Fertility Decline in Nicaragua, 1980–2006

A Case Study

May 2010
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Acknowledgments

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⇒ This report is available on the following website: http://www.worldbank.org/hnppublications.
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AFTHE</td>
<td>Health, Nutrition, and Population unit of the Africa region</td>
</tr>
<tr>
<td>MINSA</td>
<td>Nicaraguan Ministry of Health</td>
</tr>
<tr>
<td>NGO</td>
<td>Nongovernmental Organization</td>
</tr>
<tr>
<td>AFTQK</td>
<td>Africa Operational Quality and Knowledge Services</td>
</tr>
<tr>
<td>PAHO</td>
<td>Pan American Health Organization</td>
</tr>
<tr>
<td>ENDESA</td>
<td>Nicaraguan Demographic Health Survey</td>
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<tr>
<td>PASMO</td>
<td>Pan American Social Marketing Organization</td>
</tr>
<tr>
<td>FSLN</td>
<td>Sandinista National Liberation Front</td>
</tr>
<tr>
<td>RAAN</td>
<td>North Atlantic Autonomous Region</td>
</tr>
<tr>
<td>HDNHE</td>
<td>Human Development Network, Health, Nutrition, and Population unit</td>
</tr>
<tr>
<td>RAAS</td>
<td>South Atlantic Autonomous Region</td>
</tr>
<tr>
<td>IEGWB</td>
<td>Independent Evaluation Group, World Bank</td>
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<tr>
<td>UNFPA</td>
<td>United Nations Fund for Population</td>
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<tr>
<td>IPPF</td>
<td>International Planned Parenthood Federation</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
</tr>
<tr>
<td>WBIHS</td>
<td>World Bank Institute Health Systems</td>
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<td>WHO</td>
<td>World Health Organization</td>
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</table>
Executive Summary

Nicaragua, a largely urban country (56 percent of the population lives in urban areas), is one of the least populous (5.53 million) and poorest countries in Central America. Following reforms in the 1980s, Nicaragua made remarkable progress in gender equity in education and the labor force, while the wide availability of primary health care initiated in the 1970’s, including family planning services, led to improvements in infant and child mortality rates.

The total fertility rate fell dramatically between 1980 and 2007, dropping 22 percent during the 1980s, 31 percent in the 1990s, and 17 percent during 2000–07, for a total decline of 55 percent. The total fertility rate is lower for urban women than for rural women, though the reduction has been greater since 1998 in rural areas (30 percent) than in urban areas (24 percent). Fertility rates have dropped for all age groups, but especially for young women ages 20–24. Nicaragua’s contraceptive prevalence rate rose dramatically as well, from 27 percent in 1981 to 72 percent in 2007 among women ages 15–49 (married or consensual union).

Nicaragua’s exceptionally large fertility decline between 1980 and 2007 appears to have been due mainly to the Sandinista government’s sweeping changes to policies and public programs during the early years of the period. The government promoted increased education, equal rights for women, participation of women in the workforce, public education, and access to primary health care, supported by funding and constitutional reform.

Two other potential contributing factors were the steep reduction in infant mortality, which began in the 1970s, and the increasing availability of family planning services—including an efficient distribution system for free contraceptives. Donors, international and national nongovernmental organizations (NGO), and the private sector were critical in providing the family planning services and contraceptive supplies to meet the increased demand for contraception that ultimately led to Nicaragua’s dramatic fertility decline.

In Nicaragua, contraceptives are available from multiple sources. The Ministry of Health (MINSA), which distributes family planning supplies through departmental and regional health offices and facilities, is the main source of free modern family planning methods. The private sector and NGOs supply condoms procured internationally and repackaged for sale at low cost locally. They operate their own clinics and network of agents for distributing contraceptives.

Several lessons emerge from Nicaragua’s success at reducing fertility. The government was committed to gender equity and female empowerment through educating girls and women and recruiting women into the labor force. Family planning services were provided within a well functioning primary health care system, including an extensive, efficient contraceptive distribution network that works...
with international donors, and international and national NGOs to offer women a good mix of options. Demand must be created through a timely public education campaign. Success requires civic engagement with stakeholders, which may initially mean avoiding unnecessary confrontation and publicity of services for addressing the concerns of more conservative stakeholders.
Rationale for Country Selection

Nicaragua was chosen as one of the five fertility case studies (the other four countries are Algeria, Botswana, Iran, and Pakistan) because it has had one of the most significant total fertility rate declines globally and regionally over the last 30 years based on the following criteria (table 1).

Overview of Findings
The most significant factors in Nicaragua’s fertility decline between 1980 and 2007 appear to have been the Sandinista government’s vision along with the sweeping changes to policies and public programs in their early years in power that promoted increased education, equal rights for women, participation of women in the work force, and public education and access to primary health care, including funding and constitutional reform for their programs. The steep reduction in infant mortality rate that started in the 1970s may also have contributed.

The organization of family planning services, including the efficient distribution system for free contraceptives, appear to have been significant factors in increasing women’s contraceptive usage, and ultimately in the decline in Nicaragua’s total fertility rate. Coordination with donors, international and national NGOs, and the private sector were critical in providing family planning services and contraceptive supplies to meet increased demand that ultimately led to Nicaragua’s dramatic fertility decline.

Nicaragua at a Glance
Nicaragua, colonized by the Spanish in 1522, won its independence in 1838. The Nicaraguan people have suffered a series of devastating disasters in their recent history, including natural disasters and years of political conflict. In 1937 General Somoza initiated a 44-year family dictatorship that ended in 1979 with a revolution led by the

Table 1 | Country Selection Criteria and Data

<table>
<thead>
<tr>
<th>Selection criterion</th>
<th>Data for Nicaragua</th>
</tr>
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<tbody>
<tr>
<td>Total fertility rate greater than 6.0 in 1980</td>
<td>Total fertility rate of 6.05 in 1980</td>
</tr>
<tr>
<td>Substantial fertility reduction between 1980 and 2006</td>
<td>Total fertility rate declined 54 percent during this</td>
</tr>
<tr>
<td></td>
<td>period, from 6.05 to 2.7</td>
</tr>
<tr>
<td>Population greater than 1 million</td>
<td>Population of 5.53 million in 2006</td>
</tr>
<tr>
<td>Potentially relevant literature, published between</td>
<td>Initial search identified 67 articles</td>
</tr>
<tr>
<td>1994–2008, according to a preliminary search</td>
<td></td>
</tr>
<tr>
<td>Regional representation</td>
<td>Experienced the greatest absolute total fertility rate</td>
</tr>
<tr>
<td></td>
<td>reduction in the Latin America and Caribbean region</td>
</tr>
</tbody>
</table>

Source: Authors’ analysis of data described in the text.
Sandinista National Liberation Front (FSLN). After winning national elections in 1984, the FSLN governed Nicaragua until 1990, when the center-right National Opposition Union (headed by Violeta Chamorro) was voted into office.\(^1\) In the 1990s Nicaragua became a market economy when it dropped trade barriers and modernized its government. Progress stalled with a change in leadership in 1996, when Arnoldo Alemán came to power. He was later charged with money laundering and embezzlement during his term in office.\(^2\) Today, Nicaragua is led by former Sandinista president Daniel Ortega who was re-elected president in 2006 with 38 percent of the vote, and took office in January 2007.

With a per capita gross national income (GNI) of $980 per capita and 5.53 million people in 2006, Nicaragua is one of the least populous countries in Central America. More than 56 percent of Nicaraguans live in urban areas.\(^3\) The people are unevenly distributed across three geographic regions: more than half live in the Pacific region, about a third in the central region, and about 13 percent in the Atlantic region.\(^4\)

The country is divided into 15 departments and two autonomous regions, and is comprised of 153 mostly rural or semi-urban municipalities. Most of the population is Christian and Spanish-speaking, though the country is multiethnic and pluricultural, with Mestizos a majority of the population. The indigenous people native to the Pacific and central regions and to northern Nicaragua include the Cacaoperas, Chorotegas, Nahuas, and Xiu—though most are now mixed with Mestizos and speak Spanish. The indigenous and Afro-descendant communities in the Atlantic region consist of Miskitos, Mayagnas, Garifunas, Ramas, Sumus, and Creoles who still speak their native languages and maintain their cultural practices. Together, Nicaragua’s indigenous groups make up close to 10 percent of the population.\(^5\) (For a detailed country map, see figure 1. To review Nicaragua’s development indicators, see the annex 1.)

Although Nicaragua has embraced the Millennium Development Goals (MDG) in its National Development Plans, assessments of the status of most of the MDGs, particularly those related to maternal and child health are not being met, including meeting interim targets.\(^6\)

While the country has made progress on MDG 4 in reducing child and infant mortality, neonatal mortality (the probability of dying within the first 28 days of life) is now higher than post neonatal mortality (the probability of dying between the 28th day of life and the first birthday). The country is lagging on its targets for reducing malnutrition for children under five (MDG 1), though it appears to have performed better than other countries in the region facing acute development challenges (El Salvador, Guatemala, and Honduras) in reducing maternal mortality rates (MDG 5).\(^7\) However, vast discrepancies were noted in the maternal mortality data as shown in the table below, which make progress for this MDG ambiguous,\(^8\) (table 2).\(^9\)
Figure 1 | Map of Nicaragua

Table 2 | Nicaragua’s Progress Toward Child and Maternal MDGs, 1990–2006

<table>
<thead>
<tr>
<th>MDG #</th>
<th>Indicator</th>
<th>1990 or the earliest available data</th>
<th>Latest available data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Malnutrition prevalence, weight for age (percent of children under five)</td>
<td>11.9 (1993)</td>
<td>9.6 (2001)</td>
</tr>
<tr>
<td>4</td>
<td>Mortality rate, under age five (per 1,000 live births)</td>
<td>68 (1990)</td>
<td>36 (2006)</td>
</tr>
<tr>
<td></td>
<td>Mortality rate, infant (per 1,000 live births)</td>
<td>52 (1990)</td>
<td>29 (2006)</td>
</tr>
<tr>
<td>5</td>
<td>Maternal mortality ratio (modeled estimate per 100,000 live births)</td>
<td>170 (2005)</td>
<td>Unavailable</td>
</tr>
<tr>
<td></td>
<td>Maternal mortality ratio (national estimate per 100,000 live births)</td>
<td>91.1 (1992)</td>
<td>125 (2002)</td>
</tr>
<tr>
<td></td>
<td>Percentage of births attended by skilled health staff</td>
<td>61 (1993)</td>
<td>66.9 (2001)</td>
</tr>
</tbody>
</table>

What Are the Causes of Nicaragua’s Falling Fertility?

The total fertility rate for Nicaraguan women declined steadily during the 1960s and 1970s, from a high of 7.25 (1960) to 6.05 (1980)—a 17 percent reduction over 20 years. Since then, fertility rates have declined even more dramatically: 22 percent during the 1980s, 31 percent in the 1990s, and 17 percent from 2000 to 2007, for a total decline of 55 percent over 27 years (figure 2). Fertility has varied greatly depending on the area of the country in which a Nicaraguan woman lives. Total fertility rate for urban women has been lower than for rural women. The most recent total fertility rate (2007) was 2.7, although it was 2.2 percent in urban areas compared to 3.5 percent in rural areas.

**Variation by Residence and Age**

Fertility has varied greatly by urban-rural locale, region, and age.

Total fertility rates have been lower in urban areas than in rural areas. During 1998–2007, the total fertility rate dropped 24 percent in urban areas compared to the more significant drop of 30 percent in rural areas (figure 3). Table 3 provides more information regarding Nicaragua’s regional variation in total fertility.

**Figure 2 | Nicaragua’s Total Fertility Rate Has Fallen by more than Half, 1980–2007**

![Graph showing the decline in total fertility rate from 1980 to 2007 in Nicaragua.](image)

Fertility rates. The highest total fertility rates are in the Central and Atlantic region and the lowest in the Pacific region. Over the last decade, the greatest reductions have occurred in the departments of Rio San Juan (high total fertility rate) and Chontales (low total fertility rate in the Central region, both of which saw a 43 percent decline in total fertility rates, and the lowest reduction in the departments of Managua (low total fertility rate) in the Pacific region with a total fertility rate decline of 21 percent, and RAAN in the Atlantic region (high total fertility rate), which had a decline of 24 percent.

Fertility has declined for all age ranges since 1998, the most dramatic of which can be seen in the figure 4 amongst young women ages 20–24. An important decrease in births per 1,000 women aged 15–19 has been observed: 130 in 1998, 119 in 2001 and 106 in 2006, but the decrease is much less than the one observed in the other age groups as shown in figure 4 (ENDESA 1997–98, 2001, 2006–07). Because of a greater decrease in the older age groups, the contribution of adolescents to the birth rates has increased and is now about 20 percent. The number of births per 1,000 adolescents in rural areas is much higher at 139 compared to 83 in urban areas (ENDESA 2006–07).

<table>
<thead>
<tr>
<th>Total Fertility Rate</th>
<th>Department</th>
<th>1997/98</th>
<th>2001</th>
<th>2006/07</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Highest</strong></td>
<td>RAAN</td>
<td>5.9</td>
<td>5.2</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>Jinotega</td>
<td>6.2</td>
<td>5.3</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>Rio San Juan</td>
<td>5.4</td>
<td>4.1</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Lowest</strong></td>
<td>RAAS</td>
<td>4.3</td>
<td>4.4</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>Managua</td>
<td>2.8</td>
<td>2.5</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>Leon</td>
<td>3.2</td>
<td>2.5</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Carazo</td>
<td>3.4</td>
<td>2.8</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Chontales</td>
<td>3.5</td>
<td>3.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Determinants of Fertility in Nicaragua

This section looks at common proximate, socioeconomic, and cultural determinants of fertility that might have led to the dramatic decline in Nicaragua’s fertility since 1980. The roles of particular programs, policies, types and sources of support, and innovations in service, just touched on here, are examined in more detail in the next section.

Proximate determinants of the decline in Nicaragua’s fertility from 1997–2007

Possible proximate determinants of fertility include marriage and sexual union, contraceptive use and methods, induced abortion, and duration of breast feeding.

Marriage and sexual union
Fertility is affected by the ages at which women and men become sexually active, marry, and have children. Nicaraguan women initiate all three activities somewhat earlier than their counterparts in the region in El Salvador, Guatemala, and Honduras (first intercourse at 17.9, first union at 18.3, first birth at 19.6). Fertility rates in both rural and urban areas are highest for women ages 15–29 (figure 5). There is no comparable data available for Nicaraguan men.

First sex for Nicaraguan women tends to precede marriage and is followed by first birth shortly thereafter. These findings suggest that marriage and sexual union have not influenced fertility rate declines in Nicaragua.

Contraceptive use (mix of methods)
Since 1998 almost all Nicaraguan women (97–99 percent) have reported being aware of at least one method of contraception. Nicaragua’s contraceptive prevalence rate in women ages 15–49 (married or consensual union) has increased significantly over the last three decades—from 27 percent in 1981 to 72 percent in 2007. The most dramatic increases occurred between 1981 and 1998, when the contraceptive prevalence rate rose by 33 percentage points. The 12 percentage point increase between 1998 and 2007 indi-
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cates a continuing trend of increasing contraceptive use (figure 6).18

Between 1998 and 2007, contraceptive prevalence rates increased more dramatically in rural areas (19 percentage points, from 51 percent to 70 percent) than in urban areas (9 percentage points, from 66 percent to 75 percent; figure 7).

Use of modern methods has also increased—from 57 percent in 1998 to 68 percent in 2007 (figure 8).

Over the past decade, female sterilization has been the most widely used contraceptive method, increasing 5 percentage points between 1998 (20 percent) and 2007 (25 percent). Over the same period, hormone injections rapidly became the second most widely used method—rising 17 percentage points from 1998 (6 percent) to 2007 (23 percent). Condom use also increased, though just by

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Figure 5 | Fertility Rates in Nicaragua in both Rural and Urban Areas Are Highest For Women Ages 15–29, 1997–2007

Figure 6 | Contraceptive Prevalence Rates Have Risen Dramatically among Nicaraguan Women Ages 15–49 (married or in consensual union), 1981–2007


3 percentage points. The use of traditional methods did not change significantly (from 3.3 percent in 1998 to 3.0 percent in 2007). At the same time, oral contraceptive use declined 6 percentage points (from 19 percent in 1998 to 13 percent in 2007), while intrauterine device (IUD) usage declined more dramatically, by 9 percentage points (from 12.5 percent in 1998 to 3 percent in 2007).

Of Nicaragua’s 15 departments, Río San Juan, Chontales, and Managua have the highest contraceptive prevalence rates while Jinotega and RAAN have the lowest in the most recent ENDESA 2006/07 (table 4). Over the last 10 years, RAAN, in the Atlantic region, contraceptive use (58 percent) jumped significantly, followed by Río San Juan (55 percent) and Jinotega (47 percent), in the Central region. Female sterilization is the most prevalent method in Pacific region departments, while hormone injections are most commonly used in the Central and Atlantic regions.20

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**Figure 7** Contraceptive Prevalence Rates among Nicaraguan Women Ages 15–49 (married or in consensual union) Have Risen Faster in Rural than in Urban Areas, 1998–2007

![Figure 7](image_url)


**Figure 8** Contraceptive Prevalence Rates among Nicaraguan Women Ages 15–49 (married or in consensual union) Have Risen for Most Methods, 1998–2007

![Figure 8](image_url)

The total unmet need for contraception in 2007 was estimated at 11 percent among women in marital or consensual union,\textsuperscript{21} down from 15 percent in 1997 and 2001.\textsuperscript{22} Unmet need was much higher in RAAN (29 percent), Jinotega (21 percent), Matagalpa (18 percent), Madriz (16 percent), RAAS (16 percent), and Nueva Segovia (15 percent) than in Boaco (12 percent), Chinandega (12 percent), Chontales (11 percent), Carazo (9 percent), and Leon (9 percent).\textsuperscript{23}

In 2007, the highest rates of contraceptive use were among women ages 30–34 (78 percent) and 35–39 (79 percent), up from 60 percent in 1998 (figure 9). The lowest contraceptive prevalence rates in the same period are for women ages 15–19 (61 percent) and 45–49 (62 percent), up from 11 percent and 40 percent respectively in 1998. About 75 percent of women ages 20–44 reported using contraception in 2007–2007 percentage points greater than for the same age range in 1998.

Contraceptive use has generally increased along with socioeconomic and educational levels in Nicaragua. In 2007, the contraceptive prevalence rate of the lowest wealth quintile

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|c|}
\hline
\textbf{Department} & \textbf{Year} & \textbf{Total} & \textbf{Urban} & \textbf{Rural} & \textbf{Rio San Juan} & \textbf{Chontales} & \textbf{Managua} & \textbf{Jinotega} & \textbf{North Atlantic Autonomous Region (RAAN)} \\
\hline
\textbf{2006/07} & 72 & 75 & 69 & 79 & 77 & 76 & 63 & 57 & \\
\hline
\textbf{2001} & 69 & 73 & 62 & 70 & 72 & 73 & 55 & 46 & \\
\hline
\textbf{1997/98} & 60 & 66 & 51 & 51 & 66 & 67 & 43 & 36 & \\
\hline
\end{tabular}
\caption{Highest and Lowest Contraceptive Prevalence Rates by Rural or Urban Residence and Department, 1997–2007 (percent) Department}
\end{table}


\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure9.png}
\caption{Contraceptive Prevalence Rate among Nicaraguan Women by Age Range, 1998–2007}
\end{figure}

and those with no schooling were 65 to 66 percent compared to the highest wealth quintile and those with secondary schooling or higher whose contraceptive usage was 79 percent and 76 percent respectively. Almost a decade earlier in 1998, the contraceptive prevalence rate for the lowest quintile was 42 percent and for those with no schooling was 46 percent, while it was 69 percent for the highest quintile and those with secondary or higher education.24

So, contraceptive use has a strong association with fertility reduction over the period 1980–2007. An exception is adolescents ages 15–19, who had the greatest rise in contraceptive prevalence but not the largest fertility rate reduction. This is likely because most adolescents in this age group start contraceptive use only after giving birth.

**Induced abortion**

Abortion has been illegal in Nicaragua for more than 100 years except to protect the mother’s health, when rape or incest has occurred, and when severe fetal malformation is detected. Over the last decade, the law has been heavily debated between church leaders demanding antiabortion laws and pro-choice activists trying to convince the mostly Catholic population that therapeutic abortion is a human right that did not contradict church teachings. In October 2006, the legislature removed an article in the country’s penal code permitting therapeutic abortion. The new legislation was fast-tracked, passed unanimously on the eve of the last presidential election, and signed into law in the presence of Catholic and Evangelical church leaders who had campaigned for the change. The only candidate who favored keeping therapeutic abortion received only 6 percent of the vote. Daniel Ortega, who voted in favor of the new legislation, won the election. Under the new law, doctors face up to six years in prison for performing an abortion, while women who abort face up to four years imprisonment.25 For these reasons, national statistics are not collected on induced abortion in Nicaragua. The discussion here relies on several studies that may offer some insight into the complexities of putting Nicaragua’s abortion laws into practice, though the studies cannot be seen as representative or reliable.

- A 2004 study cites a dramatic drop in therapeutic abortion requests after 1989 in the national maternity hospital, Bertha Calderón Roque. Recorded requests dropped from 368 in 1989 (236 approved) to 54 in 1991–92 (16 approved). Between 1999 and 2003 there were only two recorded requests and only one was approved. Nicaragua’s Ministry of Health recorded six legal abortions nationwide in 2001 and again in 2002.26
- A 2006 study found that abortions performed on adolescents made up a quarter of all abortions reported to the Ministry of Health’s Department of Statistics in 2003.27
- A 2002 study reported that the health ministry identified abortion as one of three major reasons for women’s hospitalization, and a 1998 study estimated that 14,706 hospitalizations of women annually were due to abortion-related complications. Hospital records at Bertha Calderón Roque indicate that no abortions were granted there from 1997 through 2001.28
- A 1998 study of five Nicaraguan hospitals identified 150 women admitted due
to abortion or miscarriage, 32 percent of them younger than 19. The director of Bertha Calderón Roque reported that botched abortions were filling half of the hospital’s obstetrics beds and absorbing much of its budget. The same report cited a University of Leon study that found that 80,000 high-risk abortions were being performed each year.29

A 1981 study, shortly after the Sandinista revolution found that abortions, although illegal, were not uncommon. They were often initiated at home, and completed in hospitals. In the first half of 1981, 1271 “incomplete” abortions were treated at Vélez Páez Hospital, during which period the hospital recorded 10,217 births and 153 neonatal deaths. The first hospital-initiated therapeutic abortion in the country was said to have been performed in the same hospital in late 1981.30

One study stated that during the Sandinista administration, concerns about the complications of unsafe abortion led to a more flexible policy of therapeutic abortion, making abortion somewhat more accessible and safer.31 Another study found the 1974 penal code that made abortion illegal not being enforced by the Sandinista government.32

These studies show no evidence of a correlation between induced abortion and declining fertility in Nicaragua.

**Duration of breastfeeding (postpartum infecundability)**

Breastfeeding practices affect not only the health of the child, but also that of the mother by delaying the start of ovulation thereby providing a period of time when she is not susceptible to another pregnancy. The most recent ENDESA 2006/07 indicates that most Nicaraguan infants (99.7 percent) are breastfed in the first month of life, although only 46.2 percent are exclusively breastfed. By 2–3 months only 27.8 percent of infants are exclusively breastfed, and by 6–7 months only 4.4 percent are.33

Between 1987 and 2003, the mean duration of breastfeeding in Nicaragua and Honduras were the lowest in the region at 17.6 months, compared with a high of 20.5 months for Guatemala.34 The duration of exclusive breastfeeding ranged from 1.4 months to 3.5 months in the region (El Salvador, Guatemala, Honduras, and Nicaragua); with a rapid trend downward by the time a child is 4–5 months. Only 12 percent of children in Nicaragua were exclusively breastfed at 4–5 months. The lowest first-year continuation rates ages 12–15 months were in Nicaragua at 63.8 percent, compared with the highest at 81.1 percent for Guatemala.

These findings suggest that breastfeeding practices are far from ideal in Nicaragua as elsewhere in the region, and for which reason lactational infecundability is not considered significant in the fertility decline in Nicaragua.

**Socioeconomic and cultural determinants**

**Economic and political conditions**

During the 1950s and 1960s, Nicaragua had one of the region’s fastest growing economies,35 although its people lived under a dictatorship (Somoza). In 1979, the dictatorship was overthrown by a revolutionary government, the FSLN led by Daniel Ortega, which
initiated a wide range of economic and social reforms in the early 1980s. The FSLN government became financially unsustainable in the later part of that decade due to the costs of a lengthy civil war and a devastating hurricane that left 180,000 homeless. By the 1990s, the country was transformed to one of the region’s most economically unstable, slowest in growth, indebted, and corrupt.

In the early 1990s, a new conservative government coalition headed by Violeta Chamorro initiated measures to stabilize the economy. Nicaragua became a market economy when it dropped trade barriers, reduced the size of its public sector while modernizing its government. A greater proportion of its public spending was allocated to assist poor people. But progress stalled after 1996 with the change in leadership (led by Arnoldo Alemán—later charged with money laundering, and embezzlement during his term)—and the devastation following another hurricane when the government’s focus was drawn to meeting the short-term needs of its people.

Nicaragua’s economic performance improved following the election of Enrique Bolaños in 2002, who brought a focus on addressing corruption and establishing fiscal discipline. The economy has grown moderately since then, at an average annual rate of 3.2 percent, and related indicators are showing signs of improving. Poverty levels, however, have not improved much, although extreme poverty has declined since the early 1990s. The current government led by Daniel Ortega that assumed power in January 2007 has indicated an interest in maintaining continuity, recognizing the need to review policies impacting the poorest population, particularly the social policies. This government is also interested in improving the country’s economic performance while reducing poverty and sharing economic achievements more widely.

The political, economic, and social changes, i.e., improved access to information, sexual and reproductive health, higher female educational levels and participation of women in the workforce brought about by Sandinistas seem to have had a strong influence on the health, social, and economic conditions which did have an influence on fertility reduction even after 1990.

**Child infant mortality and fertility desires**

Declining infant mortality rates can lead to lower desired fertility and thus to lower fertility rates. During 1980–2006, Nicaragua’s infant mortality rate fell dramatically, from 82 to 29 per 1,000 live births, and its under-five mortality rate fell from 113 to 36 per 1,000, a 68 percent decline. However, the rapid reductions in both infant and child mortality rates had begun earlier in the 1970s (figure 10). These downward trends in infant and child mortality have slowed since the last surveys in 2006–07.

One study found improved access to health services to be the most important factor in reducing child mortality. This was due to the increasing numbers of health care professionals, particularly nurses that become available in the 1970s to staff the primary health facilities built in the 1960s. The study further found that progress made in public health in Nicaragua since the 1979 revolution appears to have maintained the decline in child mortality seen in the 1970s.

One retrospective study of the association between women’s education and the infant
mortality rate in Nicaragua over 1964–93 did not find the mother’s education to be a major contributing factor. Like other studies, it attributed the decline in infant mortality rate to the improved quality and access to health care for the poorest segments of Nicaraguan society, resulting in greater equity in chances of child survival by the end of the 1980s.\(^\text{43}\)

A regional comparison study of health surveys for El Salvador, Guatemala, Honduras, and Nicaragua between 1997 and 2003 found the largest differences in Guatemala and somewhat in Nicaragua with the infant mortality rates lower in the Pacific compared to the Caribbean coasts (see figure 1).\(^\text{44}\) Infant mortality tended to be lowest in metropolitan capital cities in each of these countries, with higher neonatal mortality (the probability of dying in the first 28 days of life) than postneonatal mortality (the probability of dying between the 28\(^{\text{th}}\) day of life and first birthday). This is not unexpected as infant mortality declines, neonatal mortality typically rises. With the exception of El Salvador, child mortality rates were higher in rural compared to urban areas and tended to be due to reductions in postneonatal mortality. All countries showed a systematic decline in the decade prior to the study. Contrary to the retrospective study, this analysis generally found infant mortality rate decreases as the mothers education increases and most pronounced for postneonatal mortality in the case of Nicaragua, Honduras, and Guatemala, and less so for neonatal mortality for Nicaragua, El Salvador, and Honduras.

The regional comparison study found Nicaragua to have the highest percentage of unwanted pregnancies (27 percent), followed by Honduras (26 percent) and El Salvador (24 percent).\(^\text{45}\) Desired total fertility rates for rural El Salvador and Nicaragua were remarkably low (2.8 and 3.0)—and below replacement level in urban areas (1.8) in both countries.

The most recent ENDESA 2006/07 found the unwanted total fertility rate for rural Nicaragua to be 1.3 times greater than urban areas—0.5 births for rural compared with 0.4 for urban women.\(^\text{46}\) The unwanted

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**Figure 10 | Declining Rates of Infant Mortality and Under-Five Mortality in Nicaragua, 1960–2007**

[Graph showing declining rates of infant and under-five mortality in Nicaragua from 1960 to 2007]

*Source: The World Bank, 2009a.*
total fertility rate for Nicaraguan women without formal education was 2.6 times higher than the rate for those with a university education.

These studies suggest that the steep decline in infant mortality starting in the 1970s may have influenced the dramatic reduction in Nicaragua’s total fertility rate in the 1980s.

Female education
Greater levels of uninterrupted educational attainment for girls are believed to lead them to greater aspirations, career goals, and plan their own future where they are more likely to use contraception.

Education rates for Nicaraguan females have increased significantly during this study period. As shown in figure 11, primary school rates for females increased by 31 percent from 59 to 77 percent in the last 17 years (1989 and 2006); this rate increased by 39% from 55 to 77 percent in the last decade (1996–2006). Secondary school enrolment rates (net) for females increased by 24 percent in the last decade (1996–2006) from 38 to 47 percent (2006).47

The most recent ENDESA 2006/07 found slightly more than half of Nicaraguan women had completed at least some secondary education or taken university-level courses; the proportion with some university education, 7 percent in 1998, had increased to 14 percent by 2007. In contrast, the proportion of Nicaraguan women ages 15–49 with less than four years of instruction fell significantly, from 30 percent in 1998 to 24 percent in 2007. Only 12 percent of those surveyed in 2007 had no education.48

A comparative study of El Salvador, Guatemala, Honduras, and Nicaragua found improvements in all four countries between 1987 and 2003—though it also found sizable differences.49 [When comparing the most recent surveys, El Salvador and Nicaragua, about half of women of reproductive age had some secondary education, compared with less than a third in Honduras. A quarter of women in

Figure 11 | Rising Female Education Rates in Nicaragua, 1989–2006

Source: The World Bank, 2009b. (Secondary school data prior to 2000 N.A.)
Guatemala report no formal education at all. Differences in education attainment in rural and urban areas were also found. Considerably more women in urban areas had some secondary education: 62 percent in Nicaragua in rural areas, compared to 48 percent in Guatemala, the lowest rate. In contrast, the rural rate of secondary education in both countries was between 17 and 18 percent.

The same study found lower fertility rates among more educated women. The total fertility rate differential between the highest and lowest levels of education ranges from 2.8 to 4.3 births, with a differential of 3.5 births in Nicaragua compared to Guatemala that had a difference of 4.3 births. Women with some secondary education generally had total fertility rates below 3.0 (figure 12).^{50}

A retrospective community-based study of fertility in Nicaragua over a thirty-year period between 1964 and 1993 found no change in the correlation between women’s education and the fertility gradient and throughout the period.^{51} It also found that a decline in the crude fertility rate was associated with a marked increase in female education. Of note was the proportion of adolescents that completed primary school, which doubled between the 1960s to the start of the 1990s (from 20 to 51 percent). In 1989–93, the total fertility rate was 4.3 for women with no education, 2.7 for women with primary education, and 2.2 for women with secondary or higher education. The study concluded that women’s education explained most of Nicaragua’s fertility decline over the three decades.

In sum, female education appears to have been a major determinant of fertility reduction in Nicaragua—probably more important than any other.

**Women’s empowerment (autonomy) and labor force participation**

During the 1970s, social inequity was high in Nicaragua.^{52} More than half the population earned just 16 percent of the national

### Figure 12

**Total Fertility Rates in Nicaragua Decline with Women’s Education, 1992–2001**

![Graph showing total fertility rates in Nicaragua from 1992 to 2001 with education levels](image)

*Source: Monteith and others 2005.*
income, while 41 percent lacked the means to meet their basic nutrition needs. Illiteracy was 52 percent, and infant mortality was 121 per 1,000 live births. Following their rise to power in 1979, the Sandinista government took measures to increase women’s access to education and jobs, with explicit language in the new Constitution granting women equal rights.

Women’s participation in the formal labor market in Nicaragua steadily rose between 1980 and 2006 (figure 13), although it dipped slightly in the mid-1990s as it did for men in the labor force. Women ages 30–44 have consistently made up the largest share of the female workforce in Nicaragua (50 percent of women with jobs in 1980, 45 percent in 1996, and 62 percent in 2006). In 2006, more than half of women ages 25–54 had jobs.

Based on this data and literature reviewed, women’s participation in the labor force is likely to have significantly played an important role in Nicaragua’s fertility decline.

**Religion and religious leadership**

Nicaragua is a predominantly Catholic country where religious institutions play an important role. The Sandinista government did not want to alienate its Catholic supporters—or to incite its opponents within the Catholic hierarchy—by openly promoting contraceptives. As a result, while public health campaigns on television and billboards promoted breastfeeding and immunizations, few promoted sex education or birth control. Later, the Catholic Church and clergy grew more overtly political, playing a central role in the 2006 removal from the penal code of the provision allowing therapeutic abortions. Motherhood is celebrated in Nicaragua on the holiday of Mary’s conception (in Nicaragua Mary is honored almost as much as her son, Jesus) and on Mother’s Day, when childless women are honored as “potential mothers.”

Traditional Catholic morality promotes the idea of maternity being a woman’s supreme calling as demonstrated by Virgin Mary, who assumes her maternal destiny silently.

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**Figure 13 | Rates of Labor Force Participation in Nicaragua, by Gender, 1980–2006**

Although the country's conservative religious institutions have become more politically active in advocating against abortion, their efforts appear not to have deterred Nicaraguan women from accessing contraception and family planning services where its influence might have been expected. Religion therefore appears not to have had a significant impact in Nicaragua's fertility reduction between 1980 and 2007.

**The impact of the role of men and spousal communication**

Traditional views of masculinity and femininity are still common in Nicaraguan society. Nicaraguan machismo promotes the view that men who have lots of children with different women are powerful; in fact, getting a woman pregnant is seen as the highest expression of machismo. Many women get pregnant hoping to keep a man or create love. And many women are influenced by the Christian image of Mary, mother of Jesus, sacrificing silently and reveling in her maternal role. Such concepts of masculinity and femininity could affect how men and women communicate about fertility desires, even though no specific evidence in the literature reviewed points to this cultural feature as a determinant of fertility in Nicaragua.

In 1996, Chamorro’s presidential campaign openly recognized domestic violence as a public health problem in Nicaragua. In 2007, nearly 48 percent of women who had ever been married were found to have suffered verbal or psychological abuse (up from 29 percent in ENDESA 2001), 27 percent to have suffered physical violence, and 13 percent to have suffered sexual violence. Overall, almost one in three Nicaraguan women (29 percent) had been subjected to physical or sexual violence in her lifetime. Generally, women in urban areas and the Pacific region were more likely than women in the North-Central region to suffer domestic violence, although women in the Atlantic region experienced only slightly less physical violence than did women in the Pacific region. Domestic violence declines as education rises. However, no clear relationship is seen between domestic violence and wealth.

Domestic violence could have many implications for Nicaraguan women’s reproductive health and access to contraceptive options—besides directly harming the fetus. However, no direct correlation with fertility reduction can be made from this review.

**Civil society involvement**

Since the early Sandinista years, women’s organizations have advocated improving women’s reproductive health rights in Nicaragua. Grassroots women’s groups, in particular, have promoted childcare and birth control.

During the Sandinista period, women’s roles were still traditionally defined. Women were expected to do all the household work, and activities outside the home were viewed as unacceptable for many Nicaraguan women. However, grassroots women’s organizations emerged within other mass organizations such as blue collar, professional, small farmer, and cooperative unions. At the same time, feminist lawyers and health workers began openly discussing reproductive rights, rape, and domestic violence openly in forums, debates, and the media. Female doctors began to publish maternal mortality statistics from the national maternity hospital, showing the harmful effects of abortion laws and self-induced abortions. It was mostly middle-class women who demanded legalization or decriminalization of
abortion without guaranteeing abortion rights so as not to offend abortion opponents. The Luisa Amanda Espinoza Association of Nicaraguan Women, despite its conventional origins as an association of women as mothers, began to call for the need to reduce maternal mortality from self-induced abortions, increase contraceptive availability, and sex education.

In the 1989 elections, some women’s groups called for actions to end maternal mortality and make birth control more affordable—though most did not publicly demand legalizing abortion. After the Sandinistas’ defeat, women’s organizations became vocal about the shortcomings of Sandinista policies and practices and the machismo and sexist attitudes of many party leaders. These organizations also worked to protect the gains made during the Sandinista years by participating in strikes against the Chamorro government, which tried to reverse the social and economic reforms benefiting workers and the poor. Before the 2006 law repealing the right to therapeutic abortion and criminalizing doctors and women involved in abortions, women’s organizations tried to convince Nicaragua’s mostly Catholic population that abortion to save the life of a woman supported human rights and did not contradict Catholic teaching.

In sum, Nicaraguan civil society organizations have been influential in increasing support for women’s reproductive health over the last three decades.

Programs and Policies That Might Have Contributed to Nicaragua’s Fertility Decline

The Somoza dictatorship that had been in place since 1937 was replaced by the revolutionary Sandinista government in 1979. The new government’s broad social and economic reforms included an expansion of primary health care services as well as an effort to improve the situation of women (discussed previously under socioeconomic and cultural determinants).

Nicaragua’s health care and family planning efforts since 1979

Health care under the Somoza regime was much worse than its Central American neighbors. However, in response to the political turmoil of the 1970s, the Somoza regime introduced new health sector measures that initiated the sharp decline in Nicaragua’s child mortality rate.

International observers documented Nicaragua’s healthcare in 1981 that provides a unique window to view the developments in Nicaragua 30 years ago. Soon after the Sandinista revolution in 1981, the study found that about 70 percent of Nicaragua’s population had regular contact with medical practitioners or facilities—a vast improvement over the 28 percent in 1979. During the emergency period after the revolution, several new hospitals were opened. Foreign doctors were recruited, and many international groups provided substantial aid. As people were informed of their entitlement to public healthcare, people flooded hospitals, urban health care centers, and newly opened health “outposts” in small towns. Health facilities were staffed with nurses, and doctors visited weekly. Medical and nursing students accompanied agricultural workers to the fields to harvest cotton, coffee, and other cash crops. Emergency training and medical kits were provided to remote haciendas. Psychiatric and dental care outreach served re-
mote areas. Thus, by 1981, the concept of a unified health system was established, and a structure for regionalizing health care was outlined.

Public health education and family planning under the Sandinistas. The changes made by the Sandinista government after 1979 included an effort to educate all Nicaraguans. In 1980, the government launched a basic literacy campaign, which reduced illiteracy from 52 percent to 12. This literacy campaign was also used for health education; 100,000 young people were recruited to go to rural areas to teach people how to read and write, live amongst the people, and teach elementary health principles. One in 10 literacy workers received a week of health training and were responsible for distributing antimalarial drugs to other literacy workers.68

Family planning was challenging because most Nicaraguans are Catholic; even under the Sandinistas, four government ministers were priests. Most contraceptive services were provided by an International Planned Parenthood affiliate under contract to the health ministry. Birth control information was to be disseminated following the model of other health education campaigns. Abortions were illegal, but not found to be uncommon (see previous section under proximate determinants for more on abortion).69

From 1979 to 1983, health and education received a major share of Nicaragua’s national budget. Health care was reoriented from secondary to primary care and health education. But during the second half of the 1980s, war and economic crisis made former levels of social services and food subsidies unsustainable. The new, conservative government coalition that took charge in 1990 eliminated food and medicine subsidies and dramatically cut public sector spending.70

Nicaragua’s National Population Policy
In 1996, the Nicaraguan government approved its first population policy. Calling for health improvements as a cornerstone of national development, the National Population Policy assigned high priority to reducing the birth rate and providing preventive services to reduce maternal and child mortality.71 The policy was part of a national development strategy that stressed integrating population objectives with socioeconomic development.

The National Population Policy has been important in promoting reproductive health and service delivery. Its legal framework recognizes the right of couples to freely decide the number and spacing of their children, and it outlines the state’s responsibility to create social conditions and institutions that help people exercise their reproductive rights. Objectives include reducing pregnancy among unmarried adolescent girls and developing in men and women a sense of mutual respect, exercising sexuality with faithfulness and responsibility. Youth and adults are to receive integrated sex education to empower them with accurate information to exercise their rights so they can prevent unplanned pregnancies and avoid contracting sexually transmitted diseases.72

Action plan for the National Population Policy in 2001–05. After 1996, the Alemán government established the National Population Commission, whose technical committee was tasked with developing a 2001–05 action plan to implement the National Population Policy. The plan was presented in July 2001 with three subprograms: Education in Population and Sexuality, Sexual and Reproduc-
tive Health, and Population Distribution. The plan was never implemented, however, because funding was lacking.73

The National Health Plan for 2004–15. The Nicaraguan government is now going through a reform process, including the health sector, and intensifying efforts to decentralize. Progress has been made in formulating national health policies under the National Health Plan.74 Aiming to ensure equitable access to basic health services designed to increase life expectancy and quality of life, the plan calls for reducing unmet need for family planning and for using unmet need as a performance indicator.75

The Women’s Integrated Health Program. In 2004 the Women’s Integrated Health Program produced a new National Sexual Reproductive Health Program document to guide reproductive health services as part of the health sector reform.76

Nicaragua’s contraceptive supply and distribution system. The Nicaragua Ministry of Health (MINSA) is the main source of free modern family planning methods, accounting for 67 percent of the total in 2007.77 It distributes family planning supplies through departmental and autonomous regional health offices and facilities (called local systems of integrated health attention, or SILAIS). The Nicaraguan army and national police force also participate in providing health services, including family planning.78

In 2007, the private sector and NGOs served 32 percent of Nicaraguan family planning clients.79 The private pharmacies and clinics of the International Planned Parenthood Federation affiliate, PROFAMILIA, represent two major private sector providers. Another NGO, the Pan American Social Marketing Organization (PASMO), is the major supplier of quality low cost condoms.80

Contraceptive goods are donated and procured by the United States Agency for International Development (USAID; 66 percent) and the United Nations Population Fund (UNFPA; 34 percent) and are distributed by the MINSA. In 2004, USAID contributed $773,000 in goods and UNFPA $395,000. By agreement with MINSA, these donations were expected to stop soon (from USAID by 2008 or 2009; from UNFPA by a date to be determined). There are some national laboratories that repackage imported contraceptive commodities for resale locally which are supplied from companies based in Europe, the US, Canada, Mexico, Argentina, Columbia, and Brazil and include Schering, Wyeth, Pfizer, among others. Contraceptives are provided by these companies to their local representatives, UNFPA, USAID, private pharmacies, and PASMO and PROFAMILIA.81

PROFAMILIA distributes family planning methods through its own clinics and network of agents, and procures mostly from the International Planned Parenthood Federation (IPPF). It is also a co-distributor of condoms for PASMO.

PASMO acquires its contraceptive methods directly from international vendors and distributes them through a network of private pharmacies, service stations, and stores.

Marie Stopes International and local NGOs—for example, IXCHEN—also receive donated contraceptive goods from UNFPA, distributing them to low-income populations through health agents. The NGOs also buy contraceptives from PROFAMILIA. In the pri-
vate sector, most contraceptives come from local representatives of international companies, although condoms also come from PASMO. The contraceptives are distributed through non-traditional outlets and to at-risk populations. The Nicaraguan Social Security Institute, which covers 10 percent of primary health care needs (mostly in urban areas), contracts with private medical centers to procure contraceptive supplies from the commercial market.

The Nicaraguan government and international donors

The government has been the primary provider of contraceptive and family planning supplies and services in Nicaragua. For the last 30 years, USAID and UNFPA have provided contraceptive supplies to the government, which has distributed them at no cost to the general public. Donors now plan to phase out contraceptive supplies, and the government will take over contraceptive procurement. 

The role of nongovernmental organizations

In 1970, the Nicaraguan Association for Family Welfare, now PROFAMILIA, was the first organization to introduce family planning to the country. An NGO associated with the International Planned Parenthood Federation, it began in 1970 by collecting and analyzing demographic data and providing family planning services. Later, shifting its focus to family planning and health service provision (and changing its name to PROFAMILIA). It initially provided contraceptives and, since 1998, diversified to include Pap smears, x-rays, ultrasound, and other diagnostic services as well as temporary contraceptive methods. PROFAMILIA and PASMO are the main NGOs involved in family planning in Nicaragua. They procure their supplies through a procurement agent, such as IPPF, and distribute them through their own respective networks of health, service delivery points, and pharmacies. NGOs provide a smaller proportion of family planning services compared to the government, though their contribution is significant in certain types of services.

The role of the private sector

Private pharmacies in Nicaragua procure goods from international suppliers and distribute them to the general public. They are the most common provider of condoms and the second most important source of oral contraceptives.

Innovations in service provision

Casas maternas, or women’s homes, are low-cost assisted-living arrangements located next to hospitals and used for lodging pregnant women from remote villages just before and after delivery. Communities support the facilities financially and manage the homes. Preliminary data suggest that the women’s homes been effective in reducing maternal mortality by promoting access to institutional delivery. The homes also provide family planning, child nutrition counseling, and other education to empower women. MINSA plans to expand the network, and have been recommended as a model for other countries in the region.
Lessons from Nicaragua’s Falling Fertility

Several lessons emerge from Nicaragua’s success at reducing its total fertility rate:

→ *The government was committed to gender equity and female empowerment* through educating girls and women and recruiting women into the labor force, including funding for programs and constitutional reforms.

→ *Family planning services was provided within a well functioning primary health care system*, including an extensive, efficient contraceptive distribution network that works with international donors, and international national NGOs to offer women a good mix of options. In addition, demand must be created through a timely public education campaign.

→ *Success requires appropriate civic engagement with different stakeholders*, which may initially mean avoiding unnecessary confrontation and publicity of services for addressing concerns of the more conservative stakeholders.
## Annex 1. Nicaragua at a Glance

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<td>Poverty gap at national poverty line (percent)</td>
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<td>Immunization, measles (percent of children ages 12–23 months)</td>
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<td>Contraceptive prevalence (percent of women ages 15–49)</td>
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<tr>
<td>Births attended by skilled health staff (percent of total)</td>
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<td>Nurses and midwives (per 1,000 people)</td>
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**Education**

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<td>Primary completion rate, female (percent of relevant age group)</td>
<td>58.5 1989</td>
<td>76.7 2006</td>
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*Source: The World Bank, 2009b.*
References

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End Notes

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