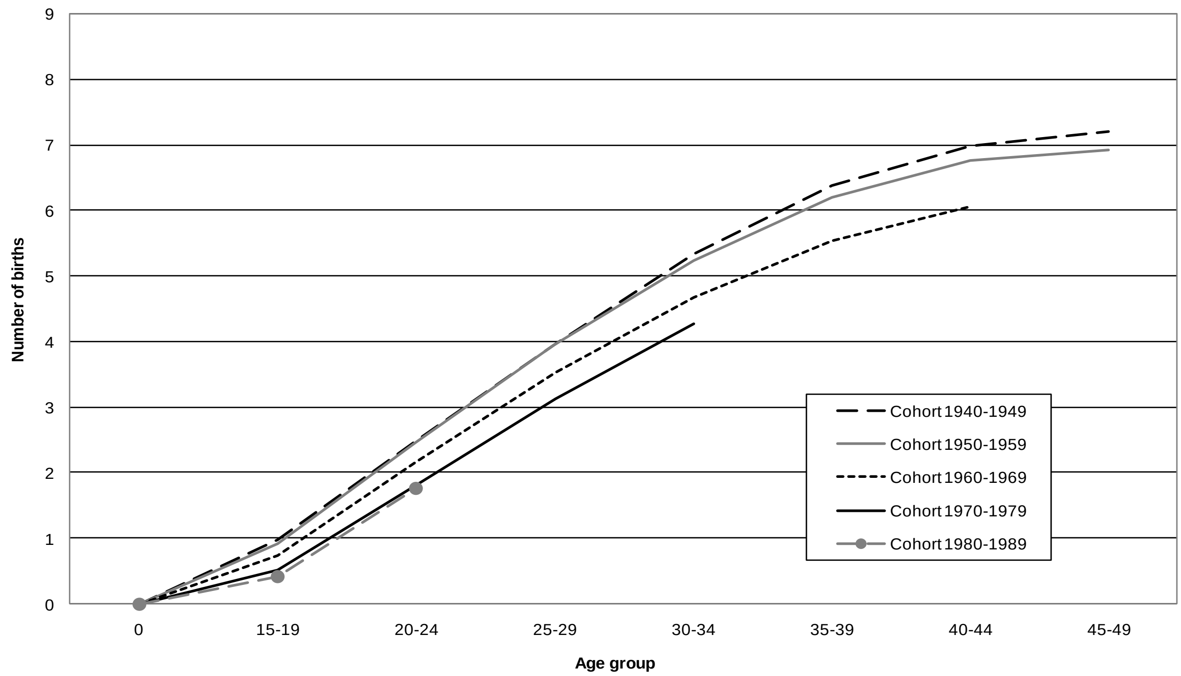

Figure B.26.2: Tanzania: Age-specific fertility rates, by mother's birth cohort

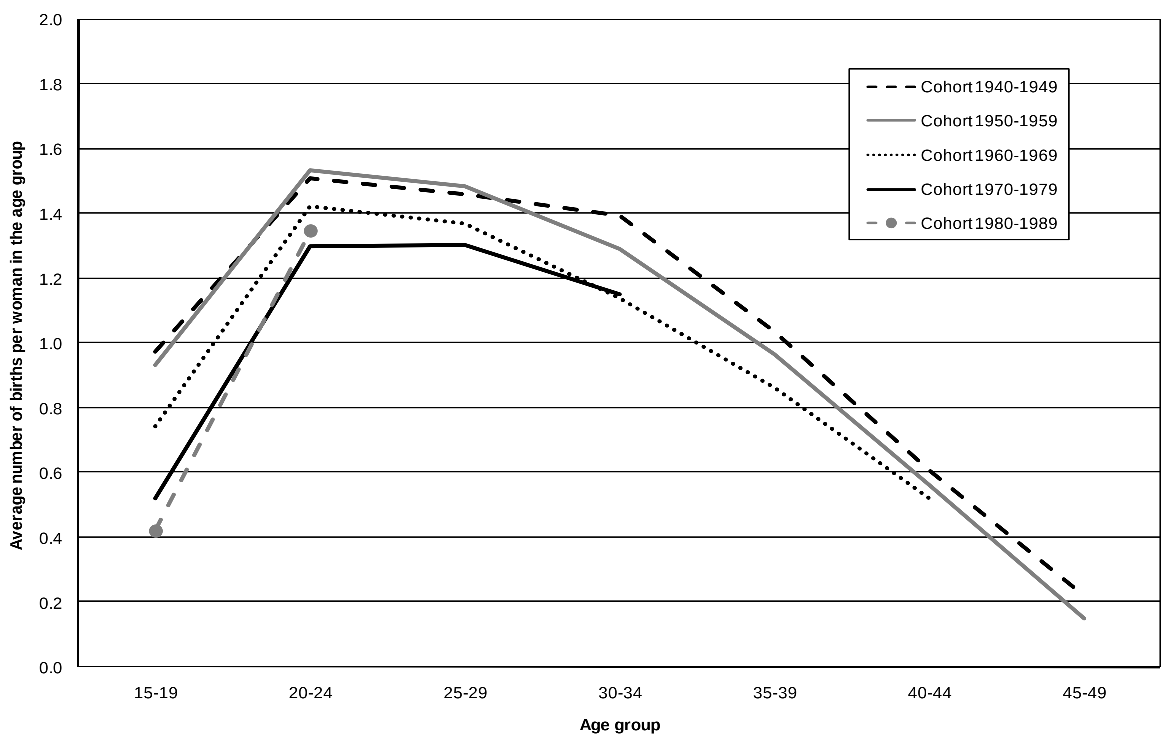

Table B.26.1: Tanzania: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.97	0.93	0.74	0.52
	Std. dev.	(0.97)	(0.92)	(0.82)	(0.74)
	N	1,389	4,052	7,584	9,501
20-24	Mean	1.51	1.54	1.42	1.30
	Std. dev.	(1.02)	(0.94)	(0.94)	(1.19)
	N	1,389	4,052	7,584	5,714
25-29	Mean	1.46	1.49	1.37	1.30
	Std. dev.	(0.97)	(0.95)	(1.12)	(1.39)
	N	1,389	4,052	6,325	3,043
30-34	Mean	1.40	1.30	1.14	1.15
	Std. dev.	(1.02)	(0.98)	(1.22)	(1.47)
	N	1,389	4,052	3,461	1,088
35-39	Mean	1.04	0.97	0.86	
	Std. dev.	(0.97)	(1.12)	(1.29)	
	N	1,389	3,374	1,738	
40-44	Mean	0.61	0.56	0.52	
	Std. dev.	(0.86)	(1.06)	(1.08)	
	N	1,389	1,706	591	
45-49	Mean	0.22	0.15		
	Std. dev.	(0.76)	(0.69)		
	N	921	628		

Table B.26.2: Tanzania: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	1950-1959 to 1960-1969	1960-1969 to 1970-1979	Average
15-19	Difference in means	-0.04	-0.19	-0.22	**-0.15**
	Ratio of means	0.96	0.80	0.70	**0.82**
	T-statistic for difference between means	(1.38)	(10.99)	(18.32)	
20-24	Difference in means	0.03	-0.11	-0.12	**-0.07**
	Ratio of means	1.02	0.93	0.91	**0.95**
	T-statistic for difference between means	(0.83)	(6.24)	(6.53)	
25-29	Difference in means	0.03	-0.12	-0.07	**-0.05**
	Ratio of means	1.02	0.92	0.95	**0.96**
	T-statistic for difference between means	(0.91)	(5.81)	(2.30)	
30-34	Difference in means	-0.10	-0.15	0.01	**-0.08**
	Ratio of means	0.93	0.88	1.01	**0.94**
	T-statistic for difference between means	(3.23)	(5.95)	(0.20)	
35-39	Difference in means	-0.07	-0.11		**-0.09**
	Ratio of means	0.93	0.89		**0.91**
	T-statistic for difference between means	(2.12)	(2.93)		
40-44	Difference in means	-0.04	-0.04		**-0.04**
	Ratio of means	0.93	0.93		**0.93**
	T-statistic for difference between means	(1.27)	(0.80)		
45-49	Difference in means	-0.07			**-0.07**
	Ratio of means	0.69			**0.69**
	T-statistic for difference between means	(1.86)			
	Average of means	**-0.04**	**-0.12**	**-0.10**	
	Average ratio	**0.92**	**0.89**	**0.89**	

B.27 Togo

Figure B.27.1: Togo: Cumulative number of births, by mother's age and birth cohort

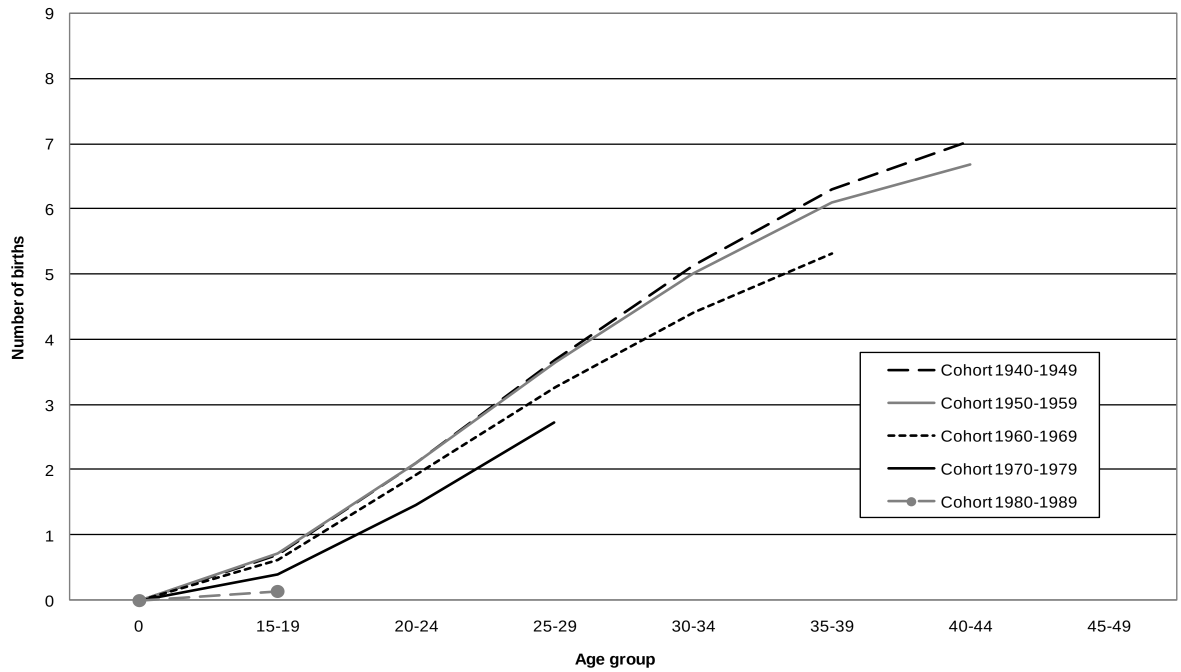

Figure B.27.2: Togo: Age-specific fertility rates, by mother's birth cohort

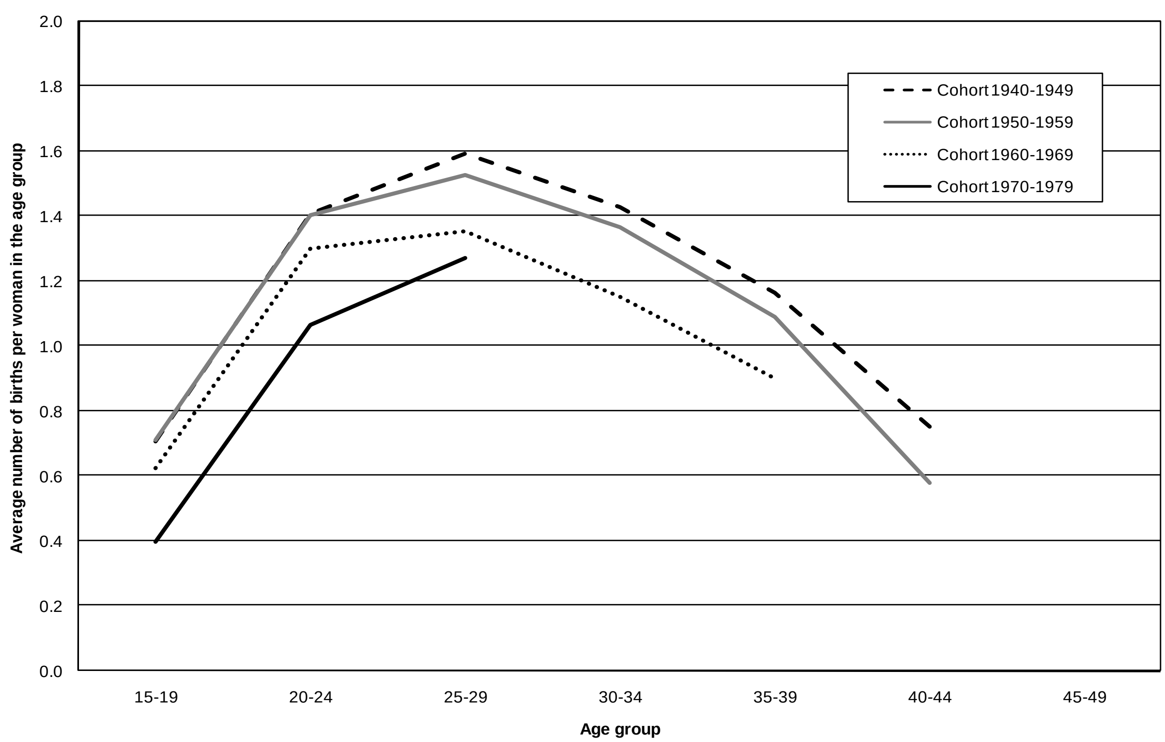

Table B.27.1: Togo: Age-specific fertility rates by mother's age group and birth cohort

Age group		Mother's Birth Cohort 1940-1949	1950-1959	1960-1969	1970-1979
15-19	Mean	0.71	0.71	0.62	0.40
	Std. dev.	(0.86)	(0.84)	(0.76)	(0.69)
	N	637	2,316	3,885	3,643
20-24	Mean	1.41	1.40	1.30	1.06
	Std. dev.	(0.94)	(0.91)	(1.06)	(1.25)
	N	637	2,316	3,402	2,137
25-29	Mean	1.59	1.53	1.35	1.27
	Std. dev.	(0.89)	(0.92)	(1.17)	(1.65)
	N	637	2,316	2,330	639
30-34	Mean	1.43	1.37	1.15	
	Std. dev.	(0.89)	(1.17)	(1.31)	
	N	637	1,990	1,303	
35-39	Mean	1.16	1.09	0.90	
	Std. dev.	(0.92)	(1.21)	(1.67)	
	N	637	1,225	473	
40-44	Mean	0.75	0.58		
	Std. dev.	(1.10)	(1.08)		
	N	487	692		
45-49	Mean				
	Std. dev.				
	N				

Table B.27.2: Togo: Differences in age-specific fertility rates between mothers' birth cohorts

Age group		Mothers' Birth Cohort 1940-1949 to 1950-1959	 1950-1959 to 1960-1969	 1960-1969 to 1970-1979	Average
15-19	Difference in means	0.01	-0.09	-0.23	**-0.10**
	Ratio of means	1.01	0.87	0.63	**0.84**
	T-statistic for difference between means	(0.19)	(4.24)	(13.66)	
20-24	Difference in means	0.00	-0.10	-0.24	**-0.11**
	Ratio of means	1.00	0.93	0.82	**0.91**
	T-statistic for difference between means	(0.09)	(3.90)	(7.26)	
25-29	Difference in means	-0.06	-0.18	-0.08	**-0.11**
	Ratio of means	0.96	0.89	0.94	**0.93**
	T-statistic for difference between means	(1.62)	(5.70)	(1.14)	
30-34	Difference in means	-0.06	-0.22		**-0.14**
	Ratio of means	0.96	0.84		**0.90**
	T-statistic for difference between means	(1.40)	(4.86)		
35-39	Difference in means	-0.07	-0.19		**-0.13**
	Ratio of means	0.94	0.83		**0.88**
	T-statistic for difference between means	(1.44)	(2.27)		
40-44	Difference in means	-0.17			**-0.17**
	Ratio of means	0.77			**0.77**
	T-statistic for difference between means	(2.64)			
45-49	Difference in means				
	Ratio of means				
	T-statistic for difference between means				
	Average of means	**-0.06**	**-0.16**	**-0.18**	
	Average ratio	**0.94**	**0.87**	**0.80**	

B.28 Uganda

Figure B.28.1: Uganda: Cumulative number of births, by mother's age and birth cohort

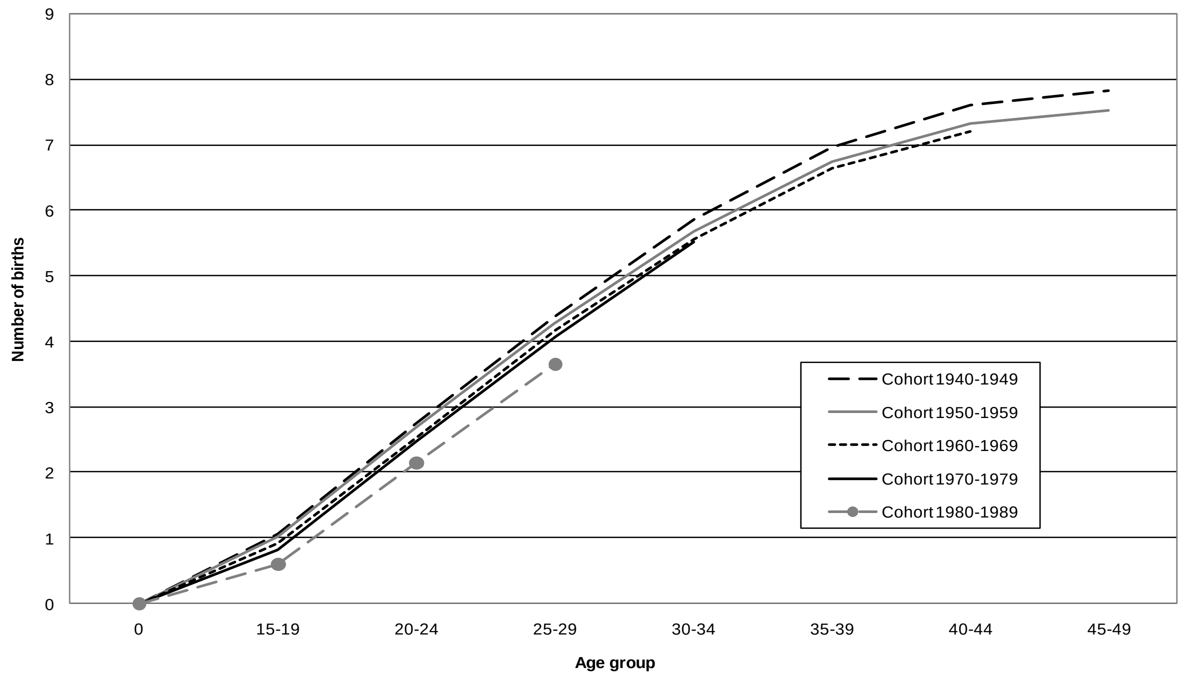

Figure B.28.2: Uganda: Age-specific fertility rates, by mother's birth cohort

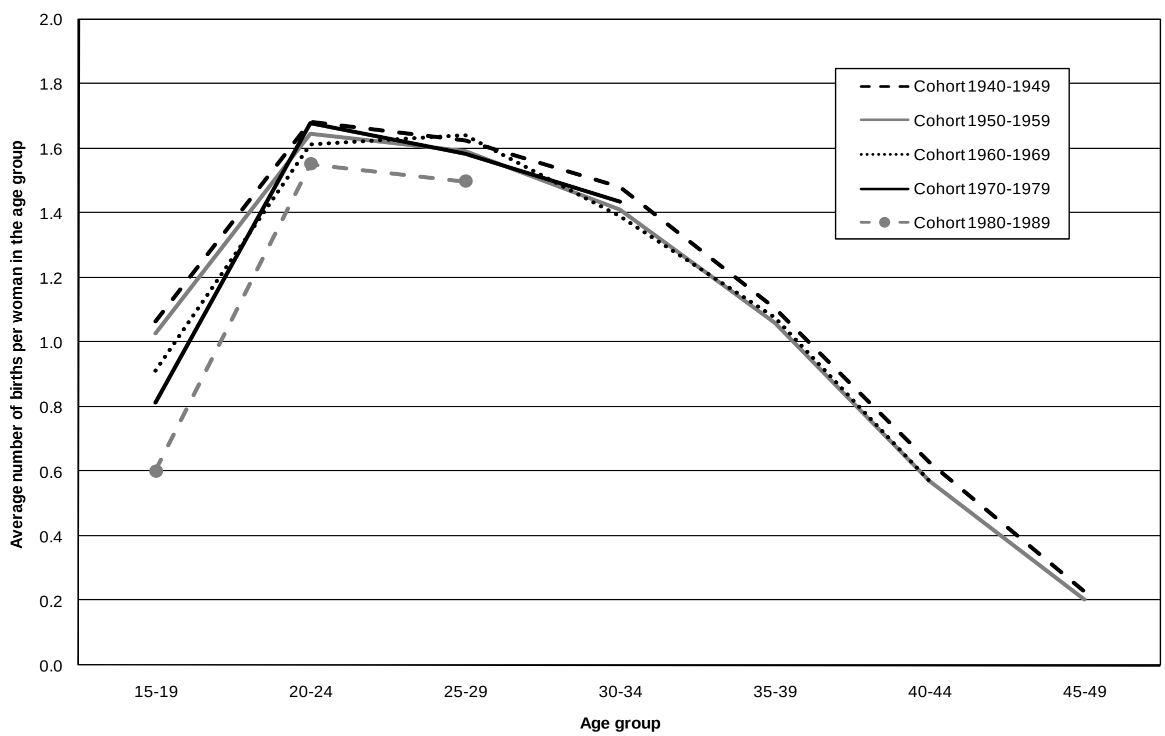

Table B.28.1: Uganda: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	1.07	1.03	0.92	0.81
	Std. dev.	(1.02)	(0.98)	(0.91)	(0.96)
	N	888	3,369	7,285	9,279
20-24	Mean	1.69	1.65	1.61	1.68
	Std. dev.	(1.08)	(1.02)	(1.10)	(1.20)
	N	888	3,369	6,694	6,437
25-29	Mean	1.63	1.60	1.64	1.59
	Std. dev.	(1.06)	(1.03)	(1.28)	(1.24)
	N	888	3,369	5,398	3,570
30-34	Mean	1.48	1.41	1.39	1.44
	Std. dev.	(1.04)	(1.14)	(1.24)	(1.58)
	N	888	2,962	3,512	1,285
35-39	Mean	1.11	1.06	1.08	
	Std. dev.	(1.01)	(1.18)	(1.27)	
	N	888	2,270	1,968	
40-44	Mean	0.63	0.57	0.57	
	Std. dev.	(1.02)	(1.08)	(1.17)	
	N	736	1,289	686	
45-49	Mean	0.23	0.20		
	Std. dev.	(0.82)	(0.71)		
	N	414	539		

Table B.28.2: Uganda: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	-0.04	-0.12	-0.10	**-0.08**
	Ratio of means	0.97	0.89	0.89	**0.91**
	T-statistic for difference between means	(0.94)	(5.74)	(7.03)	
20-24	Difference in means	-0.04	-0.03	0.07	**0.00**
	Ratio of means	0.98	0.98	1.04	**1.00**
	T-statistic for difference between means	(0.90)	(1.56)	(3.37)	
25-29	Difference in means	-0.03	0.05	-0.06	**-0.01**
	Ratio of means	0.98	1.03	0.97	**0.99**
	T-statistic for difference between means	(0.85)	(1.96)	(2.04)	
30-34	Difference in means	-0.07	-0.02	0.04	**-0.02**
	Ratio of means	0.95	0.99	1.03	**0.99**
	T-statistic for difference between means	(1.70)	(0.67)	(0.89)	
35-39	Difference in means	-0.05	0.02		**-0.01**
	Ratio of means	0.96	1.02		**0.99**
	T-statistic for difference between means	(1.07)	(0.46)		
40-44	Difference in means	-0.06	0.00		**-0.03**
	Ratio of means	0.91	1.00		**0.95**
	T-statistic for difference between means	(1.24)	(0.04)		
45-49	Difference in means	-0.02			**-0.02**
	Ratio of means	0.89			**0.89**
	T-statistic for difference between means	(0.49)			
	Average of means	**-0.04**	**-0.02**	**-0.01**	
	Average ratio	**0.95**	**0.98**	**0.98**	

B.29 Zambia

Figure B.29.1: Zambia: Cumulative number of births, by mother's age and birth cohort

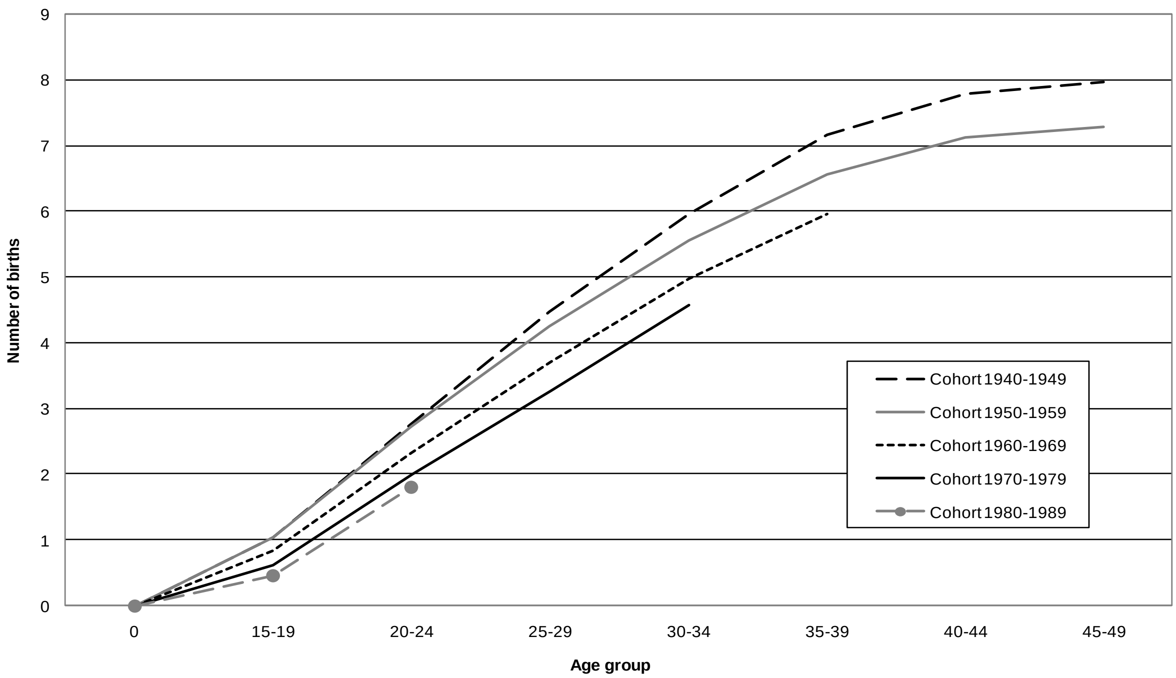

Figure B.29.2: Zambia: Age-specific fertility rates, by mother's birth cohort

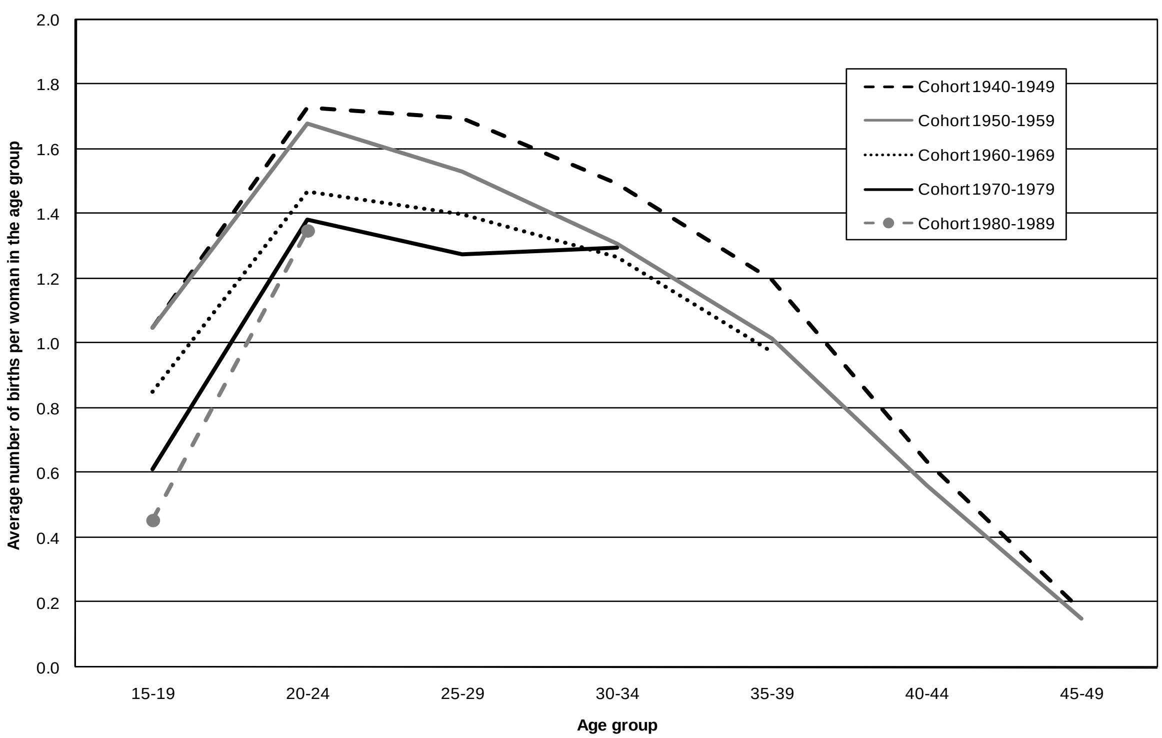

Table B.29.1: Zambia: Age-specific fertility rates by mother's age group and birth cohort

Age group		Mother's Birth Cohort 1940-1949	1950-1959	1960-1969	1970-1979
15-19	Mean	1.05	1.05	0.85	0.61
	Std. dev.	(0.97)	(0.92)	(0.83)	(0.77)
	N	1,035	3,416	6,094	8,826
20-24	Mean	1.73	1.68	1.47	1.38
	Std. dev.	(0.97)	(0.94)	(0.96)	(1.24)
	N	1,035	3,416	6,094	5,167
25-29	Mean	1.70	1.53	1.40	1.28
	Std. dev.	(0.96)	(0.94)	(1.11)	(1.49)
	N	1,035	3,416	5,216	1,977
30-34	Mean	1.50	1.31	1.27	1.30
	Std. dev.	(0.96)	(0.97)	(1.33)	(1.94)
	N	1,035	3,416	3,032	337
35-39	Mean	1.20	1.02	0.97	
	Std. dev.	(0.99)	(1.13)	(1.40)	
	N	1,035	2,841	1,118	
40-44	Mean	0.64	0.56		
	Std. dev.	(0.86)	(1.03)		
	N	1,035	1,564		
45-49	Mean	0.18	0.15		
	Std. dev.	(0.61)	(0.66)		
	N	678	515		

Table B.29.2: Zambia: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	0.00	-0.20	-0.24	**-0.15**
	Ratio of means	1.00	0.81	0.72	**0.84**
	T-statistic for difference between means	(0.04)	(10.35)	(17.98)	
20-24	Difference in means	-0.05	-0.21	-0.08	**-0.11**
	Ratio of means	0.97	0.87	0.94	**0.93**
	T-statistic for difference between means	(1.43)	(10.45)	(3.97)	
25-29	Difference in means	-0.17	-0.13	-0.12	**-0.14**
	Ratio of means	0.90	0.92	0.91	**0.91**
	T-statistic for difference between means	(4.92)	(5.84)	(3.32)	
30-34	Difference in means	-0.19	-0.04	0.03	**-0.07**
	Ratio of means	0.88	0.97	1.02	**0.96**
	T-statistic for difference between means	(5.41)	(1.42)	(0.29)	
35-39	Difference in means	-0.18	-0.04		**-0.11**
	Ratio of means	0.85	0.96		**0.90**
	T-statistic for difference between means	(4.80)	(0.90)		
40-44	Difference in means	-0.07			**-0.07**
	Ratio of means	0.89			**0.89**
	T-statistic for difference between means	(1.94)			
45-49	Difference in means	-0.03			**-0.03**
	Ratio of means	0.86			**0.86**
	T-statistic for difference between means	(0.67)			
	Average of means	**-0.10**	**-0.12**	**-0.10**	
	Average ratio	**0.91**	**0.91**	**0.90**	

B.30 Zimbabwe

Figure B.30.1: Zimbabwe: Cumulative number of births, by mother's age and birth cohort

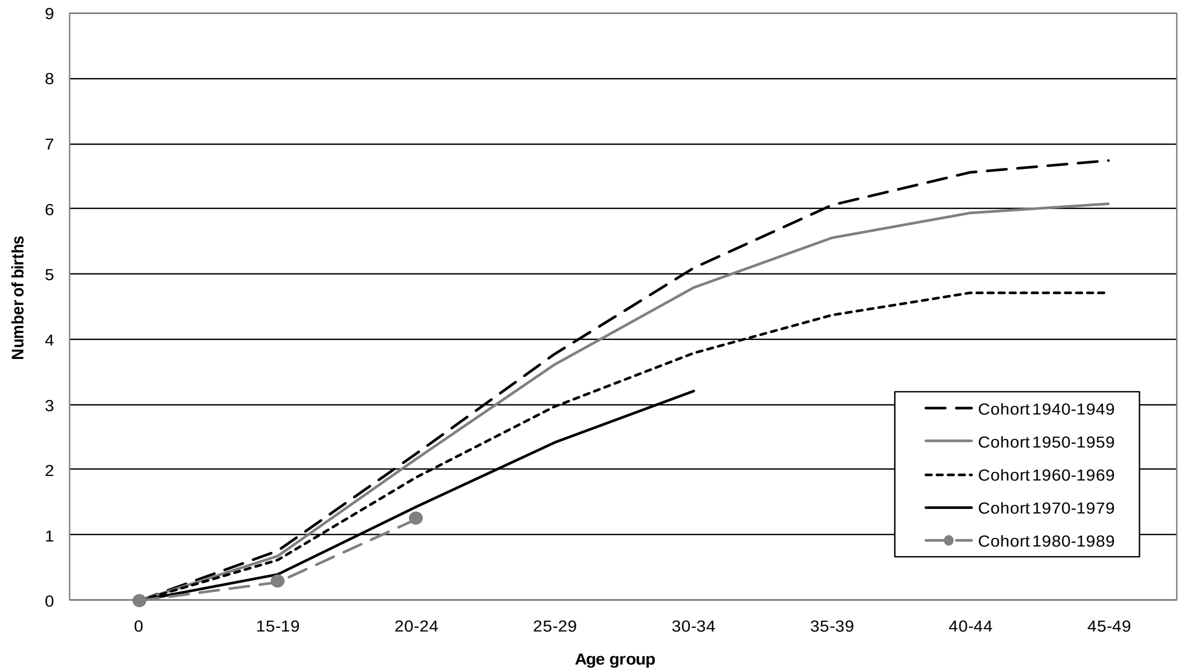

Figure B.30.2: Zimbabwe: Age-specific fertility rates, by mother's birth cohort

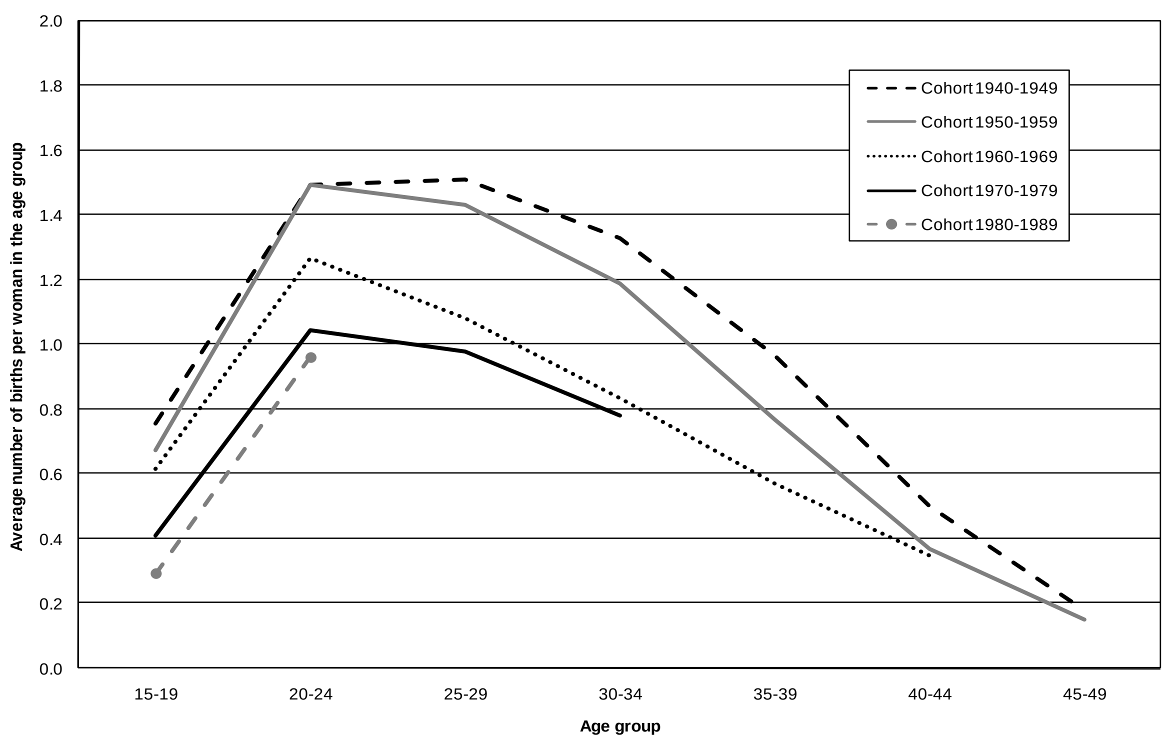

Table B.30.1: Zimbabwe: Age-specific fertility rates by mother's age group and birth cohort

		Mother's Birth Cohort			
Age group		**1940-1949**	**1950-1959**	**1960-1969**	**1970-1979**
15-19	Mean	0.75	0.67	0.62	0.41
	Std. dev.	(0.91)	(0.81)	(0.76)	(0.66)
	N	1,050	3,584	6,241	7,907
20-24	Mean	1.50	1.49	1.27	1.04
	Std. dev.	(1.00)	(0.94)	(0.98)	(1.07)
	N	1,050	3,584	5,715	5,104
25-29	Mean	1.51	1.43	1.09	0.98
	Std. dev.	(0.99)	(0.92)	(1.02)	(1.20)
	N	1,050	3,584	4,387	2,724
30-34	Mean	1.33	1.19	0.84	0.78
	Std. dev.	(0.97)	(1.02)	(1.05)	(1.24)
	N	1,050	3,211	2,762	856
35-39	Mean	0.97	0.77	0.57	
	Std. dev.	(0.96)	(1.04)	(1.02)	
	N	1,050	2,353	1,485	
40-44	Mean	0.50	0.37	0.35	
	Std. dev.	(0.93)	(0.84)	(0.98)	
	N	841	1,324	481	
45-49	Mean	0.18	0.15		
	Std. dev.	(0.77)	(0.71)		
	N	449	542		

Table B.30.2: Zimbabwe: Differences in age-specific fertility rates between mothers' birth cohorts

		Mothers' Birth Cohort			
Age group		**1940-1949 to 1950-1959**	**1950-1959 to 1960-1969**	**1960-1969 to 1970-1979**	**Average**
15-19	Difference in means	-0.08	-0.06	-0.21	**-0.12**
	Ratio of means	0.89	0.92	0.66	**0.82**
	T-statistic for difference between means	(2.63)	(3.43)	(17.01)	
20-24	Difference in means	0.00	-0.22	-0.23	**-0.15**
	Ratio of means	1.00	0.85	0.82	**0.89**
	T-statistic for difference between means	(0.07)	(11.04)	(11.37)	
25-29	Difference in means	-0.08	-0.35	-0.11	**-0.18**
	Ratio of means	0.95	0.76	0.90	**0.87**
	T-statistic for difference between means	(2.26)	(16.10)	(3.95)	
30-34	Difference in means	-0.14	-0.35	-0.06	**-0.18**
	Ratio of means	0.89	0.70	0.93	**0.84**
	T-statistic for difference between means	(4.04)	(13.04)	(1.25)	
35-39	Difference in means	-0.20	-0.20		**-0.20**
	Ratio of means	0.80	0.74		**0.77**
	T-statistic for difference between means	(5.39)	(5.79)		
40-44	Difference in means	-0.14	-0.02		**-0.08**
	Ratio of means	0.73	0.95		**0.84**
	T-statistic for difference between means	(3.43)	(0.35)		
45-49	Difference in means	-0.03			**-0.03**
	Ratio of means	0.84			**0.84**
	T-statistic for difference between means	(0.62)			
	Average of means	**-0.09**	**-0.20**	**-0.15**	
	Average ratio	**0.87**	**0.82**	**0.83**	

Appendix C: Cohort/Age Group Statistics Suppressed Due to Small Sample Size

Table C.1: Values suppressed due to sample sizes under 250

Country	Age Group	Mother's Birth Cohort	Sample Size
Benin	45-49	1960-1969	134
Benin	35-39	1970-1979	227
Burundi	45-49	1940-1949	114
Burundi	35-39	1950-1959	180
Chad	15-19	1940-1949	201
Chad	20-24	1940-1949	201
Chad	25-29	1940-1949	201
Chad	30-34	1940-1949	201
Chad	35-39	1940-1949	201
Chad	40-44	1940-1949	201
Chad	45-49	1940-1949	201
Comoros	15-19	1940-1949	115
Comoros	20-24	1940-1949	115
Comoros	25-29	1940-1949	115
Comoros	30-34	1940-1949	115
Comoros	35-39	1940-1949	115
Comoros	40-44	1940-1949	115
Comoros	45-49	1940-1949	115
Comoros	45-49	1950-1959	58
Comoros	35-39	1960-1969	94
Comoros	25-29	1970-1979	117
Comoros	15-19	1980-1989	199
Gabon	40-44	1960-1969	4
Gabon	30-34	1970-1979	5
Gabon	20-24	1980-1989	12
Guinea	15-19	1940-1949	5
Guinea	20-24	1940-1949	5
Guinea	25-29	1940-1949	5
Guinea	30-34	1940-1949	5
Guinea	35-39	1940-1949	5
Guinea	40-44	1940-1949	5
Guinea	45-49	1940-1949	5

(Cont'd)

Table C.1 – cont'd

Country	Age Group	Mother's Birth Cohort	Sample Size
Liberia	45-49	1940-1949	87
Liberia	35-39	1950-1959	194
Liberia	25-29	1960-1969	229
Liberia	15-19	1970-1979	235
Niger	45-49	1960-1969	163
Niger	35-39	1970-1979	232
Togo	45-49	1940-1949	220
Togo	45-49	1950-1959	241
Uganda	45-49	1960-1969	120
Uganda	35-39	1970-1979	164
Zambia	40-44	1960-1969	198
Zimbabwe	45-49	1960-1969	17
Zimbabwe	35-39	1970-1979	34
Zimbabwe	25-29	1980-1989	45

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