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FERTILITY TRENDS IN PACIFIC ISLAND COUNTRIES AND TERRITORIES



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FERTILITY TRENDS IN PACIFIC ISLAND COUNTRIES AND TERRITORIES

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EXECUTIVE SUMMARY

Data on total fertility rates (TFRs) and age-specific fertility rates (ASFRs) from 1989–2014 were analysed for all members of the Pacific Community (with the exception of Tokelau and Pitcairn due to their small population size and subsequent lack of data), resulting in the examination of 20 Pacific Island countries and territories (PICTs).

There was no consistent pattern of fertility in the region or even among the subregions of Melanesia, Polynesia and Micronesia. PICTs fell predominantly into two groups, with roughly half categorised as having low to moderate fertility (i.e. a TFR less than 3.0), and the other half categorised as having moderately high to very high fertility (i.e. a TFR of 3.0 or higher). The Pacific Islands region has higher fertility rates than the rest of the world as a whole, with a global average TFR of 2.5 for the period 2010 to 2015, and less developed regions having a TFR of 2.6 from 2010 to 2015 (UNDESA 2016). The TFRs in 11 of the 20 PICTs examined have been stable since 2005, while 8 of the 20 PICTs examined experienced a decline in TFR over this time period. Trends in the Commonwealth of the Northern Mariana Islands (CNMI) could not be determined due to data inconsistencies.

Five PICTs were classified as having a very high fertility rate with a TFR of 4.0 or higher. Among these, the TFR in the Republic of the Marshall Islands (RMI), Papua New Guinea (PNG) and Vanuatu appears to be declining, while the TFR in Samoa and Solomon Islands has shown signs of stabilising. However, only Samoa had more than two estimates from 2005 onwards, highlighting the need for more data collection and dissemination in the group of PICTs classified as having a very high fertility rate. Six PICTs were classified as having moderately high fertility levels (a TFR of 3.0 or higher but less than 4.0). The TFR in two of these PICTs – Nauru and Tuvalu – has remained stable since 2005, while the other four PICTs – American Samoa, Kiribati, the Federated States of Micronesia, and Tonga – have experienced declining TFRs. The TFRs among all five PICTs characterised as having moderate fertility levels (a TFR greater than 2.1 but less than 3.0) have been stable since 2005. These PICTs include Cook Islands, Fiji, Guam, Niue and New Caledonia. Just four PICTs were characterised as having low fertility (a TFR of 2.1 or below). Two of these saw no recent changes in TFR (Palau and French Polynesia), while Wallis and Futuna had a declining TFR, and trends in CNMI could not be determined due to data inconsistencies.

It remains to be seen whether fertility rates in the Pacific Islands region will decline as a whole as all PICTs categorised as having moderate fertility levels (a TFR greater than 2.1 but less than 3.0), and 4 of the 11 PICTs with a TFR of 3.0 or higher, have seen their rates stabilise since 2005.

There was no consistent pattern in ASFRs among the 20 PICTs examined. With the exception of Solomon Islands, fertility rates were highest among women aged 20–24 in PICTs categorised as having very high fertility rates. Additionally, among women aged 20–29, ASFRs were above 200 births per 1000 women. Within the category of moderately high fertility, fertility rates were highest among women aged 25–29, with the exception of Nauru where fertility rates were highest among women aged 20–24. ASFRs were highest among women aged 25–29 in PICTs categorised as having moderate fertility rates, with the exception of Cook Islands where fertility rates peaked among women aged 20–24. ASFRs did not surpass 160 births per 1000 women in any age group in PICTs that were categorised as having moderate fertility rates. ASFR patterns varied among the four PICTs classified as having low fertility rates, and were highest among young women aged 20–24 in Palau and CNMI. In French Polynesia and Wallis and Futuna, fertility rates were highest among women aged 25–29. With the exception of Wallis and Futuna, peak fertility rates hovered around 100 births per 1000 women.

About half of all PICTs had teenage fertility rates higher than the global average of 46 births per 1000 women aged 15–19 in the most recent period where data were available (UNDESA 2016). Wallis and Futuna was the only PICT that reported rates comparable to those of developed countries' rates of 19 births per 1000 women aged 15–19 in the period 2010–2015 (UNDESA 2016). Globally, less developed countries had a teenage fertility rate of 50 births per 1000 women aged 15–19 over the period 2010–2015 (UNDESA 2016); eight PICTs were at or above this level. Six of the PICTs examined had recent measures of teenage fertility rates of 60 or higher (births per 1000 women aged 15–19), while nine saw rates between 30 and 59 births per 1000 women aged 15–19. Just five PICTs (25%) had rates less than 30 births per 1000 women aged 15–19.

Similar to TFRs, there were no consistent trends in teenage fertility rates across the region. Of the 20 PICTs examined, 10 have experienced stable teenage fertility rates since 2005, 1 PICT (Tonga) showed signs of a potential increase in teenage fertility, and just 3 PICTs exhibited a decline in teenage fertility rates over this period. A lack of data and/or high dispersion

of estimates made it unfeasible to determine trends for 6 of the 20 PICTs examined, all of which fell into the high or moderate rate category of 30–59 or 60 or more births per 1000 women aged 15–19.

Among the six PICTs that fell into the high teenage fertility rate category (60 or more births per 1000 women aged 15–19), three (Cook Islands, Nauru and PNG) have seen their teenage fertility rate stabilise since 2005. Solomon Islands experienced a decline in its teenage fertility rate, and the high dispersion of estimates in RMI, and lack of data from Vanuatu made these countries' trends indeterminable. Of the nine PICTs classified as having moderate teenage fertility rates (30–59 births per 1000 women aged 15–19), four have experienced no change in their teenage fertility rates since 2005 (American Samoa, French Polynesia, Guam and Samoa). The Federated States of Micronesia (FSM) saw its teenage fertility rates decline, and rates were indeterminable for the remaining four PICTs of Fiji, Kiribati, CNMI and Tuvalu. Just five PICTs were classified as having low teenage fertility rates (less than 30 births per 1000 women aged 15–19). In this category, Tonga showed signs of a potential increase in its rates since 2005, while in New Caledonia, Palau, and Wallis and Futuna teenage fertility rates stabilised. Niue was the only PICT in the low teenage fertility category that showed a decline in teenage fertility rates since 2005.

All PICTs, with the exception of Wallis and Futuna (16 births per 1000 women aged 15–19), had teenage fertility rates higher than those in Australia (13 births per 1000 women aged 15–19; ABS 2015) and New Zealand (19 births per 1000 women aged 15–19; Statistics New Zealand 2015). Of the 20 PICTs examined, 14 had teenage fertility rates that were at least twice as high as New Zealand, suggesting that teenage fertility rates in the Pacific will remain higher than neighboring developed countries without further targeted interventions.

INTRODUCTION

Fertility, in the demographic sense, refers to the number of live births to women in a specific population over a given period of time. It covers the reproductive performance of a population, but not the ability of individual women to conceive and give birth (referred to as fecundity). Fertility, in conjunction with mortality and migration, is a key driver of population growth or, in some cases, decline. High fertility rates, in the absence of out-migration, lead to population increase. Conversely, low fertility rates, in the absence of in-migration, lead to population decrease.

Understanding fertility rates and their impact on population growth is important as population size and structure have an impact on a range of areas, including service provision, population policy, and economic development. Fertility data are critical for managing the provision of services such as hospitals, schools, transportation and infrastructure.

Additionally, understanding fertility patterns is important for improving maternal and neonatal health. Young teenage mothers, and mothers who are considered to be of advanced maternal age (35 years and older), are at greater risk for complications and may require more advanced monitoring and health care to ensure positive birth outcomes for both the mother and child (Chen et al. 2007; Jolly et al. 2000). According to the World Health Organization (2015), while 11 percent of births worldwide were to young women aged 10–19, young women in this age group accounted for 23 percent of the overall burden of disease (disability-adjusted life years) due to pregnancy and childbirth. Additionally, there is a 50 percent greater chance of stillbirth and infant death in the first week of life to babies born to women under age 20 compared with women aged 20–29 (WHO 2015).

From a population growth perspective, age-specific fertility rates are an important determinant in how fast a population is growing. Shorter generational gaps and greater population growth occurs when women give birth at younger ages leads (Pew Research Center 2015). Women who give birth at earlier ages also tend to have more children than those who delay childbirth (Barnes 2001). High fertility rates among young women result in a young population age structure – one where there are more young people than older adults. Countries with young populations have different needs and planning priorities (schools, immunisation, youth employment opportunities) compared with countries with an aging population (and which may be concerned about declining fertility rates), which can result in an older, more dependent population that is no longer in the workforce.

Fertility data, which are particularly important for addressing the currently unmet need in the Pacific Islands region for family planning, has been identified as an issue in many Pacific Island countries and territories (PICTs). It is especially of concern among young and disadvantaged women in Samoa, where fertility rates are as high as 46 percent, and in the Federated States of Micronesia (FSM), where the rate is 44 percent (UNFPA 2014). Historically, the need for more fertility data has been vital as registration is often incomplete and estimates rely on censuses, which are only performed every 5–10 years (Lal and Fortune 2000). Additionally, reliable fertility data are needed because the small population sizes of PICTs can result in a large degree of uncertainty and yearly variation when performing population projections that are based on estimated fertility, mortality and migration data (Lal and Fortune 2000).

While fertility indicators in many PICTs are routinely reported, this is the first comprehensive regional review of data over the last 25 years. This report examines trends in PICTs from 1989 to 2014, with a focus on both long-term and recent trends in total fertility rates (TFRs) and age-specific fertility rates (ASFRs). Trends in TFRs and ASFRs are analysed by region (Melanesia, Polynesia, Micronesia) as well as by level of fertility. Countries are categorised as having very high, moderately high, moderate or low TFRs, as well as having high, moderate or low teenage fertility rates. Recent trends since 2005 across these categories are analysed. Recent ASFR patterns by level of TFR are also examined for age-specific trends by fertility level. At the country or territory level, this allows for analysis of changes over time, while at the regional level, comparisons between populations of similar size or of similar culture can be made, thus helping to identify where further regional policy may be required.

METHODOLOGY

This report analyses fertility data from all PICTs that are members of the Pacific Community, with the exception of Tokelau and Pitcairn. Tokelau and Pitcairn were excluded due to the very small number of births that occur on these islands. In Tokelau, there were just 34 births in 2006 and 19 births in 2011 (Statistics New Zealand 2007, 2012). Data could not be obtained for Pitcairn, which had an estimated population of 48 in 2015 (SPC 2016).

The PICTs examined span across Melanesia, Micronesia and Polynesia, and have diverse cultures, colonial histories, population sizes, land mass sizes, levels of social and economic development, and governance structures. All of these variables affect fertility levels and are determinants in fertility level changes of over time

1.1. MEASURING FERTILITY

The TFR and ASFRs (with a special focus on teenage fertility rates) were chosen to measure fertility levels over time because they are not affected by the age and sex structure of a population, and are generally reported in published literature. Other measures, such as the crude birth rate, yearly births counts, or the general fertility rate can be affected by the proportion of the population comprising women of reproductive age, or the age structure of the female population, and thus were not included in this analysis.

The TFR is defined as the average number of live births a woman would have in her reproductive lifetime (aged 15–49) if she were subject to the current ASFRs. The TFR provides an easy to understand ‘average number of children per woman’ indicator that is not affected by the age and sex structure of a population and is, therefore, useful for analysis (Arriaga 2012).

ASFRs are defined as the number of live births to women of a specified age group, per 1000 women in that age group, over a given period of time (usually one year) (Arriaga et al. 2012). ASFRs make it possible to examine which age groups are experiencing the highest fertility rates, and whether those rates have shifted to older or younger women over time. Historically, fertility rates in many countries have been highest among women aged 20–24; over time, however, women have delayed childbirth or have had fewer children, and so rates have shifted such that fertility peaks among women aged 25–29.

One of the most important ASFRs is the teenage fertility rate, defined as the number of births to women aged 15–19 per 1000 women aged 15–19 in a given year (Arriaga 2012). This indicator is of special importance in determining service provisions for young mothers, as ascertaining the effectiveness of programmes offering contraceptives to young women, and encouraging the deferment of pregnancy. While births do occur to women under age 15, they are less frequent and generally not included in the calculation of TFR used for international comparison. For this reason, births to mothers under age 15 have not been included in this report.

1.2. DATA SOURCES

Data collected through a complete and comprehensive vital registration system or national health system is the preferred source of fertility data. Generally, this entails the recording and tabulation of yearly births by age of mother. In PICTs where these data are more than 90 percent complete and of good quality, vital statistics are often the sole source of fertility data. However, if a country does not have a complete vital registration system, fertility data can be collected intermittently through population censuses or surveys (e.g. a demographic and health survey).

a. Calculation

Data used to calculate TFRs and ASFRs can be derived using either direct or indirect methods. Indicators calculated using vital statistics are derived directly. That is, a simple calculation is used where the number of births per year by five-year age group of the mother is divided by the number of women in that five-year age group, and then multiplied by 1000 to give an ASFR. The ASFR for women aged 15–19 is given below as an example.

$$\text{Teenage fertility rate} = \frac{(\# \text{ of births to women aged } 15\text{--}19) \times 1000}{(\text{Total number of women aged } 15\text{--}19)}$$

Censuses and surveys that include questions about the number of births in a defined retrospective period of time (usually the last 12 months), or inquire about a complete retrospective maternal history, also use direct methods to calculate TFRs and ASFRs.

In vital statistics reports where ASFRs and TFRs were not provided but the number of live births by age of mother were reported, calculations were manually performed. The Pacific Community population projections by five-year age group and sex were used as the denominator in such calculations (SPC 2013). In countries with small populations, these data were aggregated over three to five years, and the midpoint population was used in the denominator. Cases in which manual calculations were performed are noted in country source tables.

In cases where vital registration data or the number of births reported in the last 12 months from the census were reported as being undercounted, these data were removed from the analysis and have not been presented in the graphs or tables. However, data derived from direct methods, and are reported as being accurate and/or complete, are presented in country graphs and tables. Data derived from direct methods with no associated documentation of completeness or quality assessment were analysed and compared with estimates from neighboring years. If these direct estimates deviated too much from other estimates and were deemed to be outliers, they were presented on the graph but not included in the trendline. Such estimates are presented as hollow symbols on the graphs and noted as being excluded from the trendline.

Censuses and surveys often ask women about the number of children they have ever given birth to, and apply indirect techniques to calculate the TFR and ASFRs. Some common indirect techniques include the own children method, the P/F Ratio method, and the Arriaga method. These techniques are often complicated and require complex software. More information on these methods can be found in the United Nations' Manual X: Indirect Techniques for Demographic Estimation (United Nations 1983).

Often, census reports present the results of different indirect methods derived from the same data over the same time period. In instances where a report provided multiple indirect estimates for the same period, an effort was made to analyse the most reliable estimate based on either the recommendation of the text, or country-specific knowledge of the author for which method was most applicable. All estimates from direct calculations deemed to be complete were included, even in cases where an indirect estimate was also provided and recommended as the best estimate. In these instances, both the indirect and direct estimate was included in the report.

Only empirical data were included in this report. Estimates were excluded in cases where TFRs or ASFRs were derived from projections or interpolations between sources.

TFR and ASFR data were extracted primarily from published documents from countries' ministries of health and national statistical offices. Reports included population and housing census reports, demographic and population profiles, statistical yearbooks, abstracts and bulletins, demographic and health survey reports, and vital registration reports. When a secondary source such as an academic journal article was identified, every effort was made to locate the primary source cited. However, if no primary source was cited, or the primary source could not be accessed, the secondary source was used with a reference to the primary data source. Data were accessed through the SPC Statistics for Development library, SPC-managed sites and search engines (PRISM, NMDIs), country websites, general internet search engines, and through direct contact with the reporting authority.

Where multiple sources reported the same estimate and time period, every effort was made to identify the primary source of the data and remove any duplicate occurrences. However, if duplication could not be confirmed, both sources were used for analysis. Where a single source reported multiple estimates for the same time period, and there was sufficient evidence to conclude that one of the values reported was a typographical error, the estimate considered to be in error was excluded from the analysis. If after examination it was concluded that there was no typo among multiple estimates for the same time period, all estimates were included in analysis.

1.3. ANALYSIS

a. *Total fertility rates*

TFRs were plotted on scatter plots displaying TFR estimates from 1989 to 2014. In cases where multiple-year aggregated estimates were obtained, the midpoint of that period was taken for graphing purposes. Aggregated time periods are displayed in source tables along with the midpoint year used for graphing. If two different sources identified the same estimate for the same year, the year was offset slightly on the graph so that both sources could be displayed.

Trendlines were fitted to estimates based on the pattern of the estimates. When there was no indication that the TFR had stabilised, or that the decline in TFR would level off in the near future, a linear trendline was used with the equations:

$$y = a + bx$$

$$y = \text{TFR}$$

$$x = \text{year (midpoint year)}$$

$$a = \text{the y intercept}$$

$$b = \text{coefficient}$$

In instances where the TFR declined in the beginning of the period but later stabilised, a second degree polynomial trendline was determined to be the best fit. The polynomial trendline was fitted using the equation:

$$y = a + bx + cx^2$$

$$y = \text{TFR}$$

$$x = \text{year (midpoint year)}$$

$$a = \text{the y intercept}$$

$$b, c = \text{coefficients}$$

Trendlines using a rolling average were not found to be appropriate for this report as the estimates examined came from multiple sources and from disparate time periods.

Trendlines for TFRs are not shown for PICTs with the exception of the Commonwealth of the Northern Mariana Islands (CNMI). In CNMI's case, data inconsistencies made it difficult to accurately analyse TFR trends. (See individual country pages for more information.)

In the case where data points were considered implausible, they are presented on the graph but are not included in the calculation of the trendline. Estimates that fall in this category are displayed distinctly on graphs, with a note indicating the year and source of the estimate.

In order to analyse TFR trends at the regional level, PICTs were grouped into four fertility level categories according to the placement of their trendline at the end of the period for which there were data. The end timeframe varied by PICT.

- PICTs with very high fertility rates were those where the trendline fell at or above a TFR of 4.0.
- PICTs with moderately high fertility rates were those where the TFR was 3.0 and above, but less than 4.0.
- PICTs with moderate fertility rates were classified as having a TFR of greater than 2.1 but less than 3.0.
- PICTs with low fertility rates were characterised as having a TFR of 2.1 or below.

PICTs in each category were further examined to determine whether recent trends, defined as trends from 2005 onwards, indicated that TFR was increasing, declining, stable, or whether a trend was unable to be determined. None of the PICTs were found to have a definitive increase in TFR over this period; thus, three categories for recent trends were established: declining TFR, stable TFR, and trends in TFR that were unable to be determined.

Four PICTs – the Republic of the Marshall Islands (RMI), Solomon Islands, Tuvalu and Vanuatu – had two or fewer data points from 2005 onwards, and Papua New Guinea had no data after 2004. As with the other PICTs, fertility levels and trends in TFR were characterised for these PICTs based on the shape and placement of their trendlines, although these determinations should be regarded with some caution. More data are needed to understand trends in fertility in these countries. PICTs within each fertility level category and trend category are discussed in the 'Key findings' section.

One additional note should be made in regards to the low fertility category of a TFR of less than or equal to 2.1, and the relationship to 'replacement fertility' in the context of PICTs. Replacement fertility is defined as the fertility level where fertility and mortality rates essentially even each other out, leading to a stabilised population where the population growth rate becomes zero. That is, each generation exactly replaces the next. It is generally accepted that replacement fertility is a TFR of 2.1 (UNDESA 2015). However, this is not applicable in countries with high levels of migration. In the Pacific Islands region where there are high rates of migration to Australia, New Zealand and the United States, a TFR of 2.1 would not be high enough to lead to population replacement as the population would be decreasing due to both mortality and out-migration. A TFR of 2.1 and the term 'replacement fertility' is used here for comparative purposes to the greater global context, and should be interpreted with caution for the PICT it is applied to.

b. Age-specific fertility rates

ASFRs were plotted on a line graph to display changes over time. Graphs were constructed to display as many series as possible, but for the sake of visual clarity, an effort was made to retain ASFRs of adequately spaced period intervals to better depict changes over time. To eliminate yearly stochastic variation, ASFRs averaged over a multi-year period were chosen preferentially for display. ASFRs from adjacent years displaying similar values and shape were removed and noted. Additionally, ASFRs associated with implausible or incomplete TFRs were not shown on graphs and a note was made below the graph indicating the year, source and reason for removal.

c. Teenage fertility rates (adolescent fertility)

Similar to TFR, teenage fertility rates were plotted using a scatter graph displaying estimates from 1989 to 2014. In cases where multiple-year aggregated estimates were obtained, the midpoint of that period was taken for graphing purposes. Aggregated time periods are displayed in source tables along with the midpoint year used for graphing. If two different sources identified the same estimate for the same year, the year was offset slightly on the graph so both sources could be displayed.

Trendlines were fitted to the estimates based on the pattern of estimates. When there was no indication that the teenage fertility rate had stabilised, or that the decline in the teenage fertility rate would level off in the near future, a linear trendline was used with the equation:

$$y = a + bx$$

$$y = \text{TFR}$$

$$x = \text{year (midpoint year)}$$

$$a = \text{the } y \text{ intercept}$$

$$b = \text{coefficient}$$

In instances where the teenage fertility rate declined in the beginning of the period but later stabilised, a second degree polynomial trendline was determined to be the best fit. The polynomial trendline was fitted using the equation:

$$y = a + bx + cx^2$$

$$y = \text{TFR},$$

$$x = \text{year (midpoint year)}$$

$$a = \text{the } y \text{ intercept}$$

$$b, c = \text{coefficients}$$

Trendlines using a rolling average were not found to be appropriate for this report as the estimates examined came from multiple sources and from disparate time periods.

In 6 of the 20 PICTs examined (CNMI, Fiji, Kiribati, RMI, Tuvalu and Vanuatu), it was not appropriate to fit a trendline due to the lack of data (three of fewer estimates) or high dispersion in the estimates. In CNMI, a trendline was not fitted due to inconsistencies in the data. When a trendline was not fitted, an explanation is noted below the graph.

In the case where data points were considered implausible, they are presented on the graph but are not included in the calculation of the trendline. Estimates that fall in this category are displayed distinctly on graphs with a note to indicate the year and source of the estimate.

In order to analyse trends in teenage fertility rates at the regional level, PICTs were grouped into three categories of teenage fertility levels according to the placement of their trendline at the end of the period for which there were data. The end timeframe varied by PICT. PICTs with a high teenage fertility rate were categorised as having a rate of 60 or more births per 1000 women aged 15–19. PICTs with a moderate teenage fertility rate were defined as having a rate between 30 and 59 births per 1000 women aged 15–19. PICTs defined as having a low teenage fertility rate were characterised as having a rate below 30 births per 1000 women aged 15–19. PICTs in each category were further examined to determine if recent trends, defined as trends from 2005 onwards, indicated the teenage fertility rate was increasing, declining, stable, or a trend was unable to be determined.

Six PICTs (Fiji, RMI, Solomon Islands, Tuvalu, Vanuatu, and Wallis and Futuna) had two or fewer data points from 2005 onwards, and PNG had no teenage fertility rate data after 2004. As with the other PICTs, teenage fertility levels and trends in teenage fertility rates were characterised for these PICTs based on the shape and placement of their trendlines, although these determinations should be regarded with some caution. More data are needed to understand trends in teenage fertility in these PICTs. PICTs within each fertility level category and trend category are discussed in the Key Findings section.

d. Age-specific fertility rates by total fertility rate

To determine if distinct age-specific patterns of fertility were occurring between countries with similar total fertility levels, PICTs were grouped by level of total fertility, and ASFRs of countries with similar TFRs were plotted on the same graph. PICTs were grouped into four categories based on their classification as outlined in the 'Total fertility rates' section above and as seen in Table 1 of the Key Findings section. Categories were defined by the placement of trendlines in the ending period for which there were data for each PICT. The end timeframe varied by PICT. Categories were defined as:

- very high fertility: $TFR \geq 4.0$
- moderately high fertility: $3.0 \leq TFR < 4.0$
- moderate fertility: $2.1 < TFR < 3.0$
- low fertility: $TFR \leq 2.1$

Trends in ASFRs among PICTs with similar TFR levels were discussed. An effort was made to select estimates that were aggregated over several years in order to avoid stochastic variation, as well as to select data that were believed to be complete and of good quality. Estimates were manually aggregated over the three most recent years of data for CNMI, French Polynesia, Guam and New Caledonia to avoid yearly stochastic variation. However, it was not possible to select aggregated estimates for Fiji, Kiribati, RMI and Solomon Islands due to the lack of data.

Additionally, depending on the data source and method of calculation, some estimates may not be as representative of current ASFR patterns as would be ideal and could bias comparisons between countries. As only one set of ASFRs per PICT could be graphed for the sake of visual clarity, some caution should be used in interpreting these single-point estimates.

Many PICTs fell on the border between two TFR categories. For example, in 2012, Nauru had a TFR of 3.9 as reported in the national vital statistics report, but in 2011, the census reported the TFR as 4.5 based on indirect methods. PICTs were ultimately classified by the location of their trendline in the most recent period. Thus, TFRs that correspond to ASFRs on the graph may not match the TFR category that the PICT was placed in due to ASFR values being single estimates.

1.4. DATA QUALITY AND SOURCES OF ERROR

The use of multiple data sources and time periods allows for greater certainty of fertility levels and trends, as many factors can affect single-year estimates. This is especially relevant where 14 of the 20 PICTs had a population of 200,000 or less in 2015 (SPC 2016). With such small population sizes, analysis of single-year data can result in spurious conclusions due to normal year-to-year variation seen in small populations. Thus, it is important to look at longer-term trends over time if data are not aggregated over three- to five-year periods. In cases with only four estimates or less, caution should be used when interpreting trends or even fertility levels.

Other sources of error are possible when analysing fertility estimates. In the case of vital registration data, the quality of estimates is dependent on the coverage and completeness of birth registration. Additionally, data may be affected in cases where an infant born alive later passes away and the death is not recorded, or the age of the mother is not reported or reported incorrectly. Furthermore, the accuracy of the population projection used in the denominator can highly affect the resulting indicator, especially in the case of countries with small population sizes.

Values derived from direct methods in censuses and surveys may be underestimated if women do not accurately report the number of births, especially babies who later died, in the retrospective period enquired about. Estimates derived from these sources are also affected by the accuracy of the population counts, either projections or census counts, used in the denominator.

Values derived from indirect methods are subject to the same misreporting biases as they are also based on women recalling, retrospectively, how many live births they have had in their lifetime, and in the last 12 months. However, indirect methods have additional requirements that can affect data quality. For example, the P/F ratio technique assumes that the pattern and level of fertility have not changed in the 10–15 years prior to data collection, and the Arriaga technique assumes changes in fertility occur linearly for children ever born. Both techniques rely on women correctly reporting their age and the number of live children ever born. Because of the additional assumptions that go into indirect methods, which are sometimes violated by real world data, there is more room for error in estimates that were derived indirectly.

A special note should be made in regards to the analysis of data from a demographic and health survey (DHS). A DHS examines a sample of women aged 15–49 and collects a complete retrospective history of the number of live births these women have had, along with the dates of each of the births. The data are then analysed to determine fertility rates for each 5-, 10-, 15- and even 20-year period prior to the survey (ICF International 2016). However, as only women aged 15–49 are interviewed at the time of the survey, 10 years prior to the survey means there were no women aged 40 and older, and an incomplete cohort of women aged 35–39. Lacking ASFRs for these women makes it difficult to accurately estimate TFR. With each additional five-year retrospective period, the amount of fertility data available diminishes, and recall bias increases as women are asked to remember further and further back in time (Rutstein and Guillermo 2003). For this reason, only the estimate covering the three years prior to the survey is used for analysis of TFR and ASFR data.

Additionally, several weaknesses have been identified in the DHS methodology for recording births. Many DHS reports worldwide have documented evidence of interviewers shifting the age of babies, or heaping births to years outside the required cut-off year, in order to avoid administering additional lengthy birth-history-related questions (SINSO 2009; Curtis and Sian 1995). The 2006 DHS in Papua New Guinea reported that significant heaping of births around the year 2000 occurred and was likely due in part to transference of births from the year 2001 to the year 2000 by interviewers to avoid the maternal and health section of the questionnaire (PNGNSO 2009).

Digit preference may also be a source of error, both from censuses and from DHS studies. The 2006 DHS in PNG reported the existence of a digit preference; that is, a preference for digit 0 or a number ending in 0. Substantial heaping of births in a particular year due to digit preference, and an intentional displacement of year of birth, result in a calendar ratio that differs substantially from 100 percent. In the PNG DHS the avoidance of year 2001 and the preference for year 2000 was reflected in a calendar year ratio of 74 percent for the year 2001 and 135 per cent for year 2000 (PNGNSO 2009).

The above sources of error were kept under consideration when analysing the inclusion or exclusion of estimates. Although no data source is without error, examining estimates as a collective whole reinforces the accuracy of individual estimates and past trends, making it possible to tell a story about PICTs' changing fertility rates.

KEY FINDINGS

a. Total fertility rates

As noted in the 'Methodology' section, TFRs were grouped according to fertility level and trendline tendencies from 2005 to 2014 (Table 1). PICTs fell predominantly into two groups, with roughly half categorised as having low to moderate fertility (TFR less than 3.0), and the other half categorised as having moderately high to very high fertility (TFR of 3.0 or higher). As a whole, the Pacific Islands region demonstrated higher fertility rates than both the global average of 2.5 children per woman and of less developed regions, which had a TFR of 2.6 in 2010–2015 (UNDESA 2016).

While TFRs in 11 of the 20 PICTs examined have seen little change since 2005, this stabilisation has occurred across a broad range of fertility levels. Eight of the 20 PICTs examined experienced declining TFRs that have not yet shown signs of levelling off. Three of these were PICTs with very high fertility rates (RMI, PNG and Vanuatu); four, had moderately high fertility rates (American Samoa, Kiribati, FSM and Tonga); while Wallis and Futuna had a TFR that was low and already at the replacement level.

Only CNMI had a TFR less than 2.0. At 1.9 over the period 2011–2013, this was equivalent to the TFR in the United States and New Zealand (Hamilton et al. 2015; Statistics New Zealand 2015). Trends in CNMI, however, could not be determined due to data inconsistencies. (See country pages for more detailed information.)

Table 1: Recent trends in total fertility rates

Total fertility rate (TFR)	Recent trends in TFR		
	Stable	Decline	Cannot be determined
Very high (4.0 and above)	Samoa Solomon Islands [^]	Marshall Islands [^] Papua New Guinea [†] Vanuatu [^]	
Moderately high (3.0 to less than 4.0)	Nauru Tuvalu [^]	American Samoa Kiribati Federated States of Micronesia Tonga [§]	
Moderate (2.1 to less than 3.0)	Cook Islands Fiji Guam Niue New Caledonia		
Low (2.1 or less)	Palau French Polynesia [*]	Wallis and Futuna	CNMI

[^] Two or less estimates were available for these PICTs between 2005 and 2014.

[†] No data are available post-2004 for Papua New Guinea. Classifications are based on levels and trends from the most recent periods available.

[§] The decline in Tonga is slight and not supported by all data points. More data are necessary to definitively confirm the trend.

^{*} The most recent three years of data show that the TFR in French Polynesia has leveled off at 2.0. However, TFR was declining for the 23+ years prior to this. Future data are necessary to determine whether the levelling off is spurious or will continue.

In addition to CNMI, three other PICTs had TFRs at or below 2.1: Palau, French Polynesia, and Wallis and Futuna. While Palau and French Polynesia saw no recent changes in their TFRs, the TFR in Wallis and Futuna still appears to be declining.

PICTs classified as having moderate fertility levels, defined as a TFR less than 3.0 but greater than 2.1, all saw their TFRs stabilise after 2005. While TFRs have declined in these PICTs over the last 25 years, they have leveled off in the last 10 or more years and have remained stable since 2005.

Among the six PICTs with moderately high fertility levels, classified as a TFR of 3.0–3.9, four saw their TFRs continue to decline (American Samoa, Kiribati, FSM and Tonga), while TFRs in Nauru and Tuvalu appeared to remain stable over the period examined. However, only four or fewer estimates are available for Tuvalu, Kiribati and Tonga since 2005, necessitating a degree of caution for interpreting recent trends.

PICTs with the highest TFR levels (those with a TFR of 4.0 and above) saw a mix of stabilisation and decline. In Samoa, TFR was stable over the entire period examined, while Solomon Islands experienced declining fertility in the earlier part of the time period, but the most recent two estimates suggest that TFR has leveled off. RMI, PNG and Vanuatu have all seen their TFRs continue to decline, however, there was significantly less data for these PICTs. In some cases, this may mean that the trends in declining fertility noted in these countries are at least partially a result of data gaps. These PICTs rely on measurements collected through a census rather than vital registration, highlighting the need for greater data collection and dissemination in some countries.

It is notable that TFRs in all PICTs were higher than the TFR in Australia, which was 1.8 in 2014 (ABS 2014). As 4 of the 11 PICTs with fertility levels over 3.0, and all of the PICTs categorised as having moderate fertility levels (2.2–2.9) saw their rates level off in recent years, it is unlikely that fertility rates in the Pacific will drop to levels of neighboring developed countries in the near future.

b. Age-specific fertility rates

There was no one consistent pattern in ASFRs among the 20 PICTs examined; and even when broken down by level of TFR, there was a high level of variation among PICTs.

Among PICTs with very high fertility rates, the highest rates were among women aged 20–24, with the exception of Solomon Islands, where fertility rates were highest among women aged 25–29. Teenage fertility rates were generally higher in PICTs with very high fertility rates compared with the rest of the Pacific Islands region. While women aged 20–29 contributed the most to the very high TFR in these countries (with more than 200 births per 1000 women), rates remained higher among women as they entered their 30s and 40s in PNG, Samoa and Solomon Islands compared with the rest of the Pacific Islands region, illustrating the contribution that older mothers make to the high TFR in these countries.

In PICTs with moderately high fertility rates, the highest rates were among women aged 25–29, with the exception of Nauru where fertility rates were highest among women aged 20–24. Teenage fertility rates were clustered around 45 births per 1000 women aged 15–19 except in Nauru, where they were closer to 100 births per 1000 women aged 15–19.

In Kiribati, Tuvalu and American Samoa, younger women aged 20–24 had higher fertility rates than women aged 30–34. However, in FSM and Tonga, older women aged 30–34 had higher fertility rates than women aged 20–24, signifying a shift in fertility rates to older mothers.

Fertility rates were highest among women aged 25–29 in PICTs categorised as having moderate fertility rates, with the exception of Cook Islands where fertility rates peaked among women aged 20–24. Regardless of where peak fertility occurred, rates did not surpass 160 births per 1000 women in any age group within this group of PICTs. Teenage fertility rates spanned a wide range, with lows in the range of 20–22 births per 1000 women aged 15–19 in New Caledonia and Niue, to 57 and 68 births per 1000 women aged 15–19 in Guam and Cook Islands, respectively. In Niue and New Caledonia, fertility rates among women aged 30–34 were higher than those aged 20–24, illustrating a shift in fertility to older mothers in these PICTs.

ASFR patterns varied among the four PICTs classified as having low fertility rates. Fertility rates were highest among young women aged 20–24 in Palau and CNMI, although in Palau, rates were very similar and did not decline much among women aged 25–34. In CNMI, rates fell sharply after age 24. In French Polynesia and Wallis and Futuna, fertility rates were highest among women aged 25–29. With the exception of Wallis and Futuna, peak fertility rates hovered around 100 births per 1000 women. In Wallis and Futuna, fertility appears to have shifted to older mothers; rates were higher among older women aged 30–34 than among younger women aged 20–24. Teenage fertility rates in these PICTs ranged from 16 births per 1000 women aged 15–19 in Wallis and Futuna, to around 40 births per 1000 women aged 15–19 in CNMI and French Polynesia.

c. Teenage fertility rates

About half of all PICTs had teenage fertility rates higher than the global average of 46 births per 1000 women aged 15–19 (UNDESA 2016). Wallis and Futuna was the only PICT that reported rates comparable to those in developed countries (i.e. 19 births per 1000 women aged 15–19) for the period 2010–2015 (UNDESA 2016). Globally, less developed countries had a teenage fertility rate of 50 births per 1000 women aged 15–19; eight PICTs were at or above this level (UNDESA 2016). Six PICTs displayed teenage fertility rates of 60 (or higher) births per 1000 women aged 15–19 in the most recent period, while nine PICTs saw rates between 30 and 59 births per 1000 women aged 15–19. Just five PICTs (25%) had rates less than 30 births per 1000 women aged 15–19.

Of the 20 PICTs examined, 10 saw their teenage fertility rates stabilise after 2005. Tonga showed signs of a potential increase in teenage fertility, and just three PICTs exhibited a decline in teenage fertility rates over this period. A lack of data and/or data inconsistencies made it unfeasible to determine trends for 6 of the 20 PICTs examined, all of which fell into the high or moderate teenage fertility category of 30–59 or 60 or more births per 1000 women aged 15–19. This is particularly troubling because these countries are the ones most in need of these data for monitoring and planning purposes.

Among PICTs with high teenage fertility rates (60 and above), Cook Islands, Nauru and PNG had rates that remained unchanged. Solomon Islands was the only PICT with a high teenage fertility rate that has experienced a decline in recent years. Both PNG and Solomon Islands, however, had two or fewer estimates since 2005, necessitating a degree of caution for interpretation as trendlines may be a result of data gaps. These PICTs rely on measurements collected through the census rather than vital registration, highlighting the need for greater data collection and dissemination.

Of the 20 PICTs examined, 9 fell into the moderate teenage fertility rate category of 30–59 births per 1000 women aged 15–19. Among PICTs with moderate teenage fertility rates, about half (American Samoa, French Polynesia, Guam and Samoa) experienced no change in teenage fertility rates; only FSM saw a decline in its teenage fertility rate. There were not enough data for Fiji or Kiribati to determine these countries' trends, highlighting the need for greater data collection and dissemination. Data for CNMI and Tuvalu were too inconsistent to analyse for trends. (See country pages for more details.)

Table 2: Recent trends in teenage fertility rates

Teenage fertility rate (births per 1000 women aged 15–19)	Recent trends in teenage fertility rates			
	Potential Increase	Stable	Decline	Cannot be determined
High (60 and above)		Cook Islands Nauru Papua New Guinea [†]	Solomon Islands [^]	Republic of the Marshall Islands [^] Vanuatu [^]
Moderate (30–59)		American Samoa French Polynesia Guam Samoa	Federated States of Micronesia	Fiji [^] Kiribati CNMI Tuvalu [^]
Low (less than 30)	Tonga	New Caledonia Palau Wallis and Futuna [^]	Niue	

[†] No data are available after 2004 for Papua New Guinea. Classifications are based on levels and trends from the most recent periods available.

[^] Two or fewer estimates were available for these PICTs between 2005 and 2014.

Five PICTs were characterised as having teenage fertility rates below 30 births per 1000 women aged 15–19. Three of these PICTs saw no recent change in rates (New Caledonia, Palau, and Wallis and Futuna), while rates have declined in Niue. Teenage fertility rates appear to have increased slightly in Tonga, but more investigation is needed to determine whether this is due to better birth reporting, or a true increase.

While the lowest category of teenage fertility was less than 30 births per 1000 women aged 15–19, it should be noted that this is still considerably higher than neighboring developed countries. For example, the teenage fertility rate in Australia in 2014 was 13 births per 1000 women aged 15–19 (ABS 2015), while New Zealand had a teenage fertility rate of 19 births per 1000 women aged 15–19 (Statistics New Zealand 2015). The rate in the United States in 2014 was 24 births per 1000 among women aged 15–19 (Hamilton et al. 2015). Only Wallis and Futuna, New Caledonia, and Niue came in below the U.S. rate. All PICTs, with the exception of Wallis and Futuna, had teenage fertility rates above the rates in Australia and New Zealand. Fourteen of the 20 PICTs examined had rates at least twice as high as New Zealand, suggesting teenage fertility rates in the Pacific will remain higher than neighboring developed countries without further targeted interventions.

AGE-SPECIFIC FERTILITY RATES BY TOTAL FERTILITY RATE

To determine if distinct age-specific patterns of fertility were occurring between countries with similar total fertility levels, PICTs were grouped by level of total fertility and ASFRs of countries with similar TFRs were plotted on the same graph. PICTs were grouped into four distinct categories based on their classification of TFR level as seen in Table 1 of the Key Findings section. Categories were defined by the placement of trendlines in the ending period for which there were data for each PICT. The end timeframe varied by PICT. Categories were defined as:

- Very high fertility: TFR ≥ 4.0
- Moderately high fertility: $3.0 \leq \text{TFR} < 4.0$

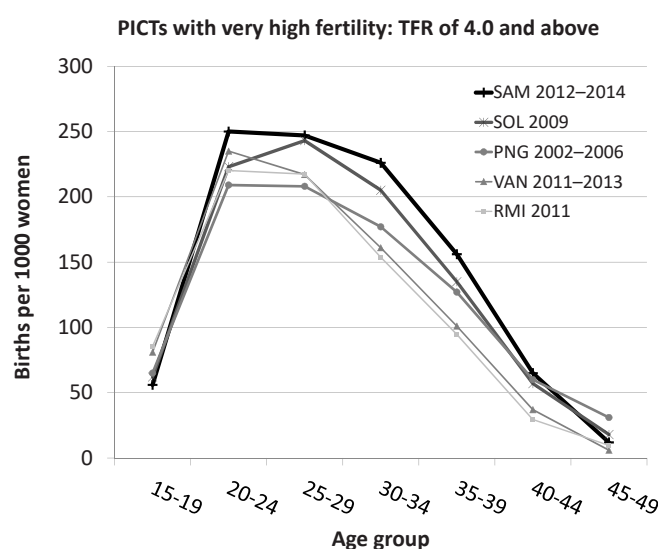
- Moderate fertility: $2.1 < \text{TFR} < 3.0$
- Low fertility: $\text{TFR} \leq 2.1$

The following section discusses the patterns observed by total fertility level. It should be noted that single-period ASFR estimates for each country were chosen and, thus, should be interpreted with some caution. An effort was made to choose a recent estimate that was accurate and spanned several years of data, although this was not always possible. Depending on the source of data and method of calculation, some estimates may not be as representative of current ASFR patterns as would be ideal and, thus, could bias comparisons between countries.

Estimates for CNMI, French Polynesia, Guam and New Caledonia were manually aggregated for the three most recent years of data in order to eliminate the effect of year-to-year stochastic variation.

a. *Pacific Island countries and territories with very high fertility rates*

- Republic of the Marshall Islands
- Papua New Guinea
- Samoa
- Solomon Islands
- Vanuatu



SAM = Samoa, SOL = Solomon Islands, PNG = Papua New Guinea, VAN = Vanuatu, RMI = Marshall Islands

PICTs with very high total fertility rates experienced elevated ASFRs above 200 births per 1000 women among women aged 20–29. With the exception of Solomon Islands, fertility was highest among women aged 20–24, but then remained at almost the same level as women entered the 25–29 year age group.

Samoa, with the highest TFR of 5.1, had moderate teenage fertility rates, rates above 200 births per 1000 women among women aged 20–34. Fertility then remained high as women entered their late 30s at around 156 births per 1000 women. Notably, Samoan women aged 40–44 had the highest fertility rates in the region at 65 births per 1000 women.

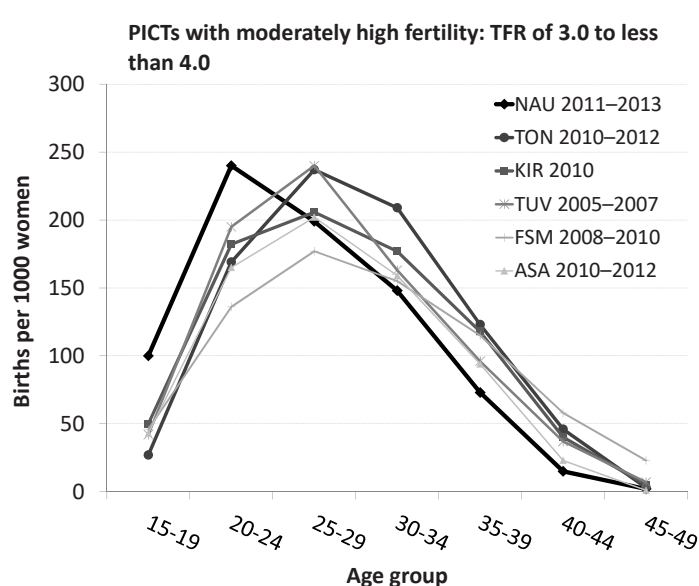
While PNG had the third highest TFR in the region, the age pattern that drove this TFR is notable. Although fertility rates in young women aged 20–29 were higher than many countries in the Pacific Islands region, they were lower than the rates of most of the very high fertility countries. However, as women in PNG entered their 30s and 40s, their fertility rates remained high, and outpaced those of most other PICTs, ultimately leading to a high TFR.

In Vanuatu and RMI, young mothers contributed to high fertility with some of the highest teenage fertility rates in the region (around 80–85 births per 1000 women aged 15–19). Fertility peaked in these countries among young women aged 20–24, remained high among women aged 25–29, then fell below the rates of the other very high fertility countries as women entered their 30s and 40s.

In Solomon Islands, teenage fertility rates were high at around 62 births per 1000 women aged 15–19. Fertility was also high among women aged 20–34, with more than 200 births per 1000 women (peaking among women aged 25–29), and remaining notably elevated among women aged 35–44 compared with other PICTs.

b. PICTs with moderately high fertility rates

- American Samoa
- Kiribati
- Federated States of Micronesia
- Nauru
- Tonga
- Tuvalu



NAU = Nauru, TON = Tonga, KIR = Kiribati, TUV = Tuvalu, FSM = Federated States of Micronesia, ASA = American Samoa

With the exception of Nauru, PICTs that were classified as having moderately high TFRs saw fertility rates highest among women aged 25–29, with rates ranging from 170–240 births per 1000 women. Fertility rates among women aged 20–24 and 30–34 were clustered in the 150–200 (births per 1000 women) range. Apart from Nauru, teenage fertility rates for these PICTs were lower than other PICTs with very high fertility rates.

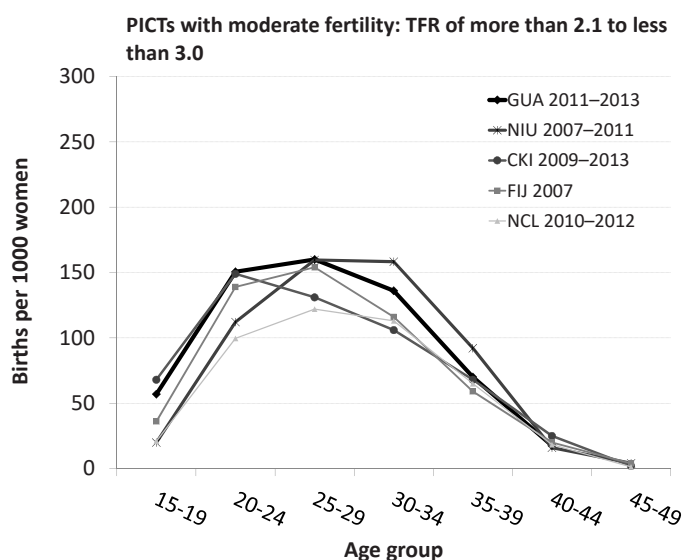
Nauru displayed one of the highest teenage fertility rates in the Pacific Islands region at around 80–100 births per 1000 women aged 15–19. After the teenage years, fertility rates continued to increase rapidly and were highest among young women aged 20–24, but were still elevated among women aged 25–29 (199 births per 1000 women) and 30–34 (148 births per 1000 women). From age 35 onwards, rates began to decline rapidly and were lower than the other PICTs in this category. The high TFR of 3.9 was driven by births to young mothers aged 15–24, and by mothers aged 25–29.

Conversely, in FSM, fertility was driven by slightly older mothers. Rates were higher among women aged 30–34 than women aged 20–24, and mothers aged 35 and older experienced some of the highest fertility rates among this group of PICTs.

Tonga experienced some of the lowest teenage fertility rates in the Pacific Islands region (27 births per 1000 women aged 15–19), but rates increased rapidly after the teenage years to around 169 births per 1000 women aged 20–24, and to as much as 237 births per 1000 women aged 25–29 before falling slightly to 209 births to 1000 women aged 30–34. Fertility rates among women aged 35–44 were some of the highest in the Pacific Islands region.

c. *PICTs with moderate fertility rates*

- Cook Islands
- Fiji
- Guam
- New Caledonia
- Niue



GUA = Guam, NIU = Niue, CKI = Cook Islands, FIJ = Fiji, NCL = New Caledonia

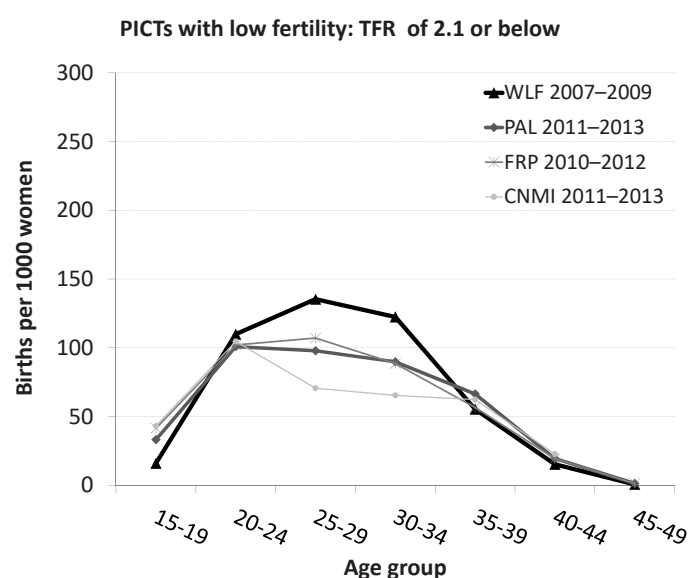
With the exception of Cook Islands, fertility rates were highest among women aged 25–29 in PICTs categorised as having moderate fertility rates. Rates were, however, very similar in women aged 20–24 in Fiji and Guam, and among women aged 30–34 in Niue and New Caledonia. In Cook Islands, fertility rates were highest among women aged 20–24, followed by women aged 25–29. Regardless of where peak fertility occurred, rates did not surpass 160 births per 1000 women in any age group.

In Niue and New Caledonia, fertility rates among women aged 30–34 were higher than those aged 20–24, illustrating a shift in fertility to older mothers.

Teenage fertility rates spanned a wide range, with lows of 20–22 births per 1000 women aged 15–19 in New Caledonia and Niue, to 57 and 68 births per 1000 women aged 15–19 in Guam and Cook Islands, respectively. Fiji came in between these rates at 36 births per 1000 women aged 15–19.

d. *PICTs with low fertility rates*

- Commonwealth of the Northern Mariana Islands
- French Polynesia
- Palau
- Wallis and Futuna



WLF = Wallis and Futuna, PAL = Palau, FRP = French Polynesia, CNMI = Commonwealth of the Northern Mariana Islands

While PICTs with the lowest fertility rates displayed the smallest range in TFR, their ASFR patterns varied. Fertility rates were highest among young women aged 20–24 in Palau and CNMI, although in Palau, rates were very similar and did not decline much among women aged 25–34. In CNMI, rates fell sharply after age 24.

In French Polynesia and Wallis and Futuna, fertility rates were highest among women aged 25–29, although in French Polynesia, rates were very similar to those in women aged 20–24. In Wallis and Futuna, fertility rates were higher among older women aged 30–34 than among younger women aged 20–24, signifying a shift in fertility to older mothers. In French Polynesia, while rates were close in range, fertility was higher among women aged 20–24 than those aged 30–34.

Teenage fertility rates in these PICTs ranged from 16 births per 1000 women aged 15–19 in Wallis and Futuna, to around 40 births per 1000 women aged 15–19 in CNMI and French Polynesia.

DISCUSSION

TFRs in the Pacific Islands region are higher than those in other regions of the world, with the exception of sub-Saharan Africa (UNDESA 2015). Slightly more than half (11 out of 20) of the PICTs examined had a recent TFR of 3.0 or higher; comparatively, the global average TFR was 2.5 in the period 2010–2015, and in less developed regions, the TFR was 2.6 in the same period (UNDESA 2016). Likewise, 19 of the 20 PICTs examined had a higher TFR than the neighboring developed countries of Australia (1.8), New Zealand (1.9), and the United States (1.9) (ABS 2014; Hamilton 2015; Statistics New Zealand 2015), and just four PICTs had a TFR at or below the ‘replacement level’ of 2.1.

It is uncertain whether fertility rates in the Pacific Islands region will decline as a whole as TFRs in 11 of the 20 PICTs examined have been stable since 2005, 4 of which had a TFR of 3.0 or higher. All PICTs categorised as having moderate fertility rates (greater than 2.1 but less than 3.0) have seen their rates stabilise in recent years, suggesting fertility rates have a ways to go before they approach ‘replacement’ fertility levels. It could be posited that there is less of an imperative to focus on decreasing fertility as out-migration to Australia, New Zealand, and the United States alleviates much of the population pressure that would otherwise be felt by high fertility in the region. Indeed, 5 of the 20 PICTs examined were estimated to have a negative growth rate, and of those whose populations were growing, 6 had a growth rate of less than 1 percent (SPC 2016).

The age at which women give birth is important for both monitoring and planning purposes. With the exception of Solomon Islands, PICTs categorised as having very high fertility rates have the highest among young women aged 20–24, with very similar rates among women aged 25–29. Teenage fertility rates were also regionally high, ranging between 56 and 81 births per 1000 women aged 15–19. This information is particularly important as an unmet need for family planning has been identified in many countries in the region, particularly among young women (UNFPA 2014). Among very high fertility PICTs, the unmet need for family planning was 46 percent in Samoa, 30 percent in Vanuatu, 27 percent in PNG, 11 percent in Solomon Islands, and 8 percent in RMI (UNFPA 2014). Among PICTs with a moderately high fertility rate, the unmet need for family planning was 44 percent in FSM, 28 percent in Kiribati, 25 percent in Tonga, and 24 percent in Tuvalu and Nauru (data were not available for American Samoa) (UNFPA 2014). Regular fertility data collection is needed to measure progress in bridging the gap between contraceptive use and the unmet need for family planning.

About half of all PICTs had teenage fertility rates higher than the global average of 46 births per 1000 women aged 15–19 in the most recent period where data were available (UNDESA 2016). Wallis and Futuna was the only PICT that reported rates comparable to those of developed countries’ rate of 19 births per 1000 women aged 15–19 in the period 2010–2015 (UNDESA 2016). Six PICTs had recent estimates of 60 or more births per 1000 women aged 15–19, while nine saw rates between 30 and 59 births per 1000 women aged 15–19. Just five PICTs (25%) had rates less than 30 births per 1000 women aged 15–19.

Regionally, teenage fertility rates have shown little improvement since 2005. Of the 14 PICTs with enough data to determine trends, only three had declining rates, while ten have seen their rates stabilise since 2005, and one PICT (Tonga) showed signs of a potential increase. A lack of data made it unfeasible to determine trends for 6 of the 20 PICTs examined, all of which fell into the moderate or high teenage fertility categories of 30–59, or 60 or more, births per 1000 women aged 15–19. This is particularly troubling as these countries are most in need of these data for monitoring and planning purposes.

All PICTs, with the exception of Wallis and Futuna, had teenage fertility rates above the rates in Australia (13 births per 1000 women aged 15–19; ABS 2015) and New Zealand (19 births per 1000 women aged 15–19; Statistics New Zealand 2015). Of the 20 PICTs examined, 14 had rates at least twice as high as New Zealand, suggesting teenage fertility rates in the Pacific will remain higher than neighboring developed countries without further targeted interventions.

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ANNEX 1 – FERTILITY TRENDS BY PACIFIC ISLAND SUBREGION

1.1. MELANESIA

- Fiji
- New Caledonia
- Papua New Guinea
- Solomon Islands
- Vanuatu

Trends in total fertility rate

Over the last 20–25 years, the total fertility rate (TFR) has declined in Melanesia. More recently, however, fertility rates have fallen in Fiji from the early 1990s until 2000, and then leveled off over the next 10 years, with a TFR of 2.5 in 2008. Similarly, the TFR in New Caledonia fell from around 3.2 in the early 1990s to 2.2 by 2005, where it has remained over the last 10 years.

Papua New Guinea, Solomon Islands and Vanuatu experienced declining fertility at similar rates, with a TFR starting around 5.0 and above in the early 1990s and falling between 4.2 and 4.6 over the period 2005–2012. More recent data are needed, however, for these countries to understand whether the declining trend is continuing, or if fertility has leveled off.

Trends in teenage fertility (adolescent fertility)

With the exception of New Caledonia, there is insufficient data to determine trends in teenage fertility rates for Melanesian countries, highlighting the need for greater data collection and dissemination in this area. From the limited data available, Papua New Guinea, Solomon Islands and Vanuatu have regionally high teenage fertility rates, with more than 60 births per 1000 women aged 15–19. Teenage fertility rates were lower in Fiji with approximately 35 births per 1000 women aged 15–19. In New Caledonia, teenage fertility rates fell by 50 percent, from around 43 births per 1000 women aged 15–19 in the early 1990s, to approximately 20 births per 1000 women aged 15–19 in the early 2000s, where rates have remained.

1.2. MICRONESIA

- Guam
- Kiribati
- Republic of the Marshall Islands
- Federated States of Micronesia
- Commonwealth of the Northern Mariana Islands
- Nauru
- Palau

Trends in total fertility rate

With the exception of Nauru, PICTs in Micronesia have experienced declining fertility rates over the 25-year period examined. The Federated States of Micronesia (FSM) and the Republic of the Marshall Islands (RMI) experienced the largest drop in fertility rates, although the TFR for RMI still remains high, estimated at 4.1 in 2011. The TFR in Palau and Guam declined slowly during the 1990s and then start to level off around 2000. Kiribati experienced a slight decrease in its TFR over this period, while fertility in Nauru remained unchanged when comparing the 1990s to 2008 and beyond.

Micronesia had a broad range in TFR in the most recent period, where births per woman ranged from 1.6 in CNMI, and 2.1 in Palau, to around 4.0 in Nauru, Kiribati and RMI. FSM and Guam fell somewhere in the middle of the range at around 3.5 and 3.0, respectively.

Trends in teenage fertility (adolescent fertility)

Trends in teenage fertility rates were not consistent across Micronesia. While the teenage fertility rate declined in FSM and Palau over the 25-year period examined, it remained relatively constant in Nauru and Guam. Data were insufficient for RMI and Kiribati to determine trends, highlighting the need for more data collection in these countries. A trendline was not fitted to CNMI due to data inconsistencies.

Similar to TFRs, teenage fertility rates spanned a broad range across Micronesia. Rates were highest in RMI at 85–143 births per 1000 women aged 15–19 and around 80–100 births per 1000 women aged 15–19 in Nauru. In the midrange, Kiribati and Guam had teenage fertility rates around 50–60 births per 1000 women aged 15–19. At the lower end of the spectrum, CNMI, FSM and Palau had rates between 30 and 40 births per 1000 women aged 15–19. Teenage fertility rates in Micronesia were notably higher than those of the mainland United States, which had a rate of 24 births per 1000 women aged 15–19 in 2014.¹

1.3. POLYNESIA

- American Samoa
- Cook Islands
- French Polynesia
- Niue
- Samoa
- Tonga
- Tuvalu
- Wallis and Futuna

Trends in total fertility rate

Fertility trends in Polynesia were less consistent than trends in Melanesia or Micronesia. Fertility rates in Samoa, Tonga and Tuvalu have remained relatively unchanged over the period examined, hovering at around 4.7 in Samoa, 4.1 in Tonga, and 3.9 in Tuvalu. In Cook Islands and Niue, fertility rates declined in the earlier part of the period and then leveled off around the early 2000s, with the TFR hovering around 2.7 in Cook Islands and 2.6 in Niue. In French Polynesia, the TFR declined from 3.5 in 1989 to 2.0 from 2012–2014. Continued monitoring is necessary to determine whether the TFR will remain at 2.0, or continue to decline. Fertility rates have continued to decline in American Samoa and Wallis and Futuna, and have not yet shown signs of levelling off, with the most recent estimates suggesting that the TFR is close to 3.0 in American Samoa and 2.1 in Wallis and Futuna.

Trends in teenage fertility (adolescent fertility)

Similar to TFRs, trends in teenage fertility rates were not consistent across Polynesia. Teenage fertility rates declined in Cook Islands in the earlier part of the 25-year period examined, although rates leveled off in the mid-2000s and remained the highest in Polynesia at around 60 births per 1000 women aged 15–19. Teenage fertility rates also declined in Niue and have not yet levelled off, with recent estimates suggesting that the rate is around 22 births per 1000 women aged 15–19. In French Polynesia, teenage fertility rates fell from 65 births per 1000 women aged 15–19 in 1989 to around 42 births per 1000 women aged 15–19 from 2004 onwards. Rates in American Samoa, Tonga, Tuvalu, and Wallis and Futuna have remained relatively unchanged over the 25-year period examined. American Samoa, Samoa and Tuvalu demonstrated teenage fertility rates at around 40 births per 1000 women aged 15–19, while rates in Tonga were closer to 30 births per 1000 women aged 15–19, and 16 births per 1000 women in Wallis and Futuna aged 15–19 – the lowest rate in the Pacific Islands region.

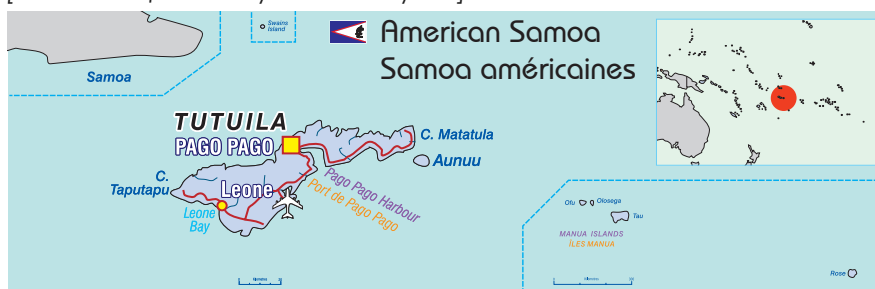
¹ Hamilton B.E. et al. 2015. Births: Preliminary data for 2014. National Vital Statistics Reports 64(6): 7. Hyattsville, Maryland, USA: US National Center for Health Statistics. Available at: http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_06.pdf

ANNEX 2 – FERTILITY TRENDS BY COUNTRY

AMERICAN SAMOA

Region:	Polynesia
Land area (km ²):	199
2015 mid-year population estimate:	57,100
Population growth rate (%):	0.5

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The TFR has declined steadily from about 4.5 in 1988 to around 3.0 by 2012, and will likely continue to decline into the near future as it has not yet shown signs of levelling off.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Fertility is highest among women aged 25–29, although age-specific fertility rates (ASFRs) among women aged 20–24 and 30–34 are similar in range. The decline in fertility over time can be seen, particularly among women aged 25–34 over the 20-year period. It is, however, notable that fertility also fell among women aged 35 and older.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

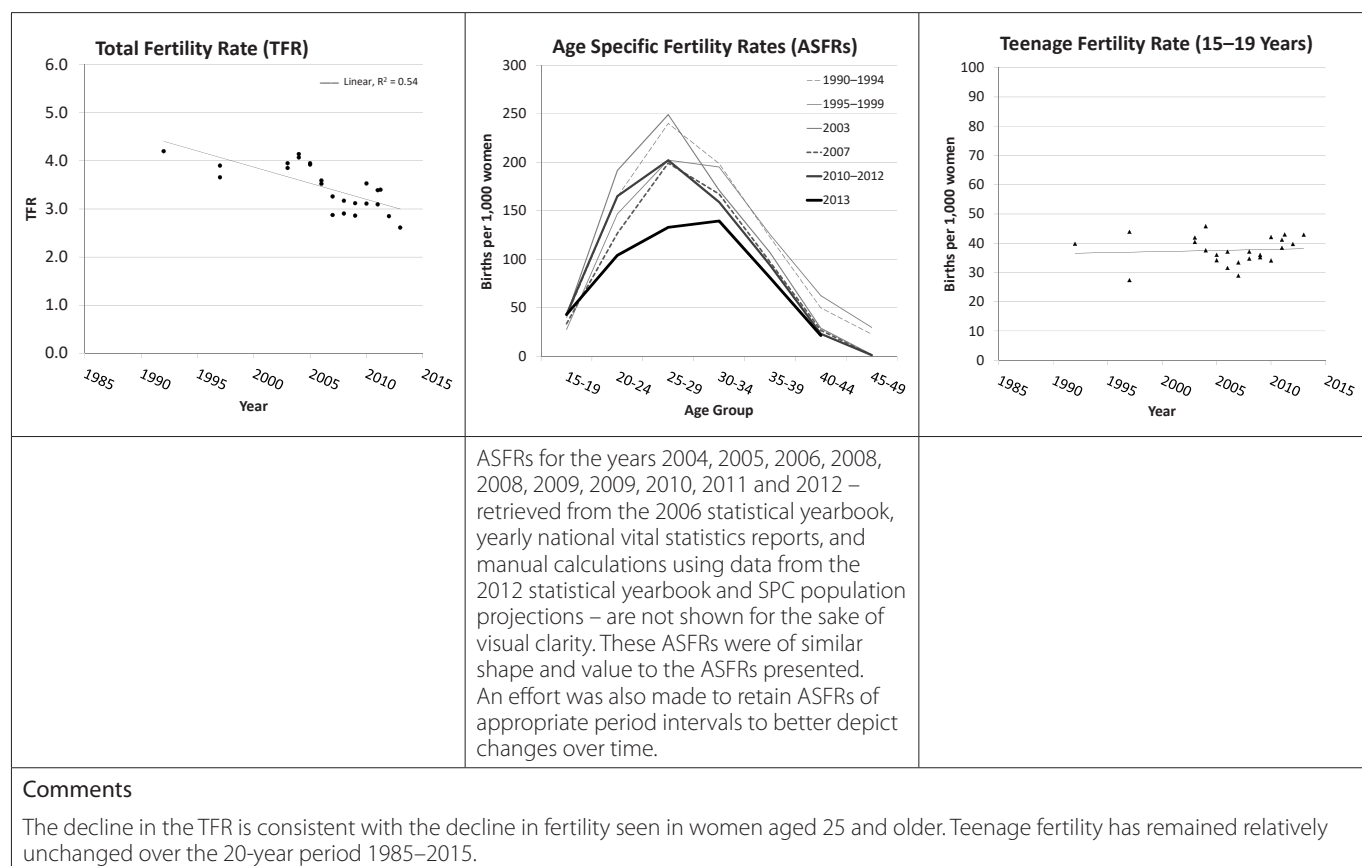
Teenage fertility remains at approximately 30 to 40 births per 1000 women aged 15–19, with minimal change over the 20-year period.

DATA SOURCES AND QUALITY

Primary data sources included the 2000, 2006 and 2012 statistical yearbooks and the yearly national vital statistics reports from the United States National Center for Health Statistics (US NCHS). Calculations for TFR and ASFRs were performed using birth data by age of the mother from the 2012 statistical yearbook and SPC population projections.

It should be noted that the 2013 estimates showing lower ASFRs and a shift in fertility to older mothers, are single-year estimates, and hence are more affected by stochastic variation. ASFRs for 2010 are more likely to reflect current fertility patterns as they are averaged over a three-year period (2009–2011) to help alleviate this yearly variation. ASFRs from the 2011 and 2012 US NCHS reports were similar in shape and magnitude to the 2010 estimate shown, indicating that the 2013 estimates are an aberration and may have been subject to error. Additional data for the most recent years are required to better understand possible changes in fertility.

The national vital statistics reports from the US NCHS do not report ASFRs when the number of births reported are less than 20 for a certain age group. This was the case for women aged 45–49 for the years 2008–2013, and thus, these numbers are not available to display on the graph.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1990–1994 (1992)	4.2	Stat Yearbook	Not provided in source document [†]	Indirect calculation own children method	1
1995–1999 (1997)	3.9	Stat Yearbook	Not provided in source document [†]	Indirect calculation own children method	1
1997	3.7	US NCHS [^]	Vital Registration	Direct calculation	2
2002–2004 (2003)	4.0	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2003	3.9	US NCHS [^]	Vital Registration	Direct calculation	5
2003–2005 (2004)	4.1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2004	4.1	US NCHS [^]	Vital Registration	Direct calculation	6
2004–2006 (2005)	4.0	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2005	3.9	US NCHS [^]	Vital Registration	Direct calculation	7
2005–2007 (2006)	3.6	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2006	3.5	US NCHS [^]	Vital Registration	Direct calculation	8
2006–2008 (2007)	3.3	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2007	2.9	US NCHS [^]	Vital Registration	Direct calculation	9
2007–2009 (2008)	3.2	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2008	2.9	US NCHS [^]	Vital Registration	Direct calculation	10
2008–2010 (2009)	3.1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2009	2.9	US NCHS [^]	Vital Registration	Direct calculation	11
2009–2011 (2010)	3.5	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2010	3.1	US NCHS [^]	Vital Registration	Direct calculation	12
2010–2010 (2011)	3.4	Vital Stats Report	Vital Registration	Direct calculation	13
2010–2010 (2011)	3.4	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2011	3.1	US NCHS [^]	Vital Registration	Direct calculation	14
2012	2.8	US NCHS [^]	Vital Registration	Direct calculation	15
2013	2.6	US NCHS [^]	Vital Registration	Direct calculation	16

[†] Further investigation with the reporting authority is required to retrieve this information.

[^] United States National Center for Health Statistics. Note: The TFR from the US NCHS is derived from women aged 15–44 and does not include women aged 45–49.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1990–1994 (1992)	40	164	240	199	123	50	23	Stat Yearbook	Not provided in source document [†]	Indirect calculation - own children method	1
1995–1999 (1997)	27	147	202	195	126	62	30	Stat Yearbook	Not provided in source document [†]	Indirect calculation - own children method	1
1997	44	na	na	na	na	na	na	US NCHS [^]	Vital Registration	Direct calculation	2
2002–2004 (2003)	42	192	249	171	107	29	2	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2003	40	na	na	na	na	na	na	US NCHS [^]	Vital Registration	Direct calculation	5
2003–2005 (2004)	38	183	264	181	114	33	1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2004	46	na	na	na	na	na	na	US NCHS [^]	Vital Registration	Direct calculation	6
2004–2006 (2005)	36	168	253	180	117	35	1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2005	34	na	na	na	na	na	na	US NCHS [^]	Vital Registration	Direct calculation	7
2005–2007 (2006)	32	147	227	175	107	29	1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2006	37	na	na	na	na	na	na	US NCHS [^]	Vital Registration	Direct calculation	8
2006–2008 (2007)	33	127	199	167	97	27	1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2007	29	na	na	na	na	na	na	US NCHS [^]	Vital Registration	Direct calculation	9
2007–2009 (2008)	35	123	186	172	91	27	0	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2008	37	121	166	149	82	27	nc	US NCHS [^]	Vital Registration	Direct calculation	10
2008–2010 (2009)	36	117	177	171	95	28	0	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2009	35	136	149	147	80	25	nc	US NCHS [^]	Vital Registration	Direct calculation	11
2009–2011 (2010)	42	179	202	159	98	25	1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2010	34	132	177	165	93	20	nc	US NCHS [^]	Vital Registration	Direct calculation	12
2010–2012 (2011)	43	165	202	159	94	23	1	Vital Stats Report	Vital Registration	Direct calculation	13
2010–2012 (2011)	41	160	200	156	96	24	1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3,4
2011	38	151	166	155	92	17	nc	US NCHS [^]	Vital Registration	Direct calculation	14
2012	40	120	156	149	82	22	nc	US NCHS [^]	Vital Registration	Direct calculation	15
2013	43	104	133	139	81	21	nc	US NCHS [^]	Vital Registration	Direct calculation	16

[†] Further investigation with the reporting authority is required to retrieve this information.

[^] United States National Center for Health Statistics.

na = data not available in the publication.

nc = data not calculated. Note TFR from NCHS is derived from women aged 15–44 and does not include women aged 45–49, thus there is no reported ASFR for this age group.

Note: dates in parentheses refer to mid-point in ranges.

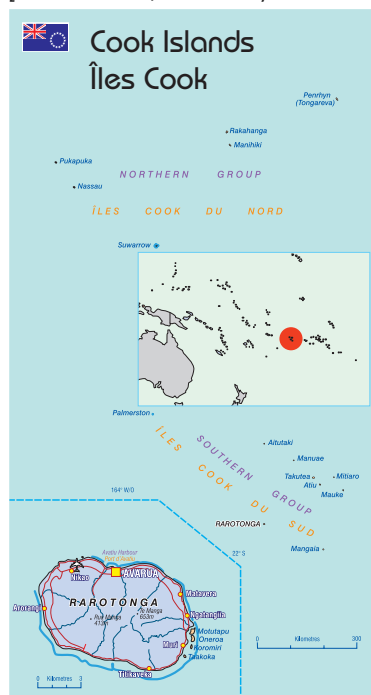
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11. Martin J. et al. 2010. Births: Final data for 2008. National Vital Statistics Reports 59(1):1–72. Hyattsville, Maryland, USA: US National Center for Health Statistics. Available at: http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_01.pdf
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COOK ISLANDS

Region:	Polynesia
Land area (km ²):	237
2015 mid-year population estimate:	14,730
Population growth rate (%):	-0.5

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in Cook Islands declined from approximately 3.7 in the mid-1990s to around 2.8 by 2002. However, from about 2002 onwards, the TFR has remained fairly constant in the range of 2.7–2.9.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Age-specific fertility rates (ASFRs) reflect the declining trend in TFR from the mid-1990s to about 2002. Fertility decreased among women aged 15–39 during this period, with the largest decrease occurring among women in their 20s. From about 2002 onwards, there was little variation in ASFRs.

Fertility was consistently highest among young women aged 20–24, then falling slightly among women aged 25–29, and continued declining as women entered their 30s and beyond.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

The teenage fertility rate declined from approximately 80 births per 1000 women aged 15–19 in the mid-1990s, to around 60 births per 1000 women aged 15–19 in 2010, where it has remained.

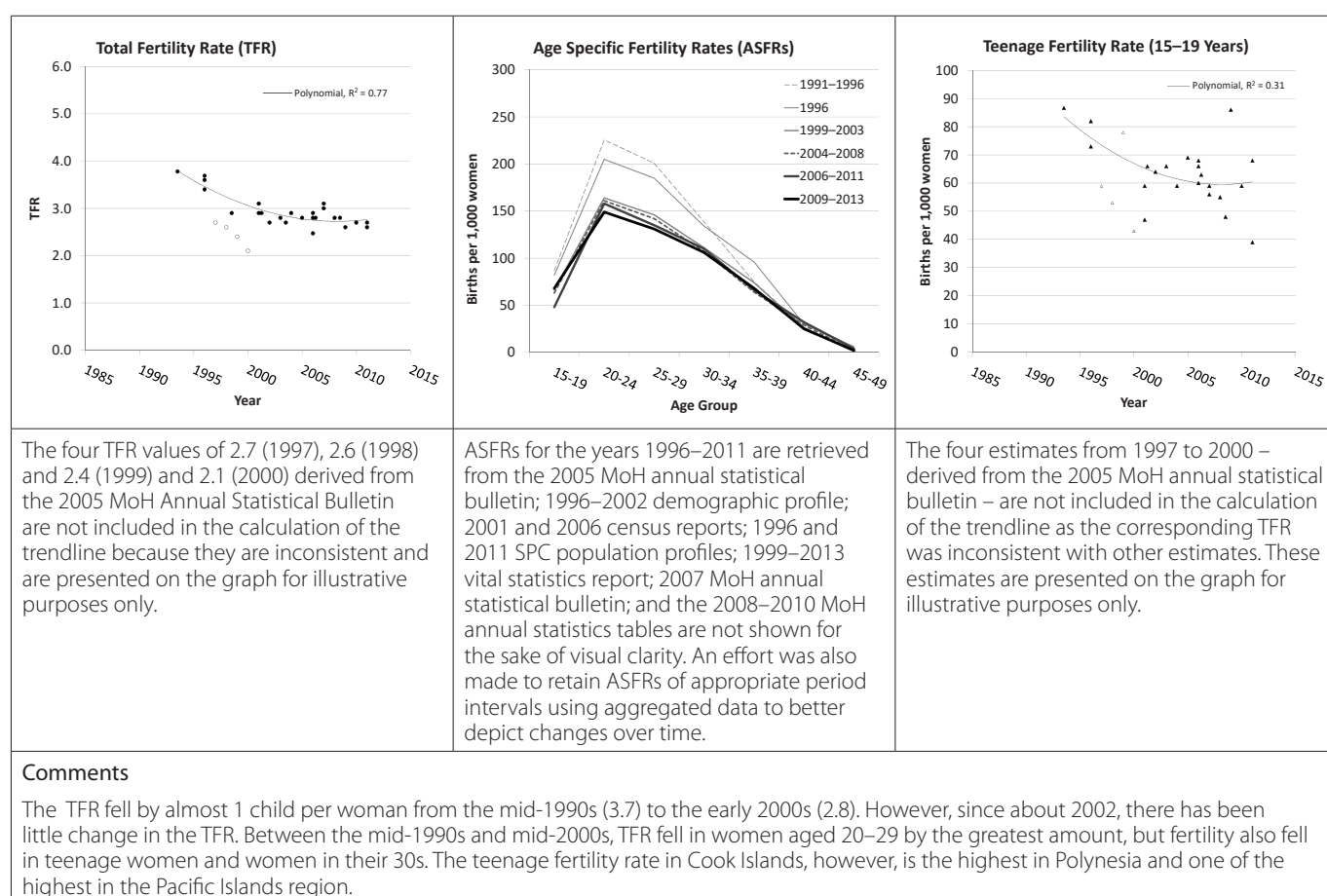
The data show copious variation with many outliers, which is likely an effect of stochastic variation seen in small populations and single-year estimates. Data aggregated over several years in time are likely to be more reliable and are a better reflection of fertility rates in adolescents.

DATA SOURCES AND QUALITY

Primary data sources included the 2001 and 2006 census reports; 2005, 2007, 2008–2010 Ministry of Health statistical bulletins; 2008–2010 Ministry of Health annual statistical tables; 1999 and 2011 SPC population profile; 2005 SPC demographic profile; and the 1999–2013 Cook Islands vital statistics reports.

Estimates retrieved from the 2005 Ministry of Health annual statistical bulletin seemed implausibly low. The primary source and methodology used to calculate these estimates were not provided in the document and so could not be confirmed; therefore, these estimates have not been included in the trendlines for TFR or teenage fertility.

An effort was made to use sources that aggregated data in place of single-year estimates when graphing ASFRs in order to minimise stochastic variation.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1991–1996 (1993.5)	3.8	SPC Pop Profile	Vital Registration	Direct calculation- adjusted [^]	1
1996	3.4	MoH Bulletin	Vital Registration	Direct calculation	2
1996	3.7	SPC Pop Profile	Census	Average of indirect and direct methods	1
1996	3.6	SPC Pop Profile	Census	Indirect calculation – own children method	1
1997	2.7	MoH Bulletin	Vital Registration	Direct calculation	2
1998	2.6	MoH Bulletin	Vital Registration	Direct calculation	2
1996–2001 (1998.5)	2.9	SPC Dem Profile	Vital Registration	Direct calculation	3
1999	2.4	MoH Bulletin	Vital Registration	Direct calculation	2
2000	2.1	MoH Bulletin	Vital Registration	Direct calculation	2
1999–2003 (2001)	2.9	Vital Stat Report	Vital Registration	Direct calculation	4
2001	2.9	MoH Bulletin	Vital Registration	Direct calculation	2
2001	3.1	Census	Census	Direct calculation – births in the last 12 months	5
2002	2.7	MoH Bulletin	Vital Registration	Direct calculation	2
2003	2.8	MoH Bulletin	Vital Registration	Direct calculation	2
2001–2006 (2003.5)	2.7	Census	Vital Registration	Direct calculation	6
2004	2.9	MoH Bulletin	Vital Registration	Direct calculation	2
2005	2.8	MoH Bulletin	Vital Registration	Direct calculation	2
2004–2008 (2006)	2.8	Vital Stat Report	Vital Registration	Direct calculation	4
2006	2.8	MoH Tables	Vital Registration	Direct calculation	8
2006	2.9	MoH Bulletin	Vital Registration	Direct calculation	7
2006	2.5	Census	Census	Indirect calculation – own children method – Arriaga method	6
2007	3.0	MoH Tables	Vital Registration	Direct calculation	8
2007	3.1	MoH Bulletin	Vital Registration	Direct calculation	7
2008	2.8	MoH Tables	Vital Registration	Direct calculation	8
2006–2011 (2008.5)	2.8	SPC Pop Profile	Vital Registration	Direct calculation	9
2009	2.6	MoH Tables	Vital Registration	Direct calculation	8
2010	2.7	MoH Tables	Vital Registration	Direct calculation	8
2009–2013 (2011)	2.7	Vital Stat Report	Vital Registration	Direct calculation	4
2011	2.6	SPC Pop Profile	Census	Indirect calculation – own children method – Arriaga method	9

[^] Adjustment techniques were applied by the reporting authority to correct for suspected undercount.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1991–1996 (1993.5)	87	226	201	139	75	27	2	SPC Pop Profile	Vital Registration	Direct calculation- adjusted ^a	1
1996	73	228	159	102	92	20	na	MoH Bulletin	Vital Registration	Direct calculation	2
1996	82	205	185	134	96	30	6	SPC Pop Profile	Census	Average of indirect and direct methods	1
1997	59	170	135	94	65	26	na	MoH Bulletin	Vital Registration	Direct calculation	2
1998	53	14	147	104	68	20	Na	MoH Bulletin	Vital Registration	Direct calculation	2
1999	78	108	114	89	68	24	na	MoH Bulletin	Vital Registration	Direct calculation	2
2000	43	103	92	91	72	13	na	MoH Bulletin	Vital Registration	Direct calculation	2
1999–2003 (2001)	66	164	146	111	74	26	1	Vital Stats Report	Vital Registration	Direct calculation	4
2001	59	163	126	137	65	24	na	MoH Bulletin	Vital Registration	Direct calculation	2
2001	47	161	153	122	94	40	0	Census	Census	Direct calculation – births in the last 12 months	5
2002	64	145	156	87	67	29	na	MoH Bulletin	Vital Registration	Direct calculation	2
2003	66	157	120	98	78	38	na	MoH Bulletin	Vital Registration	Direct calculation	2
2004	59	185	139	100	73	31	na	MoH Bulletin	Vital Registration	Direct calculation	2
2005	69	163	118	100	76	33	na	MoH Bulletin	Vital Registration	Direct calculation	2
2004–2008 (2006)	63	161	142	107	64	29	2	Vital Stats Report	Vital Registration	Direct calculation	4
2006	68	159	123	108	80	31	na	MoH Tables	Vital Registration	Direct calculation	8
2006	66	175	111	111	84	38	na	MoH Bulletin	Vital Registration	Direct calculation	7
2006	60	119	114	107	67	23	4	Census	Census	Indirect calculation – own children method – Arriaga method	6
2007	59	179	152	123	47	39	na	MoH Tables	Vital Registration	Direct calculation	8
2007	56	198	137	126	50	47	na	MoH Bulletin	Vital Registration	Direct calculation	7
2008	55	151	152	108	60	26	na	MoH Tables	Vital Registration	Direct calculation	8
2009	86	133	142	81	67	13	na	MoH Tables	Vital Registration	Direct calculation	8
2006–2011 (2008.5)	48	158	135	110	66	32	4	SPC Pop Profile	Vital Registration	Direct calculation	9
2010	59	157	116	103	69	35	na	MoH Tables	Vital Registration	Direct calculation	8
2009–2013 (2011)	68	149	131	106	68	25	2	Vital Stats Report	Vital Registration	Direct calculation	4
2011	39	135	140	102	69	37	6	SPC Pop Profile	Census	Indirect calculation – own children method – Arriaga method	9

^a Adjustment techniques were applied by the reporting authority to correct for suspected undercount.

Note: dates in parentheses refer to mid-point in ranges.

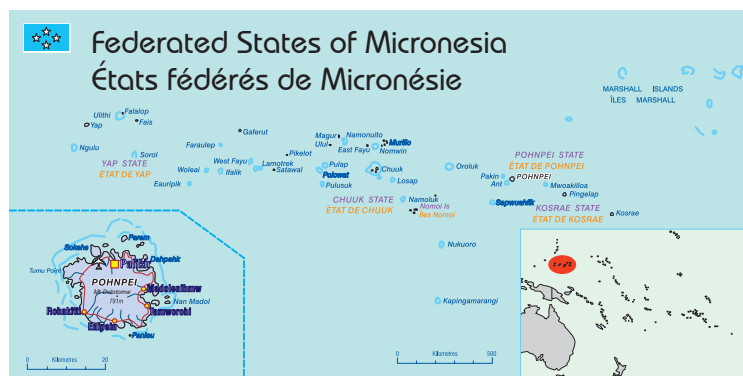
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9. The Pacific Community. 2011. Population profile of Cook Islands 2006–2011. Noumea, New Caledonia: The Pacific Community.

FEDERATED STATES OF MICRONESIA

Region:	Micronesia
Land area (km ²):	701
2015 mid-year population estimate:	102,800
Population growth rate (%):	-0.1

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

Over 20 years, the total fertility rate (TFR) in the Federated States of Micronesia (FSM) decreased by about 2 children per woman, from 5.5 in 1990 to approximately 3.5 in 2010. In recent years, fertility has continued to decline and has not yet shown signs of levelling off.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

While the pattern of fertility has remained unchanged over the 15-year period shown, fertility rates have decreased across all age groups. However, the decline in fertility is most notable in the age groups with the highest fertility (i.e. women aged 20–34). Fertility rates are consistently highest among women aged 25–29.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

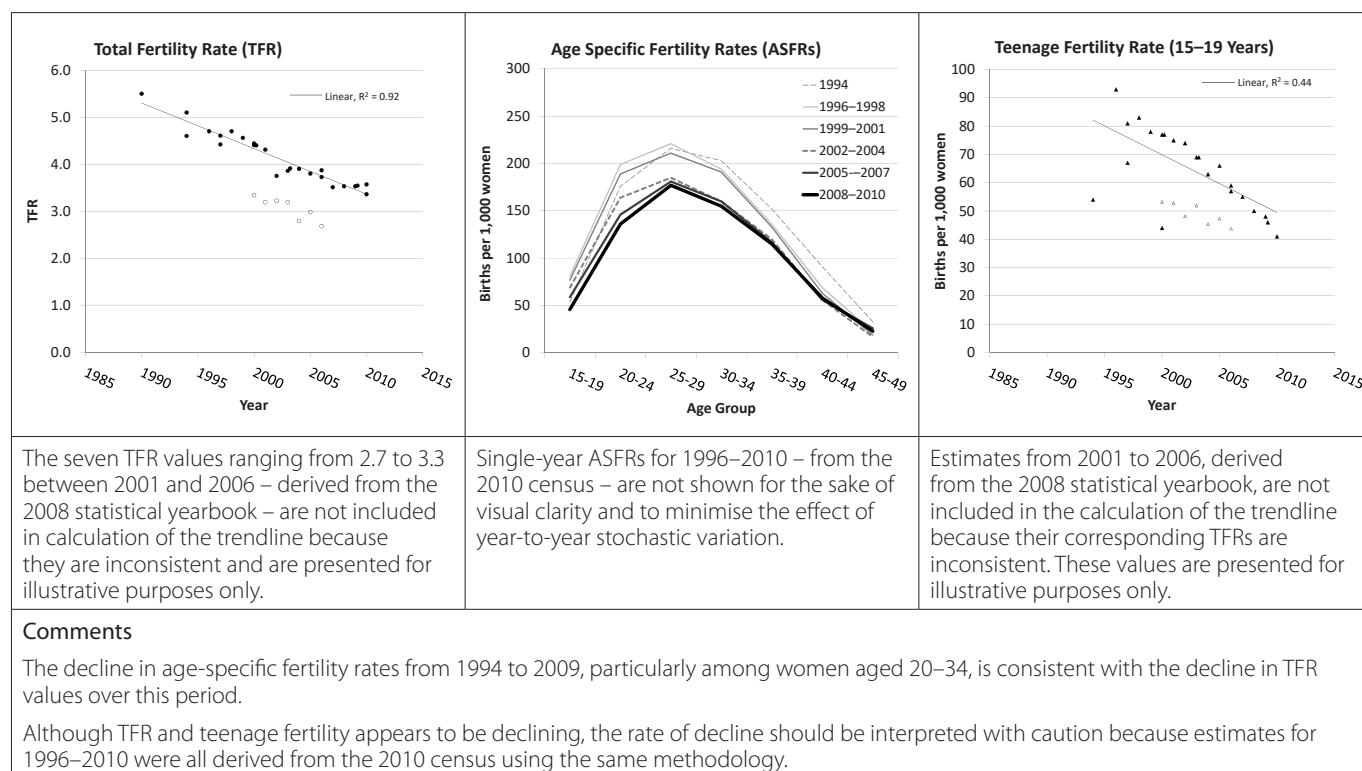
Teenage fertility rates have declined from more than 80 births per 1000 women aged 15–19 in the mid-1990s to approximately 45 births per 1000 women aged 15–19 in 2010. However, data from 1997–1999 and 2001–2010 were all derived from the 2010 census using the same methodology; thus, the rate of decrease and trend interpretation should be undertaken with some caution.

DATA SOURCES AND QUALITY

The primary data sources included the 1994, 2000, and 2010 censuses; the 2008 statistical yearbook; and the 2010 summary of key indicators. Secondary data sources included the 1995 SPC Population Statistics Statistical Bulletin No. 42.

The consistent linear decrease in TFRs and teenage fertility rates should be interpreted with caution because the TFRs for 1990 and 1996–2010, and teenage fertility rates from 1996 to 2010 were all derived from the 2010 census data using the own children method.

TFR values from the 2008 statistical yearbook were implausibly low and form a parallel series to the data reported by the censuses. These estimates were derived from registered births, which were likely underreported. Additionally, the methodology used in the calculation of these estimates was not provided, therefore, these estimates have been excluded from the trendline.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1990	5.5	Census	Not provided in source document [†]	Not provided in source document [†]	1
1994	4.6	Census	Census	Direct calculation – births in the last 12 months – adjusted [^]	2
1994	5.1	SPC Stat Bulletin	Not provided in source document [†]	Not provided in source document [†]	3
1996	4.7	Census	Census	Indirect calculation – own children method	1
1996–1998 (1997)	4.6	Census	Census	Indirect calculation – own children method	1
1997	4.4	Census	Census	Indirect calculation – own children method	1
1998	4.7	Census	Census	Indirect calculation – own children method	1
1999	4.6	Census	Census	Indirect calculation – own children method	1
1999–2001 (2000)	4.4	Census	Census	Indirect calculation – own children method	1
2000	4.4	Census	Census	Indirect calculation – own children method	1
2000	4.4	Census	Census	Indirect calculation – children ever born – P/F ratio method	4
2000	3.3	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2001	4.3	Census	Census	Indirect calculation – own children method	1
2001	3.2	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2002	3.8	Census	Census	Indirect calculation – own children method	1
2002	3.2	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2002–2004 (2003)	3.9	Census	Census	Indirect calculation – own children method	1
2003	3.9	Census	Census	Indirect calculation – own children method	1
2003	3.2	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2004	3.9	Census	Census	Indirect calculation – own children method	1
2004	2.8	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2005	3.8	Census	Census	Indirect calculation – own children method	1
2005	3.0	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2005–2007 (2006)	3.7	Census	Census	Indirect calculation – own children method	1
2006	3.9	Census	Census	Indirect calculation – own children method	1
2006	2.7	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2007	3.5	Census	Census	Indirect calculation – own children method	1
2008	3.5	Census	Census	Indirect calculation – own children method	1
2008–2010 (2009)	3.5	Census	Census	Indirect calculation – own children method	1
2009	3.5	Census	Census	Indirect calculation – own children method	1
2010	3.6	Census	Census	Indirect calculation – own children method	1
2010	3.4	Census	Census	Not provided in source document [†]	6

[†] Further investigation with the reporting authority is required to retrieve this information.

[^] Adjustment techniques were applied by the reporting authority to correct for suspected undercount.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1994	54	176	216	203	152	91	33	Census	Census	Direct calculation – births in the last 12 months – adjusted [^]	2
1996	93	196	234	196	140	60	23	Census	Census	Indirect calculation – own children method	1
1997	67	194	204	195	133	74	18	Census	Census	Indirect calculation – own children method	1
1996–1998 (1997)	81	199	221	194	136	69	22	Census	Census	Indirect calculation – own children method	1
1998	83	207	224	192	134	72	25	Census	Census	Indirect calculation – own children method	1
1999	78	199	214	193	142	64	22	Census	Census	Indirect calculation – own children method	1
1999–2001 (2000)	77	189	211	191	133	63	19	Census	Census	Indirect calculation – own children method	1
2000	77	185	204	199	126	60	19	Census	Census	Indirect calculation – own children method	1
2000	44	191	225	202	139	69	18	Census	Census	Indirect calculation – children ever born–P/F ratio method	4
2000	53	148	168	143	114	27	11	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2001	75	183	214	181	130	64	16	Census	Census	Indirect calculation – own children method	1
2001	53	135	165	145	102	25	10	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2002	74	164	182	162	106	48	13	Census	Census	Indirect calculation – own children method	1
2002	48	147	163	138	107	31	8	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2003	69	165	185	163	126	55	21	Census	Census	Indirect calculation – own children method	1
2003	52	141	177	127	104	28	7	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2002–2004 (2003)	69	164	185	160	120	56	17	Census	Census	Indirect calculation – own children method	1
2004	63	164	188	155	128	66	17	Census	Census	Indirect calculation – own children method	1
2004	45	130	148	115	95	18	4	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2005	66	145	178	162	124	59	26	Census	Census	Indirect calculation – own children method	1
2005	47	136	169	128	91	20	3	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2006	57	157	197	160	124	53	26	Census	Census	Indirect calculation – own children method	1
2006	44	130	144	114	84	15	4	Stat Yearbook	Vital Registration	Not provided in source document [†]	5
2005–2007 (2006)	59	146	181	160	117	56	26	Census	Census	Indirect calculation – own children method	1
2007	55	135	169	157	105	55	26	Census	Census	Indirect calculation – own children method	1
2008	50	143	179	147	113	51	23	Census	Census	Indirect calculation – own children method	1
2009	48	133	169	154	119	56	26	Census	Census	Indirect calculation – own children method	1
2008–2010 (2009)	46	136	177	155	115	58	23	Census	Census	Indirect calculation – own children method	1
2010	41	131	181	164	112	66	20	Census	Census	Indirect calculation – own children method	1

[^] Adjustment techniques were applied by the reporting authority to correct for suspected undercount.

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

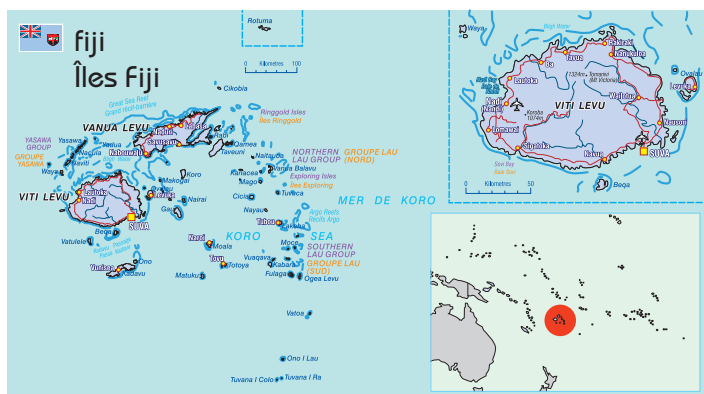
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FIJI, REPUBLIC OF

Region:	Melanesia
Land area (km ²):	18,333
2015 mid-year population estimate:	867,000
Population growth rate (%):	0.5

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in Fiji declined from around 3.3 in 1990 to approximately 2.6 in 2001, where it has levelled off. However, the most recent estimate is from 2007, which does not allow for the analysis of current trends. More recent data (i.e. from 2007 onwards) is required in order to determine the current trend.

It should be noted that Fiji comprises two major ethnic subpopulations: Melanesian and Fijian-Indian. The figures presented here are for both subpopulations combined, although these two subpopulations exhibit different fertility patterns. An examination by ethnicity is, however, outside the scope of this report.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

With only three available ASFRs ranging from 1996 to 2007, it is difficult to determine trends in age-specific fertility. Both historical and more recent data are needed to understand how fertility is changing in Fiji.

Aside from a slight decrease in fertility among women aged 20–29, age-specific fertility has not changed significantly over the 10-year period 1996–2007. Fertility is highest among women aged 20–29, although a sizeable number of women give birth when they are 30–34.

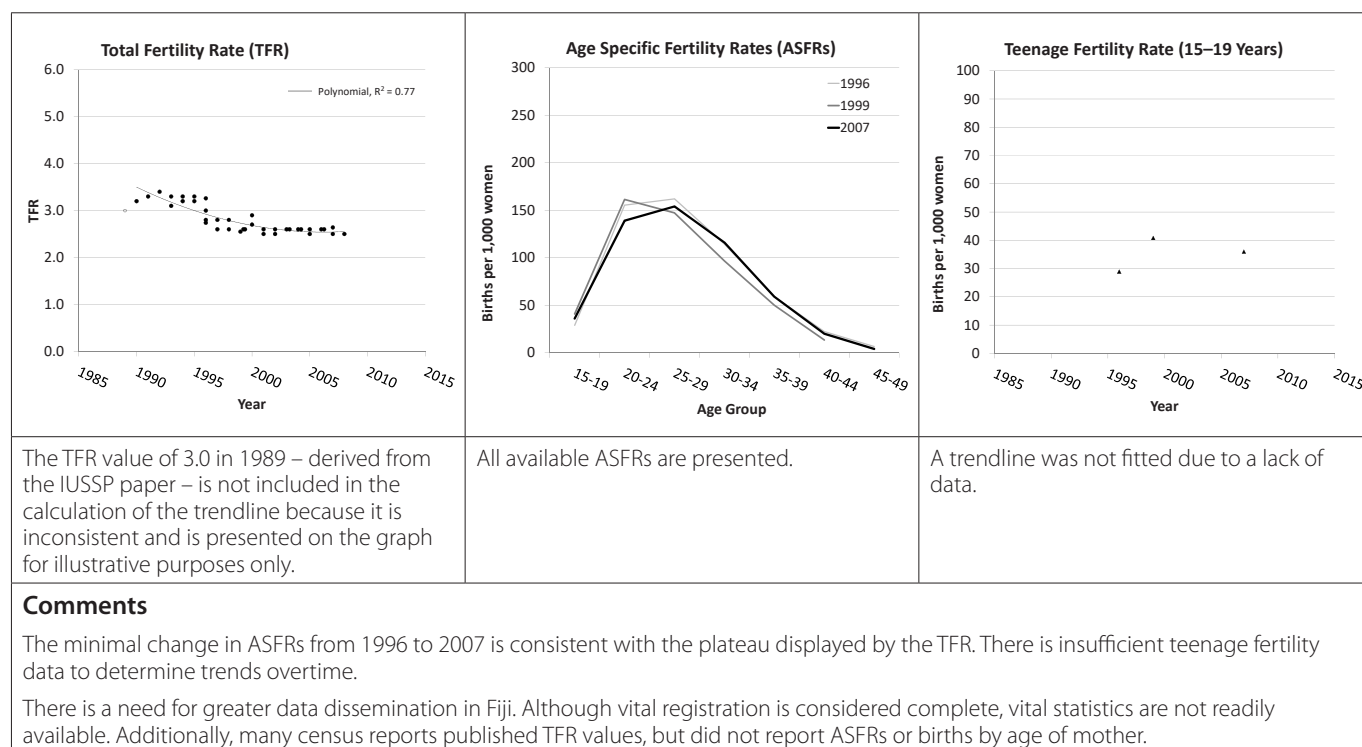
TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

There is insufficient data to establish a trend in teenage fertility as only three data points were identified. Teenage fertility in Fiji was in the range of 29 to 41 births per 1000 women aged 15–19 during the period 1996–2007.

DATA SOURCES AND QUALITY

The primary data sources included the 1996 and 2007 censuses, 2002 vital statistics tables, and the 2012 demographic measures. Secondary data sources included the International Union for Scientific Study of Population (IUSSP) paper 'Below replacement fertility of ethnic Indians in Fiji: a decomposition analysis of the components of changes in the total fertility rate' (Gubhaju 2013).

The TFR estimate of 3.0 in 1989 from the IUSSP paper is believed to be implausibly low and has not been included in the trendline. The IUSSP paper calculated TFRs from two different censuses and, thus, reported two TFR estimates for each year between 1993 and 1996. Both sets of values were graphed and included in the trendline for this period.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1989	3.0	IUSSP Paper	1996 Census	Indirect calculation – OCM [#]	1
1990	3.2	IUSSP Paper	1996 Census	Indirect calculation – OCM [#]	1
1991	3.3	IUSSP Paper	1996 Census	Indirect calculation – OCM [#]	1
1992	3.4	IUSSP Paper	1996 Census	Indirect calculation – OCM [#]	1
1993	3.3	IUSSP Paper	1996 Census	Indirect calculation – OCM [#]	1
1993	3.1	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
1994	3.3	IUSSP Paper	1996 Census	Indirect calculation – OCM [#]	1
1994	3.2	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
1995	3.3	IUSSP Paper	1996 Census	Indirect calculation – OCM [#]	1
1995	3.2	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
1996	3.0	IUSSP Paper	1996 and 2007 Census	Direct calculation	2
1996	2.8	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
1996	3.3	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	3
1996	2.7	Census	Census and Vital Registration	Direct calculation – births in the last 12 months	4
1997	2.6	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2

1997	2.8	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
1998	2.6	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
1998	2.8	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
1999	2.6	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
1999	2.6	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
1999	2.6	Stat Div Tables	Vital Registration	Direct calculation	5
2000	2.7	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
2000	2.9	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
2001	2.6	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
2001	2.5	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
2002	2.5	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
2002	2.6	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
2003	2.6	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
2003	2.6	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
2004	2.6	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
2004	2.6	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
2005	2.5	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
2005	2.6	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
2006	2.6	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
2006	2.6	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
2007	2.6	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1
2007	2.5	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2
2008	2.5	Stat Div Tables	Not provided in source document [†]	Not provided in source document [†]	2

[†] Further investigation with the reporting authority is required to retrieve this information.

[#] Own children method.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1996	29	155	162	114	59	22	7	Census	Census and Vital Registration	Direct calculation – births in the last 12 months	4
1999	41	161	147	97	50	13	na	Stat Div	Vital Registration	Direct calculation	5
2007	36	139	154	116	59	20	4	IUSSP Paper	2007 Census	Indirect calculation – OCM [#]	1

[#] own children method.

na = not available.

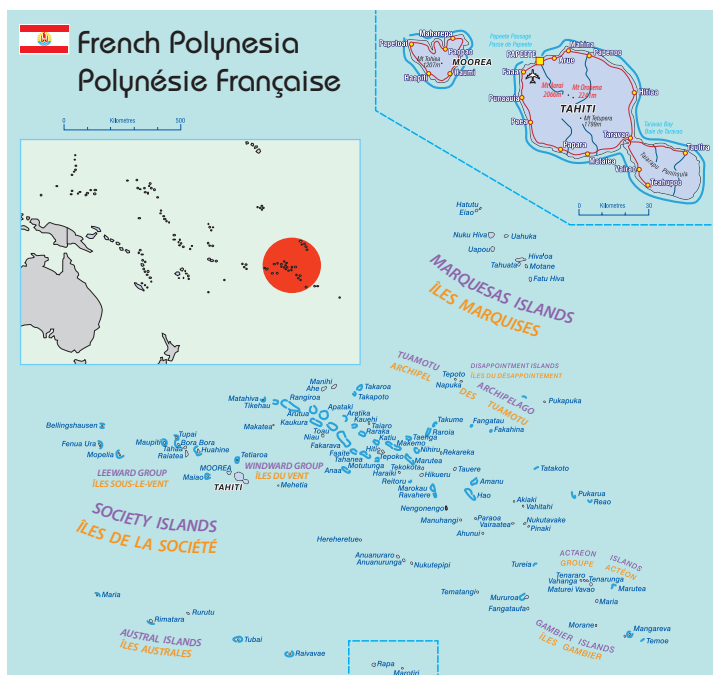
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2. Fiji Bureau of Statistics. 2012. 1.16 Demographic measures. Suva, Fiji: Fiji Bureau of Statistics. Available at: <http://www.statsfiji.gov.fj/>
3. Fiji Bureau of Statistics. 2010. Population, 1.3, summary of key demographic indicators for Fiji by sex and ethnicity from the population censuses of 1986 and 1996. Suva, Fiji: Fiji Bureau of Statistics.
4. Bureau of Statistics. 1998, 1996 Fiji census of population and housing analytical report, Part 1 Demographic characteristics. Suva, Fiji: Bureau of Statistics.
5. Fiji Bureau of Statistics. 2002. Vital statistics 1996–1999. Suva, Fiji: Fiji Bureau of Statistics.

FRENCH POLYNESIA

Region:	Polynesia
Land area (km ²):	3,521
2015 mid-year population estimate:	273,200
Population growth rate (%):	0.6

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in French Polynesia has declined over the last 25 years, from around 3.4 in 1990 to 2.0 in 2014. The last three years (2012–2014) of data suggest that TFR may be levelling off, although continued monitoring of vital statistics is necessary to determine if TFR will remain at 2.0 or continue to decline.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

The continued decline in age-specific fertility rates (ASFRs) was consistent with the decline in the TFR seen over the same 20+ year period. From about 1995 onwards, fertility rates declined among women aged 15–34, but the decline was particularly pronounced among women aged 20–29.

Fertility rates were highest among women in their 20s, but rates for women aged 30–34 were of similar values, particularly from 2007 onwards.

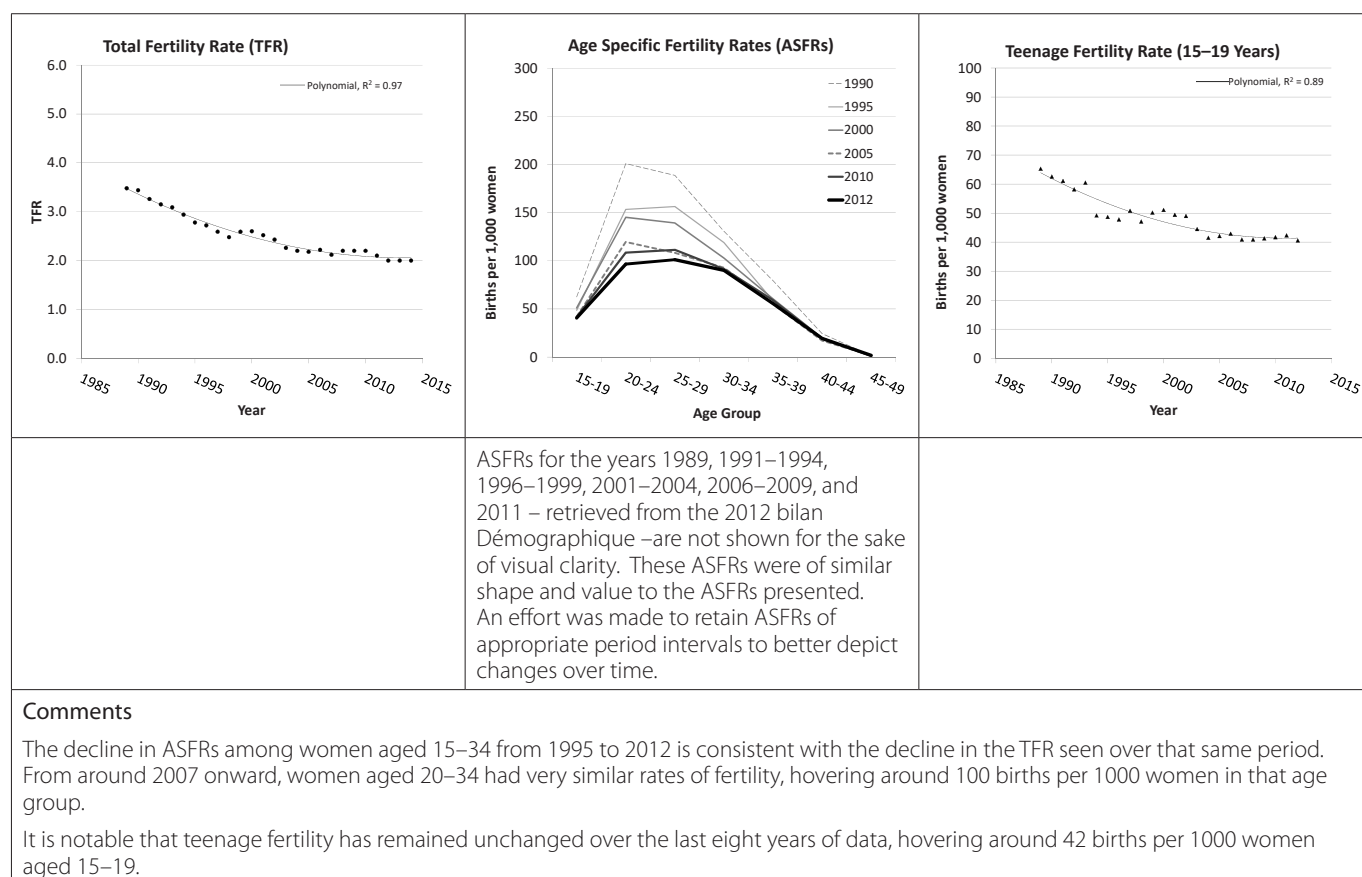
TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

The teenage fertility rate declined from around 60 births per 1000 women aged 15–19 in the early 1990s to around 42 births per 1000 women aged 15–19 by 2004, where the rate has since levelled off.

DATA SOURCES AND QUALITY

The primary data sources included the 2012, 2013, and 2014 bilans Démographiques (demographic bulletins) from the Institut de la Statistique de la Polynésie Française.

All data were derived from vital registration, which is considered to be near 100 percent complete in French Polynesia.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1989	3.5	ISPF [^]	Vital Registration	Direct calculation	1
1990	3.4	ISPF [^]	Vital Registration	Direct calculation	1
1991	3.3	ISPF [^]	Vital Registration	Direct calculation	1
1992	3.2	ISPF [^]	Vital Registration	Direct calculation	1
1993	3.1	ISPF [^]	Vital Registration	Direct calculation	1
1994	2.9	ISPF [^]	Vital Registration	Direct calculation	1
1995	2.8	ISPF [^]	Vital Registration	Direct calculation	1
1996	2.7	ISPF [^]	Vital Registration	Direct calculation	1
1997	2.6	ISPF [^]	Vital Registration	Direct calculation	1
1998	2.5	ISPF [^]	Vital Registration	Direct calculation	1
1999	2.6	ISPF [^]	Vital Registration	Direct calculation	1
2000	2.6	ISPF [^]	Vital Registration	Direct calculation	1
2001	2.5	ISPF [^]	Vital Registration	Direct calculation	1
2002	2.4	ISPF [^]	Vital Registration	Direct calculation	1
2003	2.3	ISPF [^]	Vital Registration	Direct calculation	1
2004	2.2	ISPF [^]	Vital Registration	Direct calculation	1
2005	2.2	ISPF [^]	Vital Registration	Direct calculation	1
2006	2.2	ISPF [^]	Vital Registration	Direct calculation	1
2007	2.1	ISPF [^]	Vital Registration	Direct calculation	1
2008	2.2	ISPF [^]	Vital Registration	Direct calculation	1
2009	2.2	ISPF [^]	Vital Registration	Direct calculation	1
2010	2.2	ISPF [^]	Vital Registration	Direct calculation	1
2011	2.1	ISPF [^]	Vital Registration	Direct calculation	1
2012	2.0	ISPF [^]	Vital Registration	Direct calculation	1
2013	2.0	ISPF [^]	Vital Registration	Direct calculation	2
2014	2.0	ISPF [^]	Vital Registration	Direct calculation	3

[^] *Institut de la Statistique de la Polynésie Française.*

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1989	65	206	195	129	75	23	4	ISPF [^]	Vital Registration	Direct calculation	1
1990	63	201	189	131	79	24	2	ISPF [^]	Vital Registration	Direct calculation	1
1991	61	192	184	123	67	23	2	ISPF [^]	Vital Registration	Direct calculation	1
1992	58	179	182	120	65	24	2	ISPF [^]	Vital Registration	Direct calculation	1
1993	61	177	172	120	63	23	1	ISPF [^]	Vital Registration	Direct calculation	1
1994	49	165	173	117	61	24	2	ISPF [^]	Vital Registration	Direct calculation	1
1995	49	153	156	119	59	18	1	ISPF [^]	Vital Registration	Direct calculation	1
1996	48	146	150	113	65	21	1	ISPF [^]	Vital Registration	Direct calculation	1
1997	51	140	142	108	55	21	2	ISPF [^]	Vital Registration	Direct calculation	1
1998	47	141	135	96	57	18	2	ISPF [^]	Vital Registration	Direct calculation	1
1999	50	154	133	102	62	17	1	ISPF [^]	Vital Registration	Direct calculation	1
2000	51	145	139	103	61	20	1	ISPF [^]	Vital Registration	Direct calculation	1
2001	49	144	138	102	54	16	2	ISPF [^]	Vital Registration	Direct calculation	1
2002	49	133	131	97	58	17	1	ISPF [^]	Vital Registration	Direct calculation	1
2003	45	121	118	95	56	18	1	ISPF [^]	Vital Registration	Direct calculation	1
2004	42	117	111	95	53	20	1	ISPF [^]	Vital Registration	Direct calculation	1
2005	42	120	108	93	55	17	2	ISPF [^]	Vital Registration	Direct calculation	1
2006	43	118	120	88	56	18	2	ISPF [^]	Vital Registration	Direct calculation	1
2007	41	107	115	90	54	15	1	ISPF [^]	Vital Registration	Direct calculation	1
2008	41	115	110	94	60	18	2	ISPF [^]	Vital Registration	Direct calculation	1
2009	41	107	111	95	56	20	1	ISPF [^]	Vital Registration	Direct calculation	1
2010	42	109	111	92	59	19	1	ISPF [^]	Vital Registration	Direct calculation	1
2011	42	101	109	84	55	20	1	ISPF [^]	Vital Registration	Direct calculation	1
2012	41	97	101	90	56	19	2	ISPF [^]	Vital Registration	Direct calculation	1

[^] Institut de la Statistique de la Polynésie Française.

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GUAM

Region:	Micronesia
Land area (km ²):	541
2015 mid-year population estimate:	184,200
Population growth rate (%):	2.5

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in Guam has declined from around 4.0 in the early 1990s to approximately 3.0 in 2000, where it has since levelled off.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

There have not been any significant changes in age-specific fertility rates (ASFRs) over the 12-year period (2001–2013). Fertility is highest among women aged 20–24 and 25–29, and does not begin to decline significantly until ages 35–39. There has been minimal change in fertility rates of young mothers aged 15–19, and mothers aged 40 and older over this 12-year period.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

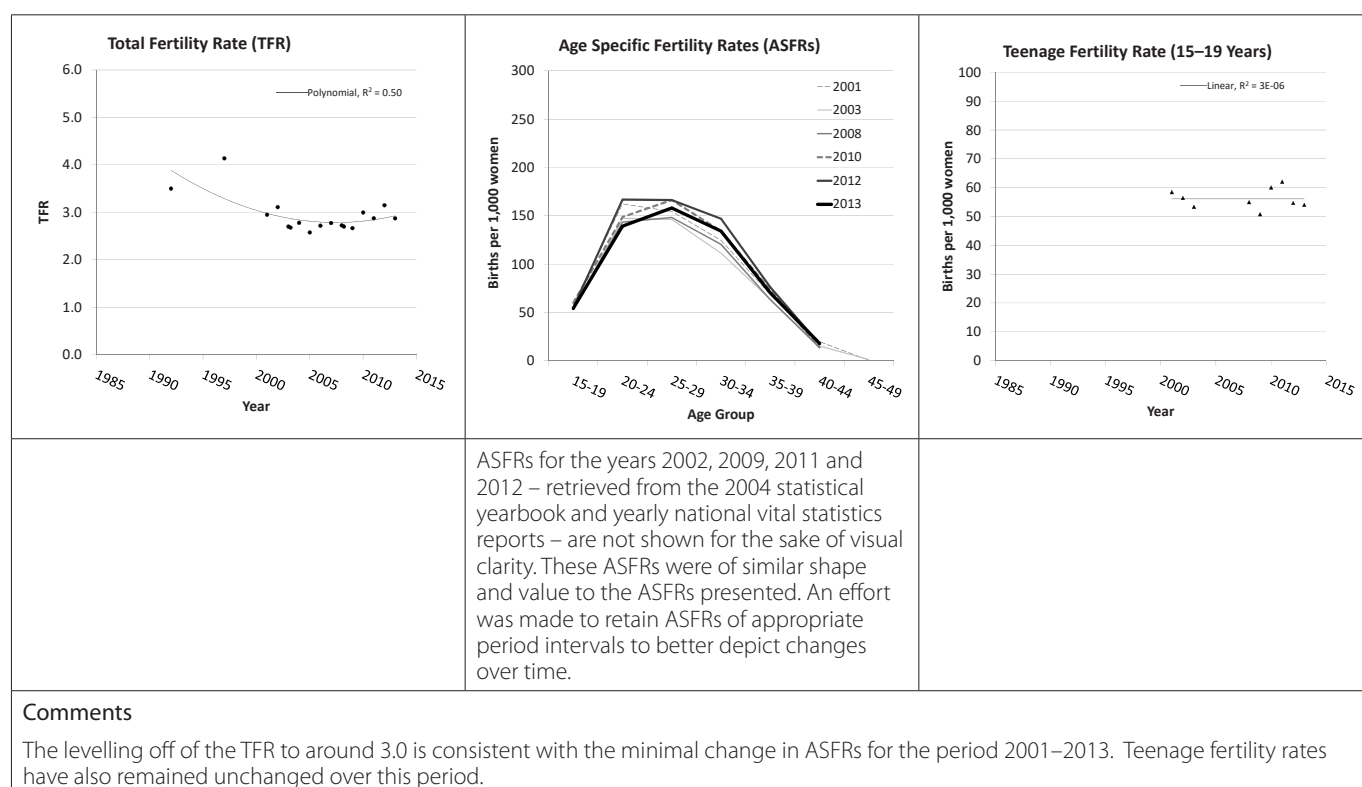
Teenage fertility remained relatively unchanged between 2001 and 2013, with a rate of 50 to 60 births per 1000 women aged 15–19.

DATA SOURCES AND QUALITY

The primary data sources included the 2004 statistical yearbook, 2008 SPC Guam country profile, and yearly national vital statistics reports from the United States National Center for Health Statistics.

There was an error in the 2004 statistical yearbook for ASFRs for the year 2000; ASFRs for 2001 were duplicated and reported for 2000. Thus, ASFRs for 2000 were incorrect and were, therefore, removed from the analysis.

The national vital statistics reports from the United States National Center for Health Statistics do not report ASFRs when the number of births reported were less than 20 for a certain age group. This was the case for women aged 45–49 for the years 2008–2013, thus, these numbers are not displayed on the graph.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1992	3.5	SPC Stat Bulletin	Not provided in source document [†]	Not provided in source document [†]	1
1997	4.1	US NCHS	Vital Registration	Direct calculation	2
2001	3.0	Stat Yearbook	Vital Registration	Direct calculation	3
2002	3.1	Stat Yearbook	Vital Registration	Direct calculation	3
2003	2.7	Stat Yearbook	Vital Registration	Direct calculation	3
2003	2.7	US NCHS [#]	Vital Registration	Direct calculation	4
2004	2.8	US NCHS [#]	Vital Registration	Direct calculation	5
2005	2.6	US NCHS [#]	Vital Registration	Direct calculation	6
2006	2.7	US NCHS [#]	Vital Registration	Direct calculation	7
2007	2.8	US NCHS [#]	Vital Registration	Direct calculation	8
2008	2.7	SPC	Not provided in source document [†]	Not provided in source document [†]	9
2008	2.7	US NCHS [#]	Vital Registration	Direct calculation	10
2009	2.7	US NCHS [#]	Vital Registration	Direct calculation	11
2010	3.0	US NCHS [#]	Vital Registration	Direct calculation	12
2011	2.9	US NCHS [#]	Vital Registration	Direct calculation	13
2012	3.1	US NCHS [#]	Vital Registration	Direct calculation	14
2013	2.9	US NCHS [#]	Vital Registration	Direct calculation	15

[†] Further investigation with the reporting authority is required to retrieve this information.

[#] United States National Center for Health. Note: The TFR from USNCHS is derived from women aged 15–44 and does not include women aged 45–49.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
2001	58	162	154	125	69	20	1	Stat Yearbook	Vital Registration	Direct calculation	3
2002	56	158	174	143	72	17	2	Stat Yearbook	Vital Registration	Direct calculation	3
2003	53	147	146	111	64	15	1	Stat Yearbook	Vital Registration	Direct calculation	3
2008	55	144	148	121	63	14	na	US NCHS [#]	Vital Registration	Direct calculation	10
2009	51	143	148	113	60	17	na	US NCHS [#]	Vital Registration	Direct calculation	11
2010	60	149	166	134	73	14	na	US NCHS [#]	Vital Registration	Direct calculation	12
2011	62	146	156	127	64	17	na	US NCHS [#]	Vital Registration	Direct calculation	13
2012	55	167	166	147	76	17	na	US NCHS [#]	Vital Registration	Direct calculation	14
2013	54	139	158	134	70	18	na	US NCHS [#]	Vital Registration	Direct calculation	15

[#] United States National Center for Health Statistics.

na = data not available in the publication.

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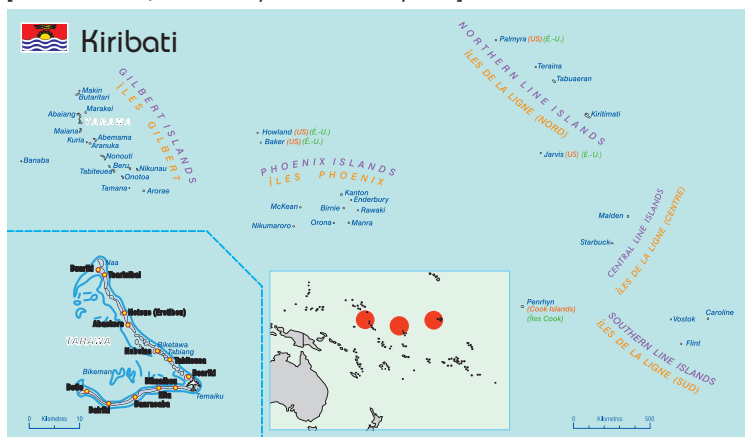
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KIRIBATI

Region:	Micronesia
Land area (km ²):	811
2015 mid-year population estimate:	113,400
Population growth rate (%):	2.1

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in Kiribati has declined slowly, from approximately 4.5 in the early 1990s to around 3.9 in 2010. More recent data are needed to better understand whether fertility will continue to decline or stabilise.

TRENDS IN THE AGE-SPECIFIC FERTILITY RATE

Fertility rates are highest among women aged 25–29, although rates remain elevated among women aged 20–24 and 30–34. Fertility rates among women aged 35–39 are higher than for many Pacific Island countries. Together, these higher fertility rates are what drives Kiribati's TFR close to 4.0.

There is a sparsity of fertility data for Kiribati. More historical data are required to determine whether there has been any change in age-specific fertility over time.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

There was insufficient data to establish any trends in teenage fertility rates over time. Only three data points were found, thus identifying the need for more fertility data in Kiribati.

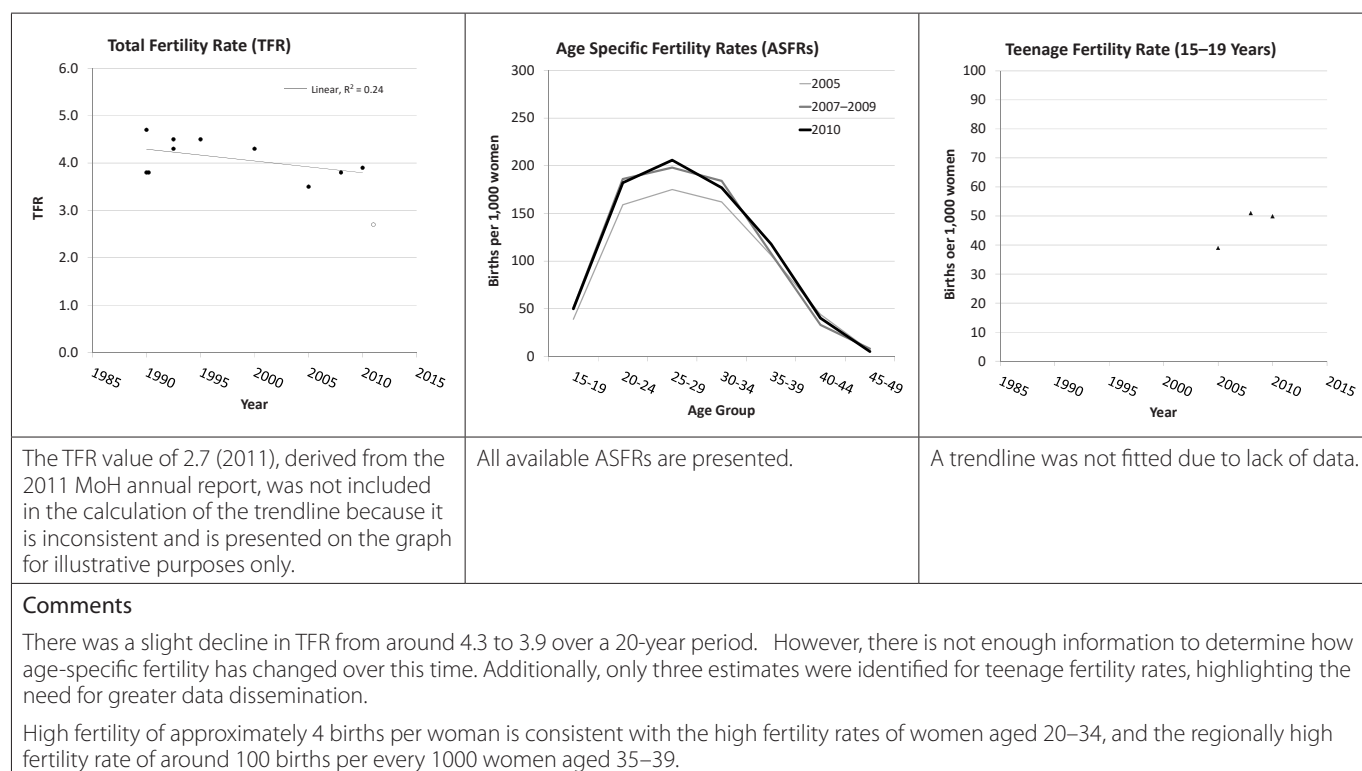
For the period where data were available (2005–2010), teenage fertility was around 40–50 births per 1000 women aged 15–19.

DATA SOURCES AND QUALITY

The primary data sources included the 200 population and housing census, 2000 key statistics, 2005 and 2010 census reports, 2009 demographic and health survey, Kiribati National Statistical Office website, and the 2011 annual Ministry of Health report. Secondary data sources included the 1995 SPC Population Statistics Statistical Bulletin No. 42.

The Kiribati National Statistical Office website provides a TFR of both 4.5 and 4.3 for the period 1990–1995. Source information and documentation is not provided; therefore, it is not clear whether these came from two different calculation methods or if there is a typographical error. Both estimates are shown in the graph below.

The 2011 TFR value of 2.7 – derived from the 2011 annual Ministry of Health report – is implausibly low. The primary source and methodology used to calculate this estimate was not provided in the document; therefore, this estimate has not been included in the trendline.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1990	3.8	SPC Stat bulletin	Not provided in source document [†]	Not provided in source document [†]	1
1990	3.8	Census 2000 Key Statistics	Not provided in source document [†]	Not provided in source document [†]	2
1990	4.7	Census	Not provided in source document [†]	Not provided in source document [†]	3
1990–1995 (1992.5)	4.5	Kiribati National Statistics Office website	Census	Not provided in source document [†]	4
1990–1995 (1992.5)	4.3	Kiribati National Statistics Office website	Not provided in source document [†]	Not provided in source document [†]	5
1995	4.5	Census	Not provided in source document [†]	Not provided in source document [†]	6
2000	4.3	Census 2000 Key Statistics	Not provided in source document [†]	Not provided in source document [†]	2
2005	3.5	Census	Census	Indirect calculation – children ever born – Arriaga method	6
2007–2009 (2008)	3.8	DHS	DHS	Direct calculation – complete retrospective maternal history	7
2010	3.9	Census	Census	Indirect calculation – children ever born – Arriaga method	3
2011	2.7	MoH	Not provided in source document [†]	Not provided in source document [†]	8

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
2005	39	159	175	162	106	44	6	Census	Census	Indirect calculation –children ever born–Arriaga method	6
2007–2009 (2008)	51	186	198	184	108	33	8	DHS	DHS	Direct calculation- complete retrospective maternal history	7
2010	50	182	206	177	118	40	5	Census	Census	Indirect calculation –children ever born–Arriaga method	3

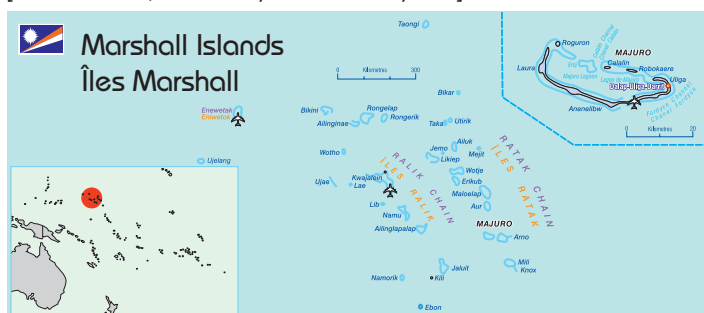
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MARSHALL ISLANDS, REPUBLIC OF THE

Region:	Micronesia
Land area (km ²):	181
2015 mid-year population estimate:	54,880
Population growth rate (%):	0.6

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in the Marshall Islands declined significantly, from around 7 births per woman in 1989 to 4 in 2011, and has not yet shown signs of levelling off.

TRENDS IN AGE-SPECIFIC FERTILITY RATE

The age-specific fertility rate (ASFR) has decreased across all age groups over the 22-year period 1989–2011. Among women aged 20–29, ASFRs continued to decrease for each data period.

Fertility remains highest among women aged 20–24, but rates in this age group have been very similar to those in women aged 25–29 over the last 10 years. ASFRs for women aged 20–29 are greater than 200 births per 1000 women. Women aged 30–34 also experienced higher fertility rates compared with other Pacific Island countries, at around 150 births per 1000 women.

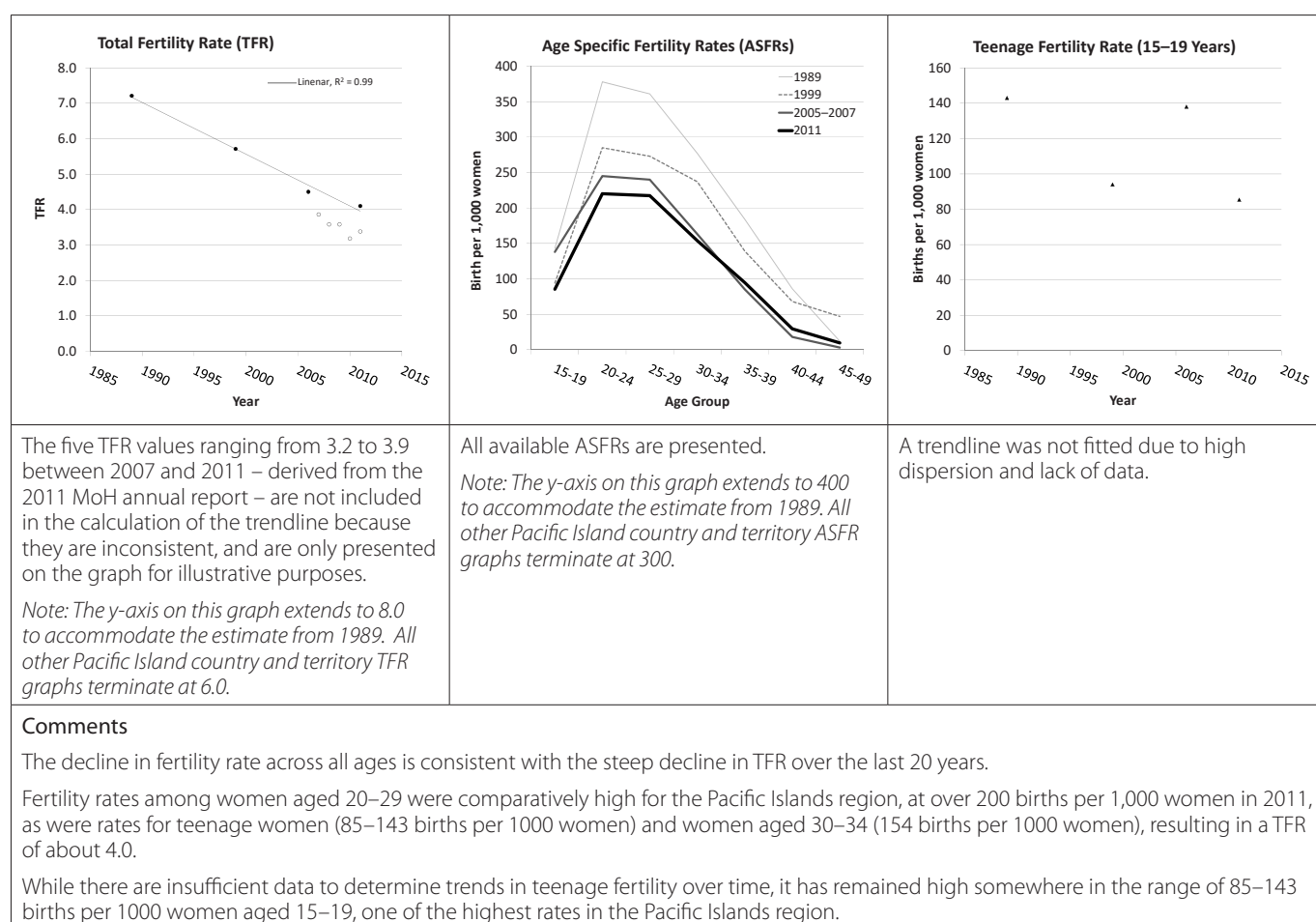
TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

There was too much dispersion and insufficient data to establish trends in teenage fertility rates over time. The available data suggest that the teenage fertility rate is in the range of 85–143 births per 1000 women aged 15–19, one of the highest rates in the Pacific Islands region.

DATA SOURCES AND QUALITY

The primary data sources include the 2011 census report; 1990–1991, 1996, 1997 and 1999–2001 statistical yearbooks; 2007 demographic and health survey; and the 2011 Ministry of Health annual report.

TFR estimates between 3.2 and 3.9 from 2007 to 2011, obtained from the 2011 Ministry of Health annual report, appeared implausibly low. The primary source and methodology used to calculate these estimates were not provided in the document and, thus, could not be confirmed; therefore, these estimates have not been included in the trendline.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1989	7.2	Stat Abstract	Census	Not provided in source document†	1
1999	5.7	Stat Abstract	Census	Indirect calculation – children ever born – P/F ratio method	2,3
2005–2007 (2006)	4.5	DHS	DHS	Direct calculation – complete retrospective maternal history	4
2007	3.9	MoH	Vital Registration	Not provided in source document†	5
2008	3.6	MoH	Vital Registration	Not provided in source document†	5
2009	3.6	MoH	Vital Registration	Not provided in source document†	5
2010	3.2	MoH	Vital Registration	Not provided in source document†	5
2011	4.1	Census	Census	Indirect calculation – children ever born – P/F ratio method	6
2011	3.4	MoH	Vital Registration	Not provided in source document†	5

† Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1989	143	378	361	277	184	86	12	Stat Abstract	Census	Not provided in source document [†]	1
1999	94	285	273	237	139	68	47	Stat Abstract	Census	Indirect calculation – children ever born – P/F ratio method	2,3
2005–2007 (2006)	138	245	240	163	85	18	3	DHS	DHS	Direct Calculation – Complete Retrospective Maternal History	4
2011	85	220	217	154	95	30	10	Census	Census	Indirect calculation – children ever born – P/F ratio method	6

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

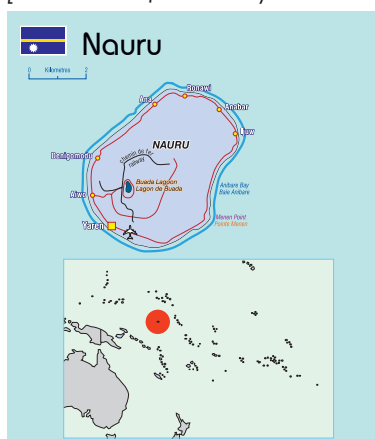
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NAURU

Region:	Micronesia
Land area (km ²):	21
2015 mid-year population estimate:	10,840
Population growth rate (%):	1.6

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in Nauru has changed very little over the 20+ year period shown, remaining steady at around four births per woman. It appears there was a small dip in TFR during the mid-2000s, although any trend should be interpreted with caution as all but one data point during this time came from the 2011 census report, using the own children methodology.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Age-specific fertility rates (ASFRs) have remained relatively unchanged between 1994 and 2012. Fertility rates were highest among women aged 20–29, with more than 225 births per 1000 women aged 20–29, which is on the higher end for the Pacific Islands region. Additionally, fertility rates among women aged 30–34 were regionally high at around 150 births per 1000 women, as were rates among women aged 35–39 at close to 100 births per 1000 women.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

Teenage fertility has remained high in Nauru at approximately 70–100 births per 1000 women aged 15–19 over the 17-year period 1995–2012.

DATA SOURCES AND QUALITY

Primary data sources included the 1992–2002 demographic profiles, the 2007 demographic and health survey, and the 2011 census report. Secondary sources included the 1995 SPC Population Statistics Statistical Bulletin No. 42.

Any trend interpretation over the period 2001–2008 should be done with caution because all but one data point came from the 2011 census report using the own children methodology. There is one additional data point in 2007 from the demographic and health survey.

For the sake of visual clarity, ASFRs from the 2011 census report – derived from the own children method for 2010 births in the 12 months preceding the census for 2011, and registered births for 2011 – were not shown because they are similar

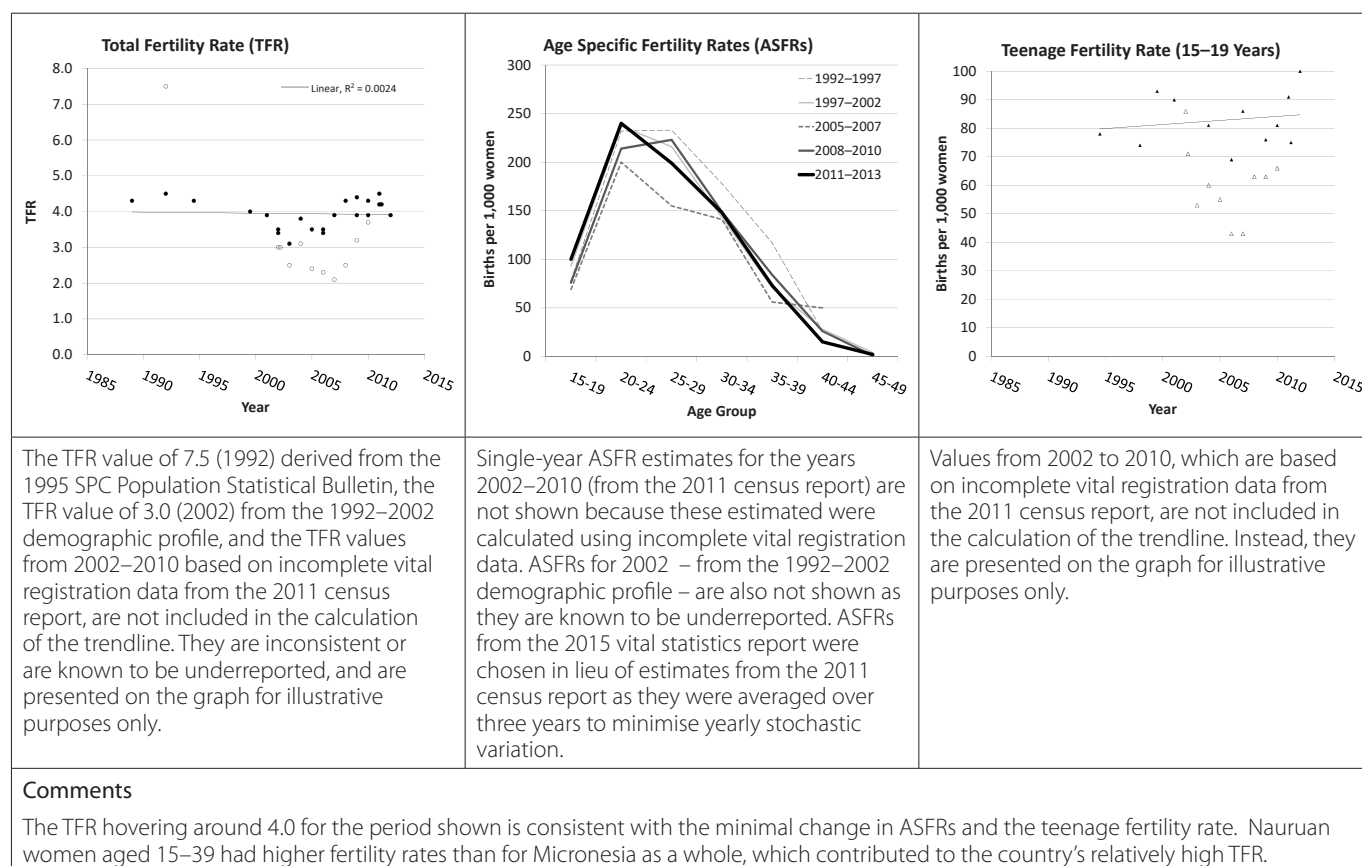
to those from the 2015 vital statistics report. ASFRs from the 2015 vital statistics report were averaged over three years in order to minimise year-to-year stochastic variation, and were thus believed to be more reliable.

The number of reported registered births from 2002 to 2010 (found in the 2011 census report) are fewer than those in the subsequent vital statistics report, and are thus believed to be incomplete. Therefore, TFRs and teenage fertility rates for these years were not included in the trendline, and ASFRs from these sources were not displayed.

The 1992–2002 demographic profile generally provided estimates for both Nauruans and the population as a whole (Nauruans and expatriates). Nauru's TFR from 1997 to 2002 was 4.0 for both Nauruans and for the total population (Nauruans and expatriates). However, from 1992 to 1997, the TFR was 4.6 for Nauruans and 4.3 for the total population. In order to be consistent with the other sources, the total population estimate (Nauruans and expatriates) was used for the period 1992–1997. The TFR value of 3.9 for the period 2000–2002 was only provided for Nauruans. This is the only data point that, to our knowledge, does not include the population as a whole.

The TFR value of 3.0 in 2002, based on the 1992–2002 demographic profile, was calculated from births in the 12 months preceding the 2002 census. The resulting value, however, was lower than that derived from vital registration, which is also believed to be incomplete. Therefore, the TFR estimate of 3.0 and the teenage fertility estimate of 86 have not been included in the fit of the trendline, and underlying ASFRs are not displayed.

The 1992 value of 7.5 – derived from the 1995 SPC Population Statistics Statistical Bulletin No. 42 – seems implausibly high. It is unlikely that the TFR dropped by three children per woman in three years. Furthermore, the primary source and methodology used to calculate this estimate could not be confirmed; therefore, this estimate has not been included in the trendline.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1988–1990 (1989)	4.3	Census	Census	Indirect calculation – own children method, three-year moving average	1
1991–1993 (1992)	4.5	Census	Census	Indirect calculation – own children method, three-year moving average	1
1992	7.5	SPC Stat Bulletin	Not provided in source document [†]	Not provided in source document [†]	2
1992–1997 (1994.5)	4.3	Demographic Profile	Vital registration	Direct calculation	3
1997–2002 (1999.5)	4.0	Demographic Profile	Vital registration	Direct calculation	3
2000–2002 (2001)	3.9	Demographic Profile	Vital registration	Direct calculation – Nauruans only	3
2001–2003 (2002)	3.4	Census	Census	Indirect calculation – own children method, three-year moving average	1
2002	3.0	Demographic Profile	Census	Direct calculation – births in the last 12 months	3
2002	3.0	Census	Vital registration	Direct calculation	1
2002	3.5	Census	Census	Indirect calculation – own children method	1
2003	2.5	Census	Vital registration	Direct calculation	1
2003	3.1	Census	Census	Indirect calculation – own children method	1
2004	3.1	Census	Vital registration	Direct calculation	1
2004	3.8	Census	Census	Indirect calculation – own children method	1
2005	2.4	Census	Vital registration	Direct calculation	1
2005	3.5	Census	Census	Indirect calculation – own children method	1
2006	2.3	Census	Vital registration	Direct calculation	1
2006	3.5	Census	Census	Indirect calculation – own children method	1
2007	2.1	Census	Vital registration	Direct calculation	1
2005–2007 (2006)	3.4	DHS	DHS	Direct calculation – complete retrospective maternal history	4
2007	3.9	Census	Census	Indirect calculation – own children method	1
2008	2.5	Census	Vital registration	Direct calculation	1
2008	4.3	Census	Census	Indirect calculation – own children method	1
2008–2010 (2009)	3.9	Vital Stats Report	Vital registration	Direct calculation	5
2009	3.2	Census	Vital registration	Direct calculation	1
2009	4.4	Census	Census	Indirect calculation – own children method	1
2010	3.7	Census	Vital registration	Direct calculation	1
2010	3.9	Census	Census	Indirect calculation – own children method	1
2009–2011 (2010)	4.3	Census	Census	Indirect calculation – own children method, three-year moving average	1
2010–2011 (2010)	4.2	Census	Census	Direct calculation – births in the last 12 months	1
2011	4.2	Census	Vital registration	Direct calculation	1
2011	4.5	Census	Census	Indirect calculation – own children method	1
2011–2013 (2012)	3.9	Vital Stats Report	Vital registration	Direct calculation	5

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1992–1997 (1994.5)	78	232	233	178	117	26	1	Demographic Profile	Vital registration	Direct calculation	3
1997–1999 (1998)	74	na	na	na	na	na	na	Census	Census	Indirect calculation – own children method	1
1997–2002 (1999.5)	93	237	216	143	71	28	4	Demographic Profile	Vital registration	Direct calculation	3
2000–2002 (2001)	90	na	na	na	na	na	na	Census	Census	Indirect calculation – own children method	1
2002	71	181	146	138	50	18	0	Demographic Profile	Vital registration	Direct calculation	3
2002	86	180	181	93	46	15	4	Census	Vital registration	Direct calculation	1
2003	53	177	140	49	65	19	0	Census	Vital registration	Direct calculation	1
2004	60	185	184	113	52	16	0	Census	Vital registration	Direct calculation	1
2003–2005 (2004)	81	na	na	na	na	na	na	Census	Census	Indirect calculation – own children method	1
2005	55	115	141	92	69	14	0	Census	Vital registration	Direct calculation	1
2006	43	129	162	72	58	4	0	Census	Vital registration	Direct calculation	1
2007	69	200	155	141	56	50	na	DHS	DHS	Direct calculation – complete retrospective maternal history	4
2007	43	114	118	98	21	29	0	Census	Vital registration	Direct calculation	1
2006–2008 (2007)	86	na	na	na	na	na	na	Census	Census	Indirect calculation – own children method	1
2008	63	124	150	82	74	11	0	Census	Vital registration	Direct calculation	1
2008–2010 (2009)	76	214	223	149	84	26	1	Vital Registration Report	Vital registration	Direct calculation	5
2009	63	182	193	105	70	35	0	Census	Vital registration	Direct calculation	1
2010	66	214	224	141	88	12	0	Census	Vital registration	Direct calculation	1
2009–2001 (2010)	81	243	237	172	92	31	2	Census	Census	Indirect calculation – own children method – adjusted	1
2011	91	246	227	150	110	21	0	Census	Vital registration	Direct calculation	1
2010–2011 (2011)	75	224	231	183	97	26	0	Census	Census	Direct calculation – births in the last 12 months	1
2011–2013 (2012)	100	240	199	148	73	15	2	Vital Registration Report	Vital registration	Direct calculation	5
2011	39	135	140	102	69	37	6	SPC Pop Profile	Census	Indirect calculation – own children method–Arriaga method	9

na = not available

Note: dates in parentheses refer to mid-point in ranges.

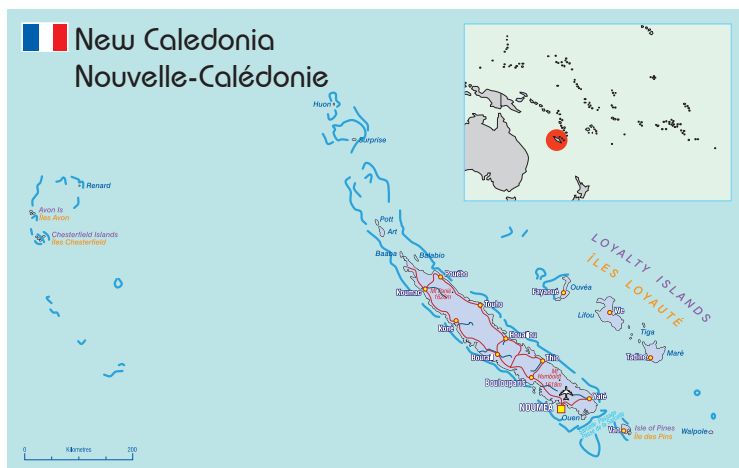
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NEW CALEDONIA

Region:	Melanesia
Land area (km ²):	18,576
2015 mid-year population estimate:	272,700
Population growth rate (%):	1.8

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) for New Caledonia has been slowly declining since the early 1990s, from around 3.2 to approximately 2.2 in 2005, where it has remained relatively constant over the last 10 years.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

The decline in TFR is primarily attributable to the decline in age-specific fertility rates (ASFRs) among women aged 20–29 over the 20-year period shown. Teenage fertility also declined over this period, as did fertility among women aged 30–34. There was virtually no change in fertility rates among women aged 35 and older over the 20-year period shown.

Fertility rates were highest among women aged 25–29, followed by women aged 20–24 until the early 2000s. By 2006, however, fertility rates among women aged 30–34 consistently surpassed those of women aged 20–24, demonstrating a shift in fertility to women in older age groups.

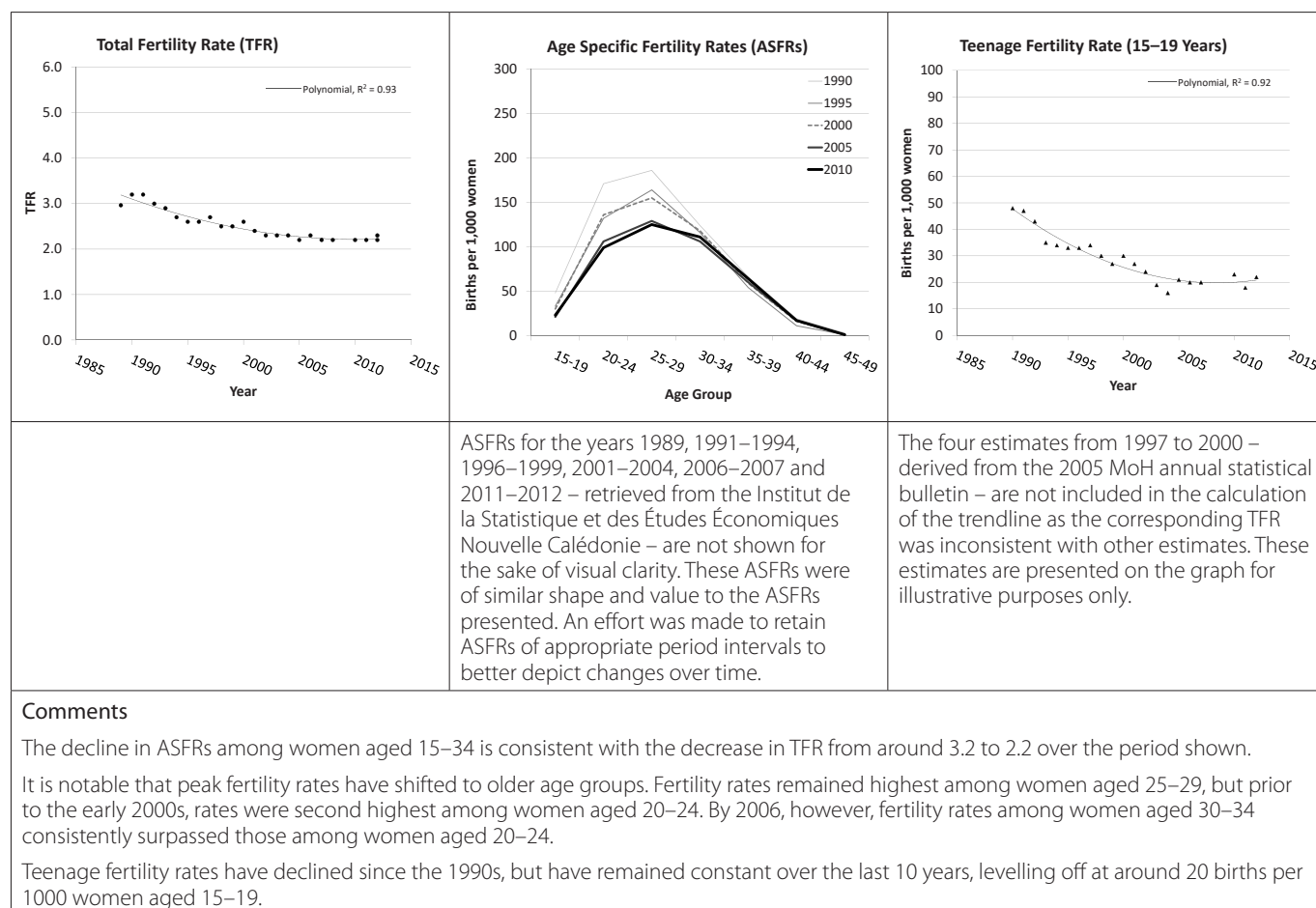
TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

Teenage fertility rates declined between the early and mid-1990s, from around 46 to 31 births per 1000 women aged 15–19, and then declined again until 2003, where they have remained at approximately 20 births per women aged 15–19. There was little change in teenage fertility rates over the last 10-year period shown.

DATA SOURCES AND QUALITY

The primary data sources included web publications on birth and demographic data from the Institut de la Statistique et des Études Économiques Nouvelle Calédonie, the 2008 key features and the 2013 health situation in New Caledonia from the Direction des Affaires Sanitaires et Sociales.

All data were derived from vital registration, which is considered to be near 100 percent complete in New Caledonia.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1989	3.0	ISEENC [^]	Vital Registration	Direct calculation	1
1990	3.2	ISEENC [^]	Vital Registration	Direct calculation	1
1991	3.2	ISEENC [^]	Vital Registration	Direct calculation	1
1992	3.0	ISEENC [^]	Vital Registration	Direct calculation	1
1993	2.9	ISEENC [^]	Vital Registration	Direct calculation	1
1994	2.7	ISEENC [^]	Vital Registration	Direct calculation	1
1995	2.6	ISEENC [^]	Vital Registration	Direct calculation	1
1996	2.6	ISEENC [^]	Vital Registration	Direct calculation	1
1997	2.7	ISEENC [^]	Vital Registration	Direct calculation	1
1998	2.5	ISEENC [^]	Vital Registration	Direct calculation	1
1999	2.5	ISEENC [^]	Vital Registration	Direct calculation	1
2000	2.6	ISEENC [^]	Vital Registration	Direct calculation	1
2001	2.4	ISEENC [^]	Vital Registration	Direct calculation	1
2002	2.3	ISEENC [^]	Vital Registration	Direct calculation	1
2003	2.3	ISEENC [^]	Vital Registration	Direct calculation	1
2004	2.2	ISEENC [^]	Vital Registration	Direct calculation	2
2005	2.2	ISEENC [^]	Vital Registration	Direct calculation	2
2006	2.3	ISEENC [^]	Vital Registration	Direct calculation	2
2007	2.2	ISEENC [^]	Vital Registration	Direct calculation	2
2008	2.2	DASSNC [*]	Vital Registration	Direct calculation	3
2010	2.2	ISEENC [^]	Vital Registration	Direct calculation	1
2011	2.2	ISEENC [^]	Vital Registration	Direct calculation	1
2012	2.3	ISEENC [^]	Vital Registration	Direct calculation	1
2012	2.2	DASSNC [*]	Vital Registration	Direct calculation	4

[^] *Institut de la Statistique et des Etudes Economiques Nouvelle Calédonie.*

^{*} *Direction des Affaires Sanitaires et Sociales Nouvelle Calédonie.*

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1989	41	169	166	120	61	17	2	ISEENC [^]	Vital Registration	Direct calculation	1
1990	48	171	186	124	66	19	3	ISEENC [^]	Vital Registration	Direct calculation	1
1991	47	172	183	127	63	20	1	ISEENC [^]	Vital Registration	Direct calculation	1
1992	43	153	182	124	62	18	1	ISEENC [^]	Vital Registration	Direct calculation	1
1993	35	144	169	130	60	17	0	ISEENC [^]	Vital Registration	Direct calculation	1
1994	34	141	162	118	57	16	1	ISEENC [^]	Vital Registration	Direct calculation	1
1995	33	132	164	116	54	11	1	ISEENC [^]	Vital Registration	Direct calculation	1
1996	33	139	159	119	58	14	1	ISEENC [^]	Vital Registration	Direct calculation	1
1997	34	136	159	121	60	15	1	ISEENC [^]	Vital Registration	Direct calculation	1
1998	30	129	148	120	62	13	1	ISEENC [^]	Vital Registration	Direct calculation	1
1999	27	127	155	112	55	15	1	ISEENC [^]	Vital Registration	Direct calculation	1
2000	30	136	155	118	59	16	1	ISEENC [^]	Vital Registration	Direct calculation	1
2001	27	122	149	107	60	17	0	ISEENC [^]	Vital Registration	Direct calculation	1
2002	24	111	142	113	58	15	1	ISEENC [^]	Vital Registration	Direct calculation	1
2003	19	117	134	106	59	17	0	ISEENC [^]	Vital Registration	Direct calculation	1
2004	16	99	132	111	59	15	1	ISEENC [^]	Vital Registration	Direct calculation	2
2005	21	106	129	106	60	17	1	ISEENC [^]	Vital Registration	Direct calculation	2
2006	20	97	143	114	63	16	1	ISEENC [^]	Vital Registration	Direct calculation	2
2007	20	92	134	113	62	16	1	ISEENC [^]	Vital Registration	Direct calculation	2
2010	23	99	125	111	64	17	1	ISEENC [^]	Vital Registration	Direct calculation	1
2011	18	99	118	108	65	19	2	ISEENC [^]	Vital Registration	Direct calculation	1
2012	22	101	123	120	66	19	1	ISEENC [^]	Vital Registration	Direct calculation	1

[^] Institut de la Statistique et des Etudes Economiques Nouvelle Calédonie.

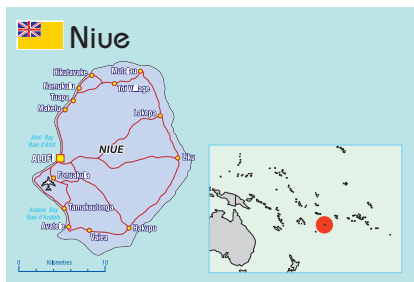
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NIUE

Region:	Polynesia
Land area (km ²):	259
2015 mid-year population estimate:	1,470
Population growth rate (%):	-2.2

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in Niue has been slowly declining from around 3.1 in the early 1990s, to around 2.5 in the mid-2000s, where it has remained.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Niue is a small country with a population of approximately 1500 that has, on average, 25 births per year. This very small number of births, along with frequent migration to New Zealand to give birth, makes analysing ASFR trends difficult.

It appears that fertility rates have fallen among younger mothers aged 15–24, but have risen in older mothers aged 30 and older. In the most recent estimates, women aged 30–34 have the highest fertility rates, which is an unusual pattern for the Pacific Islands region. Delaying birth and having children at older ages could partly explain the decline in TFR.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

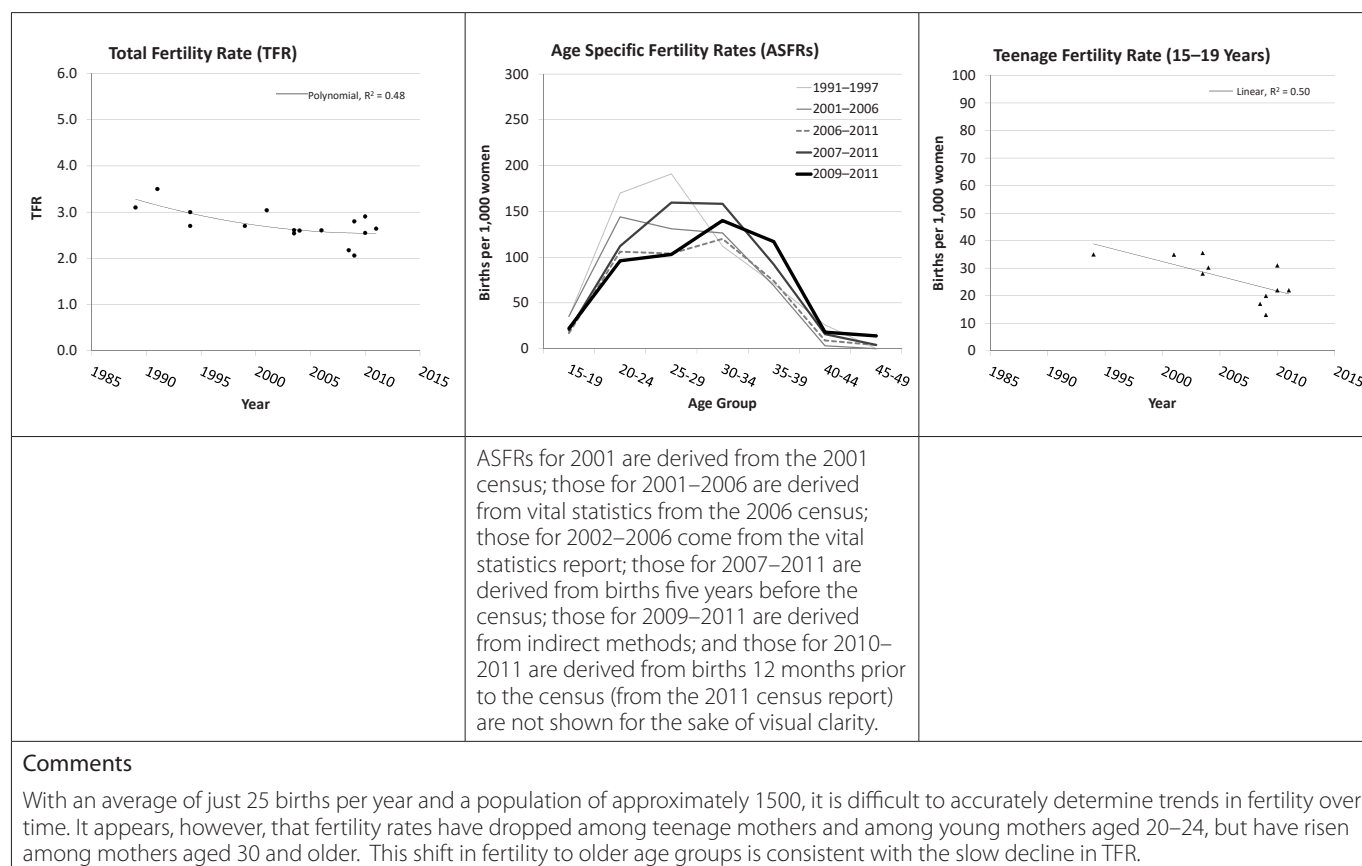
Similar to TFR, teenage fertility rates have been slowly declining in Niue from around 35 births per 1000 women aged 15–19 in the mid-1990s to around 20 births per 1000 women aged 15–19 by 2010. Rates do not appear to have stabilised yet and will likely continue to decline.

DATA SOURCES AND QUALITY

Primary sources included the 2001, 2006 and 2011 census reports; 2012 vital statistics report; and the 1999 SPC population profile. Secondary sources included the 1995 SPC Population Statistics Statistical Bulletin No. 42.

The 2011 census reported many estimates, including: direct calculations derived from birth registrations; direct calculations derived from the census on the number of births in the last one, three and five years; and indirect calculations on children ever born using the P/F ratio method. All three calculations are reported here and included in the trendline.

Civil registration in Niue is known to be almost 100 percent complete. For the sake of visual clarity, ASFRs derived from civil registration data averaged over five years were given preference over single-year estimates or ASFRs derived from indirect methods. The 2001 and 2003.5 ASFRs derived from indirect methods were similar to those from vital statistics for the period 2001–2006. The 2010 ASFRs derived indirectly were also similar to the 2010 ASFRs (shown below) derived from births three years prior to the census. The 2009 estimate for births five years prior to the census was excluded from the graph because it is the lowest estimate of all the data points, and may have suffered from recall error and underreporting of births.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1987–1991 (1989)	3.1	Vital Stats Report	Vital registration	Direct calculation	1
1991	3.5	SPC Stat bulletin	Not provided in source document [†]	Not provided in source document [†]	2
1991–1997 (1994)	3.0	Pop profile	Vital registration	Direct calculation	3
1992–1996 (1994)	2.7	Vital Stats Report	Vital registration	Direct calculation	1
1997–2001 (1999)	2.7	Vital Stats Report	Vital registration	Direct calculation	1
2001	3.0	Census	Census	Direct calculation – births 12 months before the census	4
2001–2006 (2003.5)	2.5	Census	Census	Indirect calculation – children ever born – P/F ratio method	5
2001–2006 (2003.5)	2.6	Census	Vital registration	Direct calculation	5
2002–2006 (2004)	2.6	Vital Stats Report	Vital registration	Direct calculation	1
2006	2.6	Census	Vital registration	Direct calculation	6
2006–2011 (2008.5)	2.2	Census	Vital registration	Direct calculation	6
2007–2011 (2009)	2.8	Vital Stats Report	Vital registration	Direct calculation	1
2007–2011 (2009)	2.1	Census	Census	Direct calculation – births five years before the census	6
2009–2011 (2010)	2.9	Census	Census	Indirect calculation – children ever born – P/F ratio method	6
2009–2011 (2010)	2.6	Census	Census	Direct calculation – births three years before the census	6
2010–2011 (2011)	2.6	Census	Census	Direct calculation – births 12 months before the census	6

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1991–1997 (1994)	35	170	191	112	71	26	0	Pop Profile	Vital registration	Direct calculation	3
2001	25	170	137	135	98	20	15	Census	Census	Direct calculation – births 12 months before the census	4
2001–2006 (2003.5)	36	144	131	126	69	3	0	Census	Census	Indirect calculation – children ever born – P/F ratio method	5
2001–2006 (2003.5)	28	141	135	133	80	4	0	Census	Vital registration	Direct calculation	5
2002–2006 (2004)	30	119	158	118	86	8	0	Vital Stats Report	Vital registration – manual calculation	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	1,7
2006–2011 (2008.5)	17	106	104	120	74	9	4	Census	Vital registration	Direct calculation	6
2007–2011 (2009)	20	112	160	158	92	16	4	Vital Stats Report	Vital registration – manual calculation	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	1,7
2007–2011 (2009)	13	74	76	98	100	38	13	Census	Census	Direct calculation – births 5 years before the census	6
2009–2011 (2010)	31	115	120	160	122	19	13	Census	Census	Indirect calculation – children ever born – P/F ratio method	6
2009–2011 (2010)	22	96	103	140	117	18	14	Census	Census	Direct calculation – births 3 years before the census	6
2010–2011 (2011)	22	79	109	116	175	27	0	Census	Census	Direct calculation – births 12 months before the census	6

Note: dates in parentheses refer to mid-point in ranges.

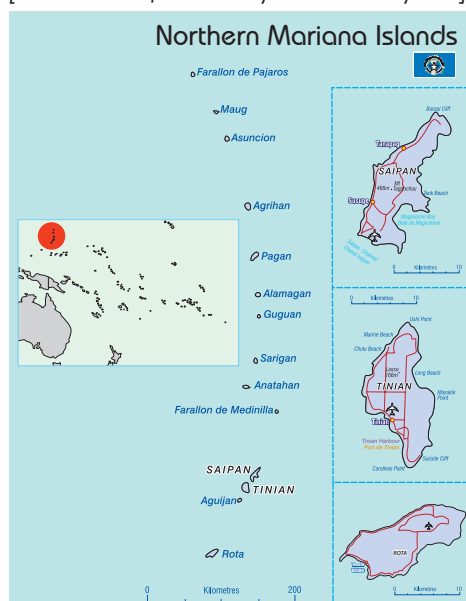
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NORTHERN MARIANA ISLANDS, COMMONWEALTH OF THE

Region:	Micronesia
Land area (km ²):	457
2015 mid-year population estimate:	56,940
Population growth rate (%):	1.1

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

Fertility in the Commonwealth of the Northern Mariana Islands (CNMI) appears to have declined steadily from 2000 to 2007, and from 2008 to 2013, although further investigation is required. Data from CNMI appear in two parallel series: one starting in 2000 and ending in 2007, and one beginning in 2008 until 2013. The increase in the total fertility rate (TFR) from 1.1 to 2.3 between 2007 and 2008 could be explained by a variety of factors. This was around the time the garment factories were closing in Saipan, and foreign contract workers, mostly young Chinese women, were returning home. These women left their families behind and were generally 'childless' while living in Saipan. Data from 2000 to 2002 comes from the 2002 statistical yearbook, which notes that TFR is low due to guest workers, implying they were included in the denominator. Estimates for 2003–2013 were based on registered births in CNMI; thus, any children these foreign guest workers may have had back home were not included in the data. However, it is likely that foreign contract workers were included in the population denominator over these years, artificially lowering fertility rates. It is possible that a new population projection was done for 2008, factoring in the departure of the contract laborers, causing a jump in TFR. When the female guest workers left Saipan, the number of women in the denominator decreased, which increased fertility rates. Further investigation with the reporting authority is required to accurately interpret trends during this period.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Age-specific fertility rates (ASFRs) also demonstrate considerable variation over time, rendering interpretation of changes in fertility patterns difficult. The inclusion or exclusion of foreign contract workers in the denominator could be affecting fertility rates. Additionally, out-migration of young Chamorro women to further their education or find work could distort ASFRs if this migration is not properly accounted for when performing ASFR calculations. The unusual shapes exhibited by the ASFRs warrant further investigation.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

There is insufficient data to establish trends in teenage fertility rates over time. Although there is considerable variation in the data, estimates suggest that the teenage fertility rate was between 35 and 55 births per 1000 women aged 15–19 between 2008 and 2013.

DATA SOURCES AND QUALITY

Primary data sources included the 2002 statistical yearbook and yearly national vital statistics reports from the United States National Center for Health Statistics (US NCHS).

Data from 2000 to 2002 comes from the 2002 statistical yearbook, which notes that TFR is low due to guest workers, suggesting that these estimates do not accurately reflect the fertility of the indigenous Chamorro population.

Data from 2003 to 2013 were retrieved from the US NCHS reports. As discussed above, the sudden increase in TFR from 2007 to 2008 requires further investigation. This could be a methodological issue where the population denominator used in these calculations was updated to account for the departure of foreign contract workers. The possible inclusion of foreign contract workers from 2003 to 2007 would have resulted in fertility rates that did not accurately reflect the fertility of the indigenous Chamorro population.

The national vital statistics reports from the US NCHS do not report ASFRs when the number of births reported are less than 20 for a certain age group. This was the case for women aged 45–49 for the years 2008–2013, thus, these numbers are not available to display on the graph. It is notable that the 2010 census did not report any fertility data.

Secondary data sources included the SPC Statistical Bulletin. The 1990 TFR value of 5.6 from this source appears implausibly high. The primary source of these data could not be confirmed and should be interpreted with caution.

The unusual pattern of what appears to be two separate series, in conjunction with the scarcity of data from the early 1990s, renders interpretation of TFR trends difficult and, thus, a trendline has not been fitted.

<p>Total Fertility Rate (TFR)</p>	<p>Age Specific Fertility Rates (ASFRs)</p>	<p>Teenage Fertility Rate (15-19 Years)</p>
<p>The TFR value of 5.6 (1990) from the 1995 population statistics statistical bulletin seems implausibly high. The primary source and methodology used in the calculation of this estimate could not be confirmed and, thus, it should be interpreted with caution. The sudden increase in TFR between 2007 and 2008 requires further investigation (see above). No trendline has been fitted due to data inconsistencies.</p>	<p>All available ASFRs are presented.</p>	<p>A trendline was not fitted due to data inconsistencies.</p>
<p>Comments</p> <p>While it appears that fertility has been decreasing in CNMI, further investigation is required before any definitive trend can be established. A better understanding of the methodology used to create the estimates from 2003 to 2013 is needed in order to accurately interpret the data.</p>		

Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1990	5.6	SPC	Not provided in source document [†]	Not provided in source document [†]	1
2000	1.6	Stat Yearbook	Not provided in source document [†]	Not provided in source document [†]	2
2001	1.5	Stat Yearbook	Not provided in source document [†]	Not provided in source document [†]	2
2002	1.4	Stat Yearbook	Not provided in source document [†]	Not provided in source document [†]	2
2003	1.3	US NCHS [^]	Vital Registration	Direct calculation	3
2004	1.2	US NCHS [^]	Vital Registration	Direct calculation	4
2005	1.2	US NCHS [^]	Vital Registration	Direct calculation	5
2006	1.2	US NCHS [^]	Vital Registration	Direct calculation	6
2007	1.1	US NCHS [^]	Vital Registration	Direct calculation	7
2008	2.3	US NCHS [^]	Vital Registration	Direct calculation	8
2009	2.3	US NCHS [^]	Vital Registration	Direct calculation	9
2010	2.2	US NCHS [^]	Vital Registration	Direct calculation	10
2011	2.2	US NCHS [^]	Vital Registration	Direct calculation	11
2012	1.8	US NCHS [^]	Vital Registration	Direct calculation	12
2013	1.6	US NCHS [^]	Vital Registration	Direct calculation	13
2000–2002 (2001)	1.6	Stat Yearbook	Manual Calculation	Direct calculation aggregating over 3 years, population estimates from	3,4

[†] Further investigation with the reporting authority is required to retrieve this information.

[^] United States National Center for Health Statistics. Note: The TFR from the US NCHS is derived from women aged 15–44 and does not include women aged 45–49.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
2000–2002 (2001)	61	55	63	67	53	22	na	Stat Yearbook	Manual Calculation	Direct calculation aggregating over three years, population estimates from SPC. 15–19 is aggregate of 0–19 data. 40–45 is aggregate of 40+ data.	2, 14
2008	42	84	92	131	85	22	na	US NCHS [^]	Vital Registration	Direct calculation	8
2009	50	89	77	107	95	34	na	US NCHS [^]	Vital Registration	Direct calculation	9
2010	53	89	73	98	89	31	na	US NCHS [^]	Vital Registration	Direct calculation	10
2011	47	102	82	81	91	27	na	US NCHS [^]	Vital Registration	Direct calculation	11
2012	38	99	75	71	58	23	na	US NCHS [^]	Vital Registration	Direct calculation	12
2013	44	113	55	45	38	18	na	US NCHS [^]	Vital Registration	Direct calculation	13

[^] United States National Center for Health Statistics.

na = data not available in the publication.

Note: dates in parentheses refer to mid-point in ranges.

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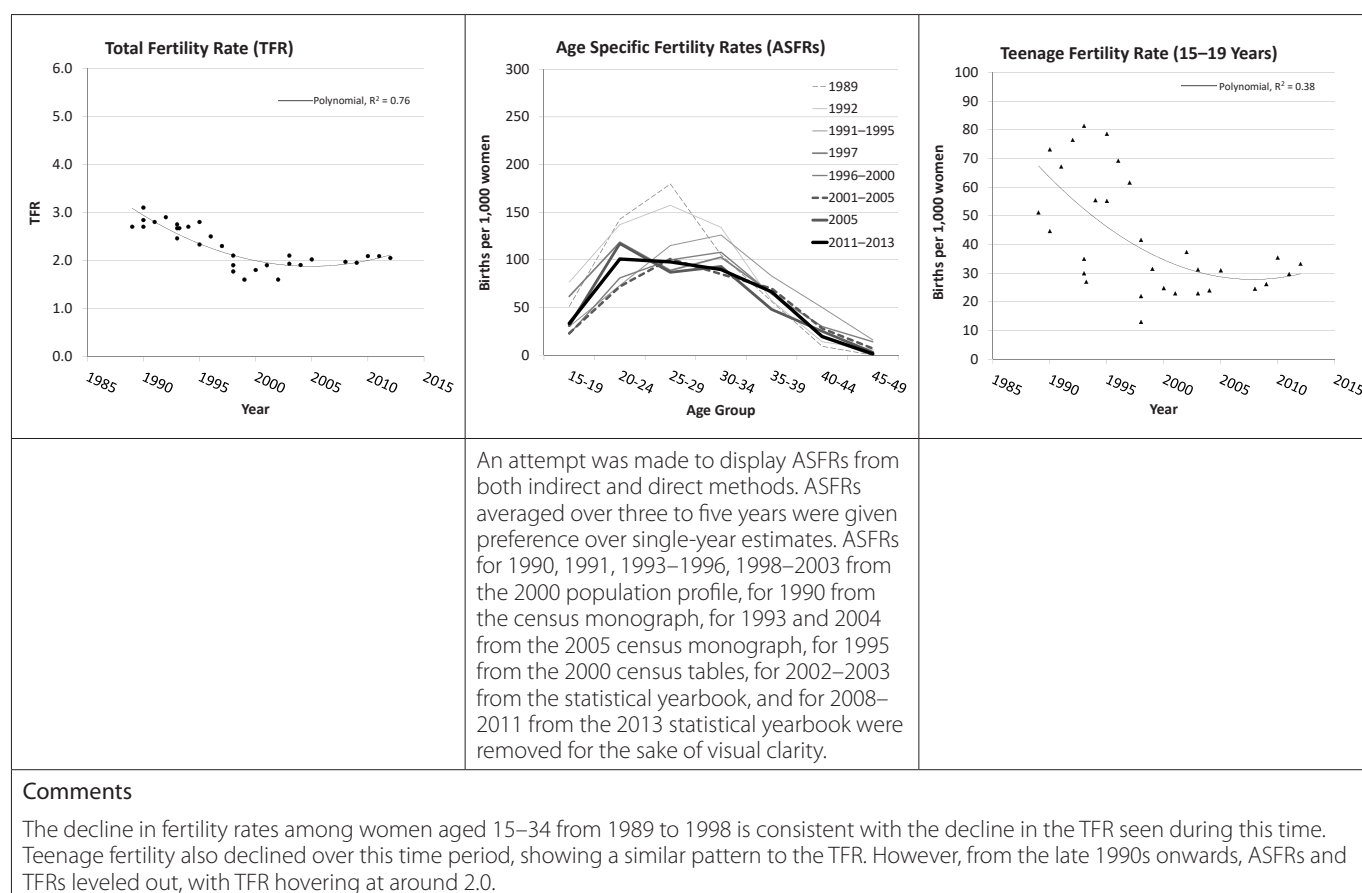
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DATA SOURCES AND QUALITY

Primary data sources included the 1990 census monograph, 2000 census population and housing profile, 2000 census tables, 2002–2003 and the 2013 statistical yearbook, and the 2005 census monograph population and housing profile.

Secondary sources included the 1995 SPC Population Statistics Statistical Bulletin No. 42.

Some caution should be used in interpreting ASFR trends as a small change in parameters of the underlying population projections can affect outcomes of ASFRs when dealing with countries with small population numbers, such as Palau. The large amount of variation seen in Palau's ASFRs is likely due to both changing assumptions in population projections, and year-to-year stochastic variation in birth rates.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1989	2.7	Census Pop Profile	Vital Registration	Direct calculation	1
1990	2.7	Census Pop Profile	Vital Registration	Direct calculation	1
1990	2.8	Census Monograph	Census	Indirect calculation using crude birth rate applied to known ASFRs	2
1990	3.1	SPC	Not provided in source document [†]	Not provided in source document [†]	3
1991	2.8	Census Pop Profile	Vital Registration	Direct calculation	1
1992	2.9	Census Pop Profile	Vital Registration	Direct calculation	1
1991–1995 (1993)	2.7	Census Pop Profile	Census	Indirect calculation – own children method	1
1991–1995 (1993)	2.5	Census Pop Profile	Census	Indirect calculation – own children method	1
1991–1995 (1993)	2.8	Census Monograph	Census	Indirect calculation – own children method	4
1993	2.7	Census Pop Profile	Vital Registration	Direct calculation	1
1994	2.7	Census Pop Profile	Vital Registration	Direct calculation	1
1995	2.8	Census Pop Profile	Vital Registration	Direct calculation	1
1995	2.3	Census Tables, Stat Yearbook	Not provided in source document [†]	Not provided in source document [†]	5,6
1996	2.5	Census Pop Profile	Vital Registration	Direct calculation	1
1997	2.3	Census Pop Profile	Vital Registration	Direct calculation	1
1998	1.9	Census Pop Profile	Vital Registration	Direct calculation	1
1996–2000 (1998)	1.8	Census Pop Profile	Census	Indirect calculation – own children method	1
1996–2000 (1998)	2.1	Census Monograph	Census	Indirect calculation – own children method	4
1999	1.6	Census Pop Profile	Vital Registration	Direct calculation	1
2000	1.8	Census Pop Profile	Vital Registration	Direct calculation	1
2001	1.9	Census Pop Profile	Vital Registration	Direct calculation	1
2002	1.6	Census Pop Profile	Vital Registration	Direct calculation	1
2001–2005 (2003)	1.9	Census Monograph	Census	Indirect calculation – own children method	4
2003	2.1	Census Pop Profile	Vital Registration	Direct calculation	1
2004	1.9	Census Monograph	Vital Registration	Direct calculation	4
2005	2.0	Census Monograph	Vital Registration	Direct calculation	4
2007–2009 (2008)	2.0	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	7, 8
2008–2010 (2009)	2.0	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	7, 8
2009–2011 (2010)	2.1	Stat Yearbook	Vital Registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	7, 8
2010–2012 (2011)	2.1	Stat Yearbook	Vital Registration	Manual calculation: three years of aggregated vital registration data/ midpoint SPC population estimates	7, 8
2011–2013 (2012)	2.1	Stat Yearbook	Vital Registration	Manual calculation: three years of aggregated vital registration data/ midpoint SPC population estimates	7, 8

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1989	51	143	180	105	56	9	0	Census Pop Profile	Vital Registration	Direct calculation	1
1990	73	169	128	91	63	20	0	Census Pop Profile	Vital Registration	Direct calculation	1
1990	45	152	186	111	54	20	2	Census Monograph	Census	Indirect calculation using crude birth rate applied to known ASFRs	2
1991	67	149	149	115	67	18	0	Census Pop Profile	Vital Registration	Direct calculation	1
1992	77	137	157	134	57	14	6	Census Pop Profile	Vital Registration	Direct calculation	1
1991–1995 (1993)	27	84	129	134	90	47	23	Census Pop Profile	Census	Indirect calculation –OCM [#]	1
1991–1995 (1993)	30	73	115	126	83	50	16	Census Pop Profile	Census	Indirect calculation –OCM [#]	1
1991–1995 (1993)	35	99	136	123	86	41	31	Census Monograph	Census	Indirect calculation –OCM [#]	4
1993	81	115	145	121	63	13	0	Census Pop Profile	Vital Registration	Direct calculation	1
1994	56	159	142	124	43	10	0	Census Pop Profile	Vital Registration	Direct calculation	1
1995	79	134	134	119	84	11	3	Census Pop Profile	Vital Registration	Direct calculation	1
1995	55	129	105	76	75	24	3	Census Tables, Stat Yearbook	Not provided in source document†	Not provided in source document†	5,6
1996	69	120	133	105	54	13	0	Census Pop Profile	Vital Registration	Direct calculation	1
1997	62	119	89	103	65	19	0	Census Pop Profile	Vital Registration	Direct calculation	1
1998	42	105	77	85	50	21	0	Census Pop Profile	Vital Registration	Direct calculation	1
1996–2000 (1998)	13	53	86	87	69	32	13	Census Pop Profile	Census	Indirect calculation –OCM [#]	1
1996–2000 (1998)	22	81	100	108	64	30	14	Census Monograph	Census	Indirect calculation –OCM [#]	4
1999	32	64	87	85	43	16	0	Census Pop Profile	Vital Registration	Direct calculation	1
2000	25	93	95	75	47	30	2	Census Pop Profile	Vital Registration	Direct calculation	1
2001	23	101	112	72	62	19	0	Census Pop Profile	Vital Registration	Direct calculation	1
2002	37	77	81	64	52	19	0	Census Pop Profile	Vital Registration	Direct calculation	1
2001–2005 (2003)	23	72	101	85	70	28	7	Census Monograph	Census	Indirect calculation –OCM [#]	4
2003	31	128	101	58	65	21	7	Census Pop Profile	Vital Registration	Direct calculation	1

2004	21	114	105	75	44	19	0	Census Monograph	Vital Registration	Direct calculation	4
2005	31	117	87	93	48	25	3	Census Monograph	Vital Registration	Direct calculation	4
2007–2009 (2008)	25	88	106	99	59	25	3	Stat Yearbook	Vital Registration	Manual calculation: three years of aggregated vital registration data/ midpoint SPC population estimates	7, 8
2008–2010 (2009)	26	76	97	94	71	23	3	Stat Yearbook	Vital Registration	Manual calculation: three years of aggregated vital registration data/ midpoint SPC population estimates	7, 8
2009–2011 (2010)	35	102	89	95	77	19	0	Stat Yearbook	Vital Registration	Manual calculation: three years of aggregated vital registration data/ midpoint SPC population estimates	7, 8
2010–2012 (2011)	30	107	98	92	72	20	0	Stat Yearbook	Vital Registration	Manual calculation: three years of aggregated vital registration data/ midpoint SPC population estimates	7, 8
2011–2013 (2012)	33	101	98	90	66	19	1	Stat Yearbook	Vital Registration	Manual calculation: three years of aggregated vital registration data/ midpoint SPC population estimates	7, 8

Own children method.

† Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

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PAPUA NEW GUINEA

Region:	Melanesia
Land area (km ²):	462,840
2015 mid-year population estimate:	8,083,700
Population growth rate (%):	2.7

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in Papua New Guinea (PNG) has declined slowly from around 4.9 in 1990 to 4.4 in 2004. This amounts to a decrease of one-half child per woman over approximately 15 years. More recent data are required to adequately examine trends over the last 10 years.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Age-specific fertility rates (ASFRs) declined among women aged 20–29 over the 14-year period 1990–2004. However, fertility rates were high among women aged 20–24 and 25–29, at approximately 200 births per 1000 women in each age group in 2004. Additionally, ASFRs among mothers aged 35 and older were notable, as values did not decrease significantly with time. ASFRs among women aged 35–39 were high compared with other countries in the region, at approximately 125 births per 1000 women. ASFRs among women aged 40–44 in PNG were the second highest in the Pacific Islands region (exceeded only by Samoa), with a rate of 60 births per 1000 women.

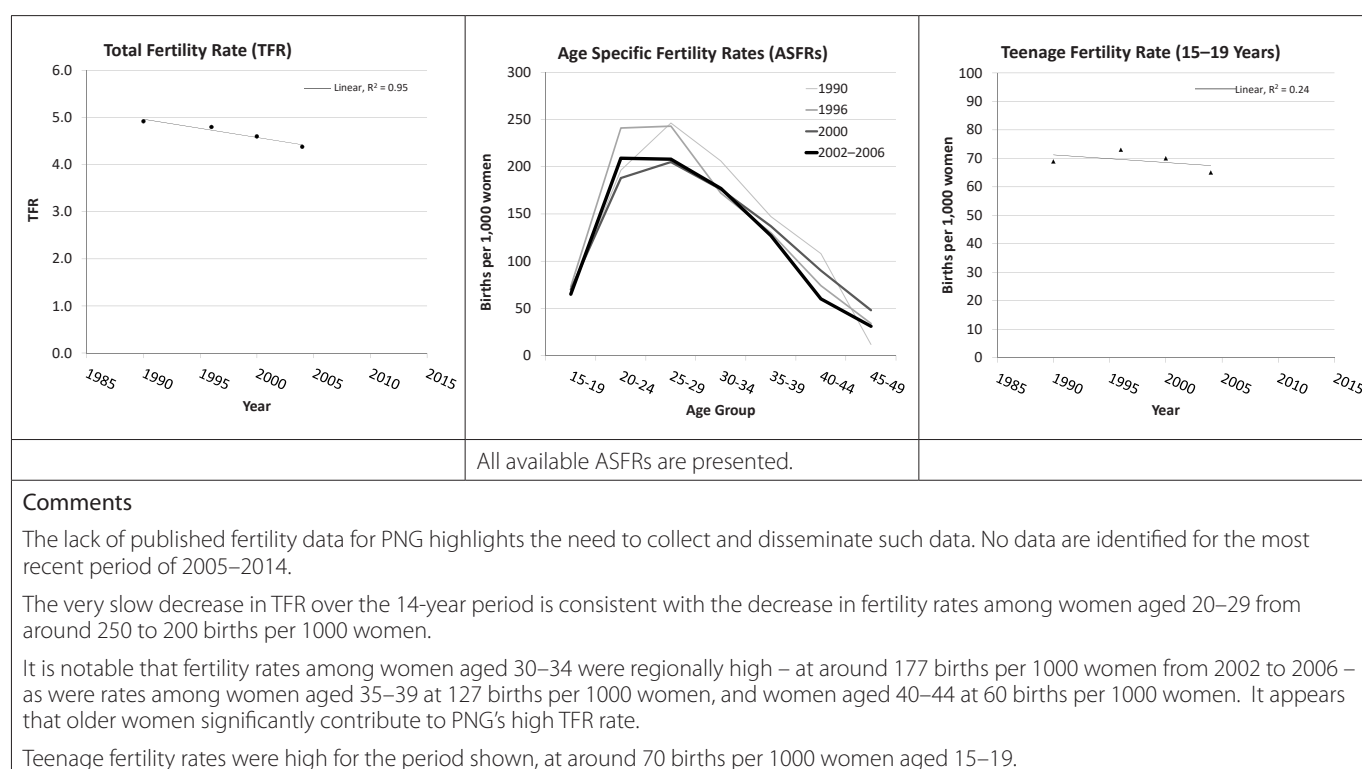
TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

Teenage fertility rates appear to be stable over the period examined, with a rate of approximately 70 births per 1000 women aged 15–19. However, with only four data points and no data since 2004, it is difficult to understand recent trends in teenage fertility.

DATA SOURCES AND QUALITY

The primary sources include the 1996 and 2006 demographic and health survey, 1996 population projections, and the 2000 census report on fertility and mortality.

There is a lack of published data, and no data points were found for periods after 2004. A census was known to have occurred in 2011, but fertility data have not yet been published from this source. Civil registration is considered incomplete in PNG and is thus not a reliable source of fertility data.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1990	4.9	National Statistics Office	Not provided in source document [†]	Not provided in source document [†]	1
1996	4.8	DHS	DHS	Direct calculation- Complete Retrospective Maternal History	2
2000	4.6	Census	Census	Indirect calculation – own children method	3
2002–2006 (2004)	4.4	DHS	DHS	Direct calculation- Complete Retrospective Maternal History	4

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1990	69	196	246	206	147	108	12	National Statistics Office	Not provided in source document [†]	Not provided in source document [†]	1
1996	73	241	243	172	130	74	34	DHS	DHS	Direct calculation- Complete Retrospective Maternal History	2
2000	70	188	205	176	137	90	48	Census	Census	Indirect calculation – own children method	3
2002–2006 (2004)	65	209	208	177	127	60	31	DHS	DHS	Direct calculation- Complete Retrospective Maternal History	4

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

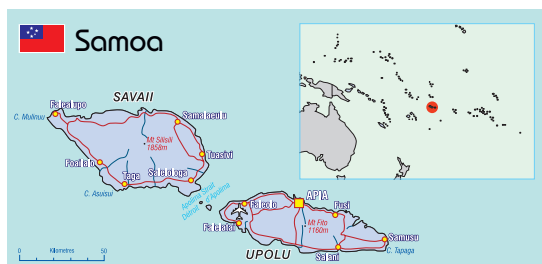
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SAMOA

Region:	Polynesia
Land area (km ²):	2,934
2015 mid-year population estimate:	187,300
Population growth rate (%):	-0.1

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) in Samoa has changed little over the last 25 years, with rates hovering at around 4.4–4.8. It appears that TFR declined between 1991 and 2006, and then began to rise again from around 2008 to 2013. This trend, however, should be interpreted with some caution. The 2006 estimate was derived from the number of births in the 12 months preceding the census, which can often result in the underreporting of births. The methodology for the 2011 estimate is not clear, thus making it difficult to assess the accuracy of this estimate. This leaves just two estimates from the 2009 and 2014 demographic and health surveys, which suggest that fertility is rising. Another current data source would strengthen the assertion that TFR is indeed increasing in Samoa.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Age-specific fertility rates (ASFRs) mirror the pattern seen in the TFR. ASFRs dropped among women aged 20–34 between 1998 and 2006, then rose again between 2006 and 2008. Between 2008 and 2011, fertility rates increased among women aged 25–29, which up to that point, was the age group with the highest fertility. Between 2011 and 2013, ASFRs appear to rise again in women aged 20–34, with a shift in peak fertility to the younger age group, 20–24. This shift to higher fertility rates in younger mothers, however, should be interpreted with caution, as this was exemplified in just one data source.

It is notable that women aged 35–39 had fertility rates of around 150 births per 1000 women, and these numbers have not changed much over time. Women aged 20–39 appear to be driving the high TFR.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

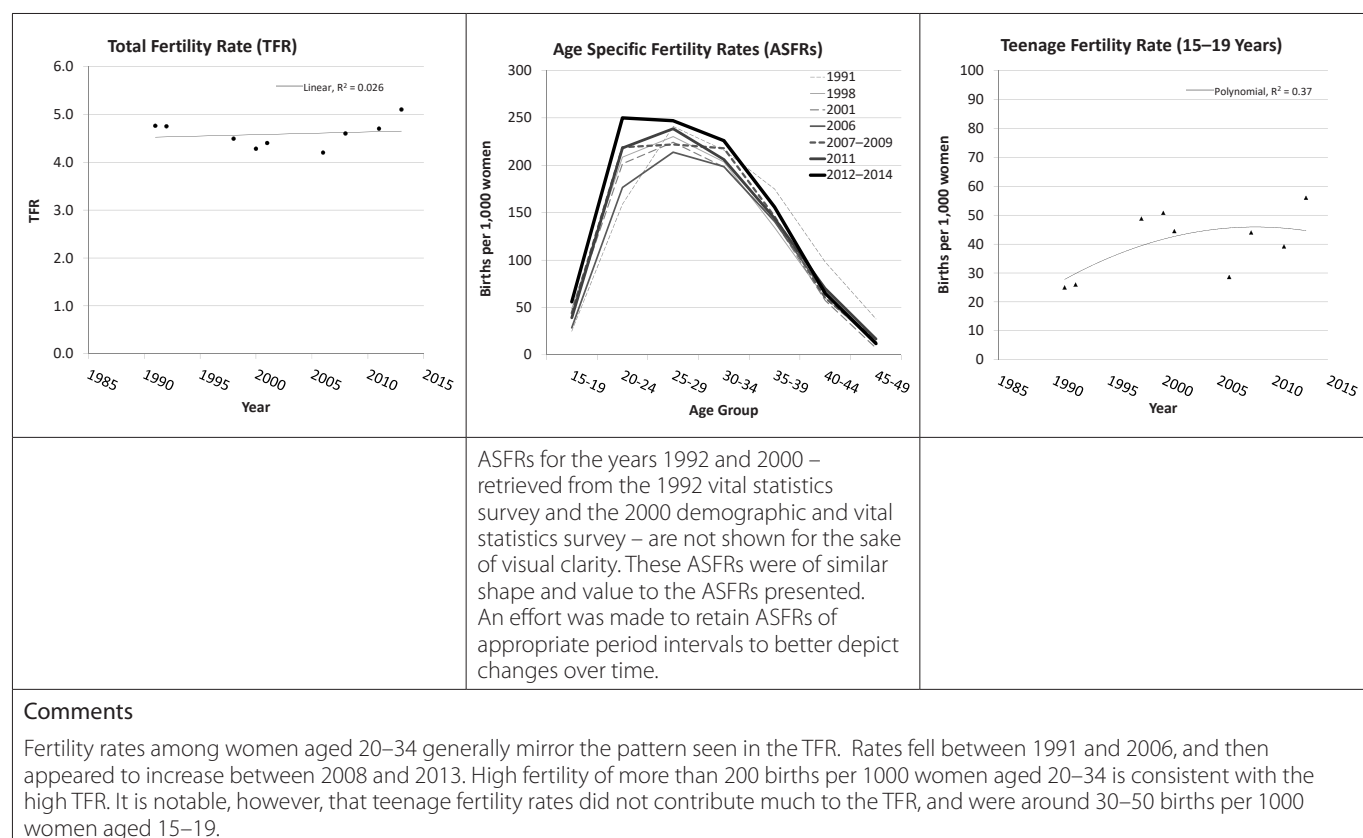
There is considerable variation in teenage fertility estimates, making the interpretation of a trend difficult. Samoa's teenage fertility rate has generally ranged between 30 and 50 births per 1000 women aged 15–19. This is relatively low considering the high TFR experienced over the last 25 years.

DATA SOURCES AND QUALITY

The primary data sources included the 1991, 2001, 2006 and 2011 census reports; the 1992 vital statistics survey; the 2000 demographic and vital statistics survey; and the 1999, 2009 and 2014 demographic and health surveys.

As discussed above, the increase in ASFRs among women aged 20–34, and the resulting TFR from 2008 to 2013, should be interpreted with caution. The 2006 estimates were derived from the number of births in the 12 months preceding the census, which can often result in the underreporting of births. The methodology used for the 2011 estimates is unclear,

thus making it difficult to assess the accuracy of these data. This leaves just two estimates to suggest that fertility is rising: both from the demographic and health surveys. Another current data source would be helpful in supporting or disputing the theory that Samoa's TFR is increasing.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1991	4.8	Census	Census	Births in the 12 months before the census, adjusted based on reverse survival technique from the post census survey	1
1992	4.8	Vital Stats Sample Survey	Survey	Direct calculation - births in the 12 months preceding the survey	2
1998	4.5	DHS	DHS	Direct calculation – complete retrospective maternal history	3
2000	4.3	Demographic and Vital Stats Survey	Survey	Indirect calculation – CEB [#] – P/F ratio method	4
2001	4.4	Census	Census	Indirect calculation – CEB [#] - Arriaga method	5
2006	4.2	Census	Census	Direct calculation – births in the last 12 months	6
2007–2009 (2008)	4.6	DHS	DHS	Direct calculation- complete retrospective maternal history	7
2011	4.7	Census	Census	Methodology unclear [†]	8
2012–2014 (2013)	5.1	DHS	DHS	Direct calculation – complete retrospective maternal history	9

[#] Children ever born.

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1991	25	159	241	216	175	98	38	Census	Census	Births in the 12 months before the census, adjusted based on reverse survival technique from the post census survey	1
1992	26	199	241	246	123	72	44	Vital Stats Sample Survey	Survey	Direct calculation - births in the 12 months preceding the survey	2
1998	49	209	230	204	134	60	12	DHS	DHS	Direct calculation – complete retrospective maternal history	3
2000	51	220	217	179	131	43	14	Demographic and Vital Stats Survey	Survey	Indirect calculation – CEB [#] – P/F ratio method	4
2001	45	202	224	198	141	57	7	Census	Census	Indirect calculation – CEB [#] – Arriaga method	5
2006	29	177	214	199	141	65	14	Census	Census	Direct calculation – births in the last 12 months	6
2007–2009 (2008)	44	219	222	218	146	60	16	DHS	DHS	Direct calculation – complete retrospective maternal history	7
2011	39	218	239	206	144	70	17	Census	Census	Methodology unclear [†]	8
2012–2014 (2013)	56	250	247	226	156	65	12	DHS	DHS	Direct calculation – complete retrospective maternal history	9

[#] Children ever born.

[†] Further investigation with the reporting authority is required to retrieve this information.

Note: dates in parentheses refer to mid-point in ranges.

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SOLOMON ISLANDS

Region:	Melanesia
Land area (km ²):	28,230
2015 mid-year population estimate:	642,000
Population growth rate (%):	2.5

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) declined over a 10-year period from around 6.0 in 1989 to approximately 4.7 in 1999. Estimates for 2006 and 2009 imply it remained in the 4.6–4.7 range, suggesting that TFR leveled off between 1999 and 2009. More recent data are necessary, however, to determine whether fertility has leveled off, or will continue to decline.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

There was little change in ASFRs over the 10-year period 1999–2009. Fertility was highest among women aged 25–29, although women aged 20–24 and 30–34 also displayed high fertility rates, with more than 200 births per 1000 women in these age groups. Women aged 35–39 had high fertility rates compared with most women in the Pacific Islands region of around 135 births per 1000 women.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

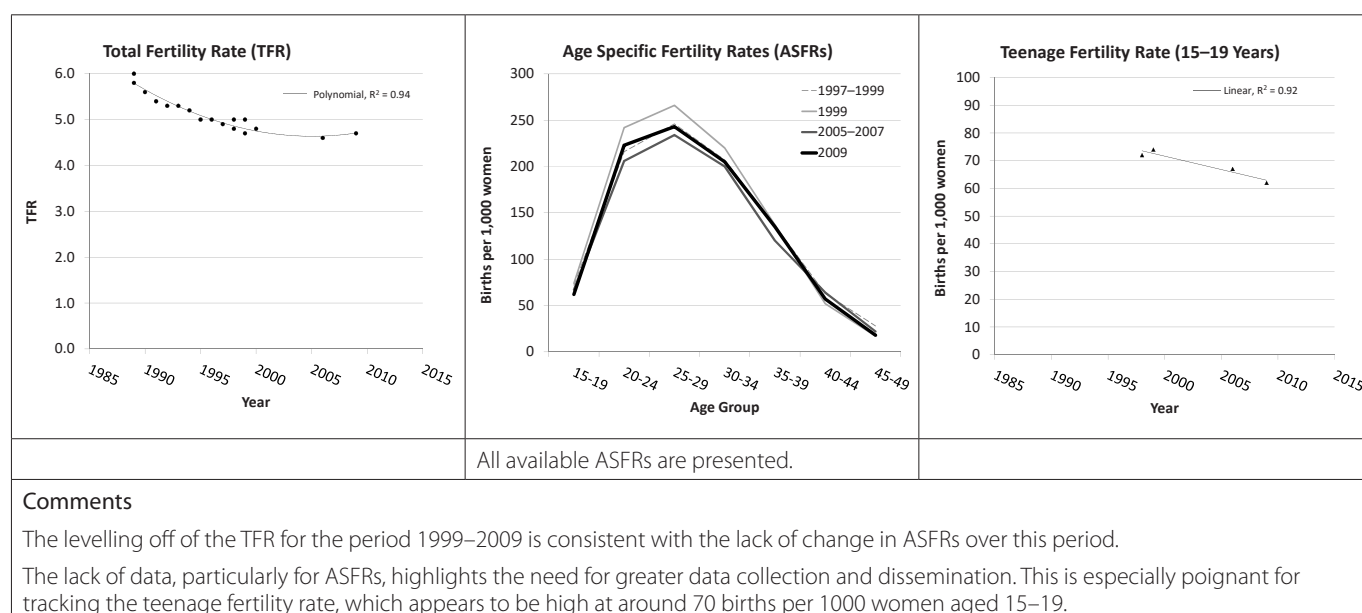
There was insufficient data to establish any trend in teenage fertility rates over time. Estimates suggest that teenage fertility was high at around 62 to 74 births per 1000 women aged 15–19 between 1998 and 2009.

DATA SOURCES AND QUALITY

Primary data sources included the 1999 and 2009 censuses and the 2007 demographic and health survey.

Secondary data sources included the 1995 SPC Statistical Bulletin and the peer-reviewed article 'Pacific Islands' population and development – Facts, fiction and follies' (Haberkm 2008).

There is limited fertility data published for Solomon Islands, particularly in the case of ASFRs, highlighting the need for greater data collection and dissemination.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1989	5.8	SPC Stat Bulletin	Not provided in source document [†]	Not provided in source document [†]	1
1989	6.0	Census	Census	Indirect calculation – own children method	2
1990	5.6	Census	Census	Indirect calculation – own children method	2
1991	5.4	Census	Census	Indirect calculation – own children method	2
1992	5.3	Census	Census	Indirect calculation – own children method	2
1993	5.3	Census	Census	Indirect calculation – own children method	2
1994	5.2	Census	Census	Indirect calculation – own children method	2
1995	5.0	Census	Census	Indirect calculation – own children method	2
1996	5.0	Census	Census	Indirect calculation – own children method	2
1997	4.9	Census	Census	Indirect calculation – own children method	2
1997–1999 (1998)	4.8	Census	Census	Indirect calculation – own children method	2
1998	5.0	Census	Census	Indirect calculation – own children method	2
1999	4.7	Census	Census	Indirect calculation – own children method	2
1999	5.0	Census	Census	Indirect calculation – CEB [#] – P/F ratio method	3
2000	4.8	Peer Reviewed Paper	Not provided in source document [†]	Not provided in source document [†]	4
2005–2007 (2006)	4.6	DHS	DHS	Direct calculation – Complete Retrospective Maternal History	5
2009	4.7	Census	Census	Indirect calculation – CEB [#] – P/F ratio method	3

[†] Further investigation with the reporting authority is required to retrieve this information.

[#] Children ever born.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1997–1999 (1998)	72	216	246	207	136	63	28	Census	Census	Indirect calculation – own children method	2
1999	74	242	266	220	137	52	17	Census	Census	Indirect calculation – CEB* – P/F ratio method	3
2005–2007 (2006)	67	206	234	200	120	64	22	DHS	DHS	Direct calculation – Complete Retrospective Maternal History	5
2009	62	223	243	205	135	57	18	2009	Census	Indirect calculation – CEB* – P/F ratio method	3

* Children ever born.

Note: dates in parentheses refer to mid-point in ranges.

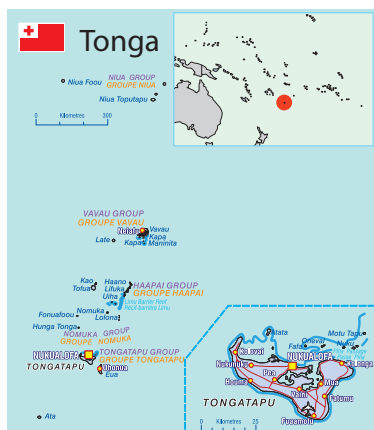
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TONGA

Region:	Polynesia
Land area (km ²):	749
2015 mid-year population estimate:	103,300
Population growth rate (%):	0.0

[Source: The Pacific Community Pocket Summary 2015]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) has remained relatively unchanged over the 15-year period 1996–2011, hovering around 4.0. TFR has decreased slightly from around 4.2 in 1996 to 3.9 in 2011.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

There was little change in ASFRs between 1996 and 2011; the 1996 census and 2011 demographic and health survey rates were nearly identical, and rates from the 2011 census were also very similar.

Fertility was highest among women aged 25–29 at approximately 240 births per 1000 women, although rates among women aged 30–34 were also elevated at around 200 births per 1000 women. It is notable that women aged 30–34 had higher fertility rates than younger women aged 20–24 (around 160 births per 1000 women), and that fertility remained relatively high among women aged 35–39 (at around 135 births per 1000 women), suggesting that older mothers are contributing to the high TFR.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

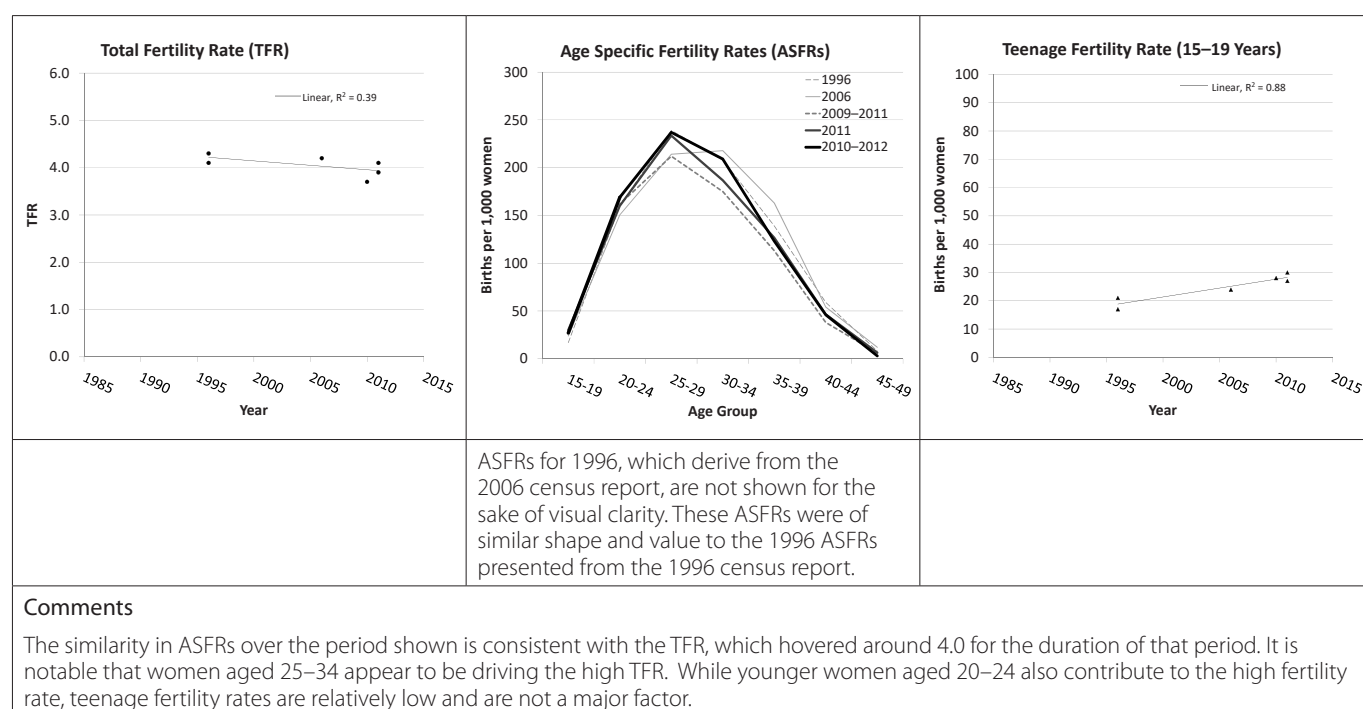
The teenage fertility rate in Tonga ranged between 17 and 30 births per 1000 women aged 15–19. The rate appears to have increased from around 20 births per 1000 women aged 15–19 in 1996 to around 28 births per 1000 women aged 15–19 in 2011. Better data, however, is necessary over the interim period to confirm the potential increase. Regardless, it is notable that the teenage fertility rate was relatively low considering the high TFR.

DATA SOURCES AND QUALITY

Primary data sources included census reports for 1996, 2006 and 2011, and the 2012 demographic and health survey.

The 2009–2011 TFR and ASFR estimate from the 2011 census report is derived from registered births, which may have been underreported. Because the extent of registration completeness is unknown, and because it was close to other estimates, it was treated similar to other estimates in the graphs.

There is a lack of data for the period prior to 2006, making trend analysis difficult.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1996	4.1	Census	Census	Methodology unclear [†]	1
1996	4.3	Census	Census	Indirect calculation – CEB [#] – Arriaga method	2
2006	4.2	Census	Census	Indirect calculation – CEB [#] – Arriaga method	2
2009–2011 (2010)	3.7	Census	Vital Registration	Direct calculation	3
2011	3.9	Census	Census	Indirect calculation – CEB [#] – Arriaga method	3
2010–2012 (2011)	4.1	DHS	DHS	Direct calculation – Complete Retrospective Maternal History	4

[†] Further investigation with the reporting authority is required to retrieve this information.

[#] Children ever born.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1996	17	160	239	208	139	59	8	Census	Census	Methodology unclear [†]	1
1996	21	161	241	209	148	62	9	Census	Census	Indirect calculation – CEB [#] – Arriaga method	2
2006	24	151	214	218	163	54	12	Census	Census	Indirect calculation – CEB [#] – Arriaga method	2
2009–2011 (2010)	28	162	212	175	113	38	6	Census	Vital Registration	Direct calculation	3
2011	30	160	234	187	127	47	6	Census	Census	Indirect calculation – CEB [#] – Arriaga method	3
2010–2012 (2011)	27	169	237	209	123	46	3	DHS	DHS	Direct calculation – complete retrospective maternal history	4

[†] Further investigation with the reporting authority is required to retrieve this information.

[#] Children ever born.

Note: dates in parentheses refer to mid-point in ranges.

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TUVALU

Region:	Polynesia
Land area (km ²):	26
2015 mid-year population estimate:	11,010
Population growth rate (%):	1.3

[Source: The Pacific Community Pocket Summary 2015]



TRENDS IN TOTAL FERTILITY RATE

All but one total fertility rate (TFR) estimate was derived from civil registration data (as cited in the 2002 census), which was believed to be underreported, making analysis difficult. For the 15-year period shown, TFR remained in the range 3.5–3.9.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Fertility was highest among women aged 20–29 at around 200 births or more per 1000 women. Fertility in women aged 30–34 was also elevated, at approximately 160 births per 1000 women.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

Teenage fertility rates should be interpreted with caution. The data suggest that there was an increase in teenage fertility over the 15-year period, but it is unknown whether teen mothers were more likely to be affected by under-reporting of births, especially if these births were to unmarried mothers. There is also a high rate of dispersion in the data, making trend interpretation difficult.

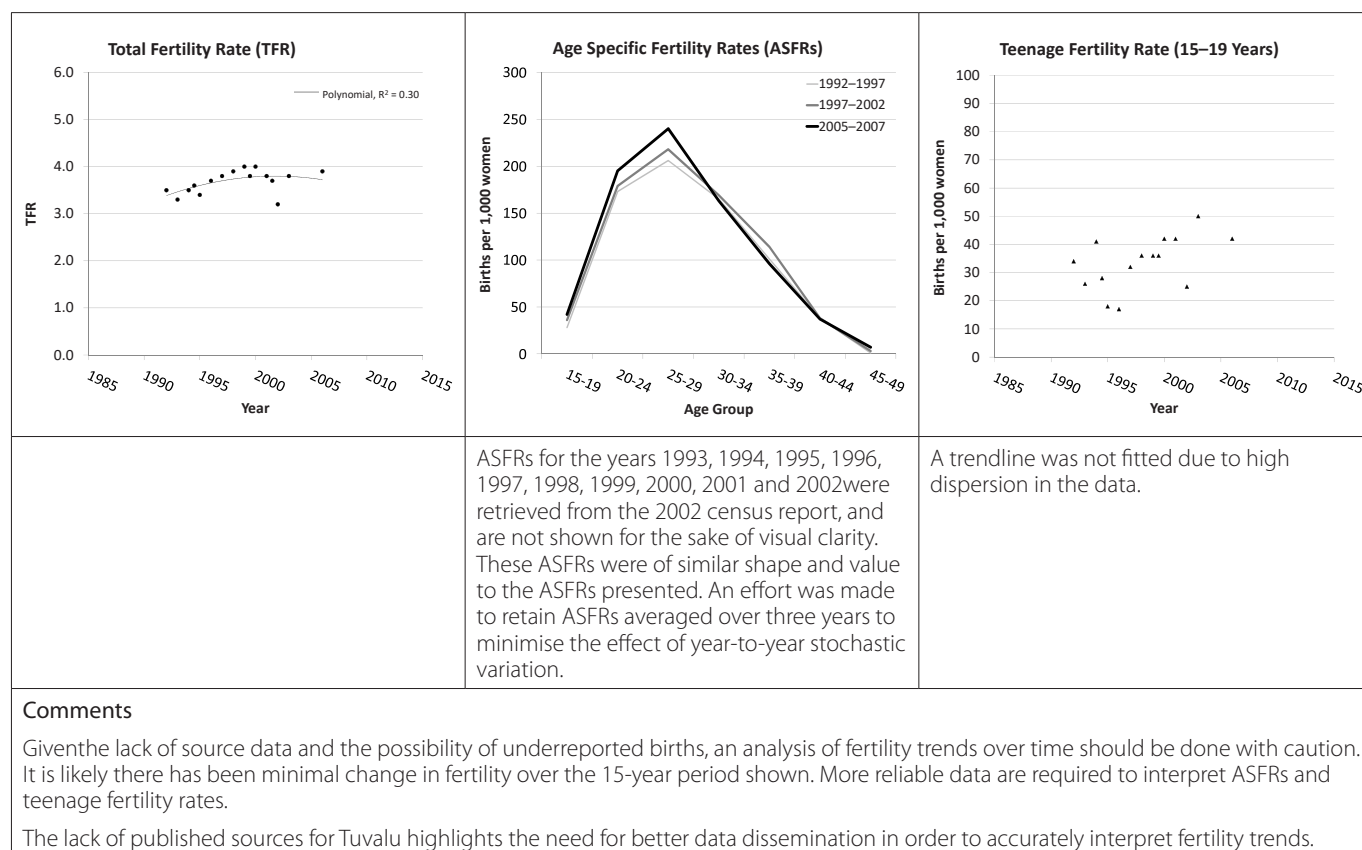
Teen fertility rates were reported to be between 17 and 50 births per 1000 women aged 15–19, but generally stayed within the 28–42 range.

DATA SOURCES AND QUALITY

The primary data sources included the 2002 census and 2007 demographic and health survey.

All but one estimate was derived from civil registration data, as cited in the 2002 census. Civil registration in Tuvalu is believed to have been affected by underreporting of births, especially in the 1990s. As reporting improved, there were more births registered, which resulted in 'higher' fertility rates. It is likely that fertility has remained relatively unchanged over the 15-year period 1992–2006.

Just two data sources were found, highlighting the lack of published fertility data for Tuvalu and the need for better fertility estimates.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1992	3.5	Census	Vital registration	Direct calculation	1
1993	3.3	Census	Vital registration	Direct calculation	1
1994	3.5	Census	Vital registration	Direct calculation	1
1992–1997 (1994.5)	3.6	Census	Vital registration	Direct calculation	1
1995	3.4	Census	Vital registration	Direct calculation	1
1996	3.7	Census	Vital registration	Direct calculation	1
1997	3.8	Census	Vital registration	Direct calculation	1
1998	3.9	Census	Vital registration	Direct calculation	1
1999	4.0	Census	Vital registration	Direct calculation	1
1997–2002 (1999.5)	3.8	Census	Vital registration	Direct calculation	1
2000	4.0	Census	Vital registration	Direct calculation	1
2001	3.8	Census	Vital registration	Direct calculation	1
2000–2003 (2001.5)	3.7	Census	Vital registration	Direct calculation	1
2002	3.2	Census	Vital registration	Direct calculation	1
2003	3.8	Census	Vital registration	Direct calculation	1
2005–2007 (2006)	3.9	DHS	DHS	Direct calculation – Complete Retrospective Maternal History	2

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1992	34	196	212	141	90	33	0	Census	Vital registration	Direct calculation	1
1993	26	168	191	177	104	0	0	Census	Vital registration	Direct calculation	1
1994	41	172	195	145	105	51	0	Census	Vital registration	Direct calculation	1
1992–1997 (1994.5)	28	173	206	165	101	38	1	Census	Vital registration	Direct calculation	1
1995	18	144	213	162	112	34	0	Census	Vital registration	Direct calculation	1
1996	17	170	217	174	102	51	4	Census	Vital registration	Direct calculation	1
1997	32	182	211	194	94	55	0	Census	Vital registration	Direct calculation	1
1998	36	170	219	183	135	26	4	Census	Vital registration	Direct calculation	1
1999	36	231	231	136	131	40	4	Census	Vital registration	Direct calculation	1
1997–2002 (1999.5)	36	179	218	169	114	38	3	Census	Vital registration	Direct calculation	1
2000	42	203	229	192	111	29	0	Census	Vital registration	Direct calculation	1
2001	42	144	230	168	120	44	4	Census	Vital registration	Direct calculation	1
2002	25	151	188	132	91	37	8	Census	Vital registration	Direct calculation	1
2003	50	214	196	145	109	53	0	Census	Vital registration	Direct calculation	1
2007	42	195	240	163	96	37	7	DHS	DHS	Direct calculation – Complete Retrospective Maternal History	2

Note: dates in parentheses refer to mid-point in ranges.

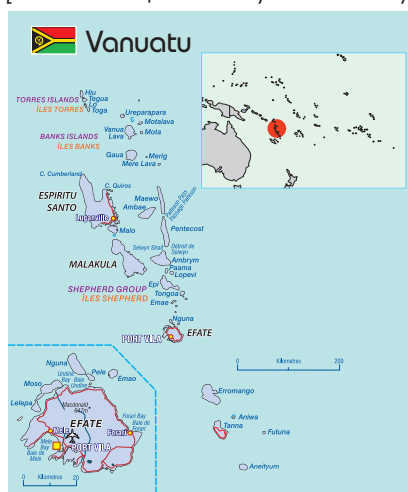
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VANUATU, REPUBLIC OF

Region:	Melanesia
Land area (km ²):	12,281
2015 mid-year population estimate:	277,500
Population growth rate (%):	2.3

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) has slowly declined over a 20+ year period, from around 5.3 in 1989 to approximately 4.2 in 2012.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

While fertility declined among women of all ages between 1999 and 2012, the decrease was not great, which is consistent with the decline in TFR from around 4.8 to 4.2 over that period.

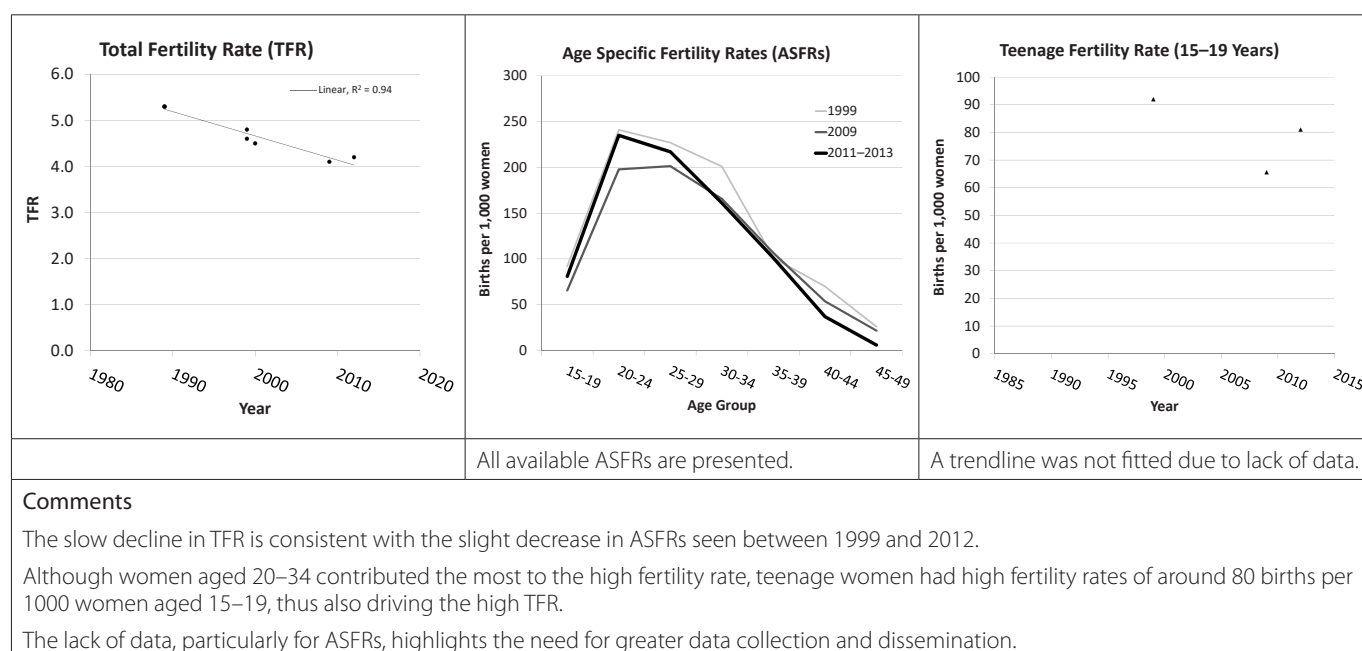
Fertility was highest among women aged 20–29, with more than 200 births per 1000 women. Fertility among women aged 30–34 was also high, at around 175 births per 1000 women. As women entered their late 30s, fertility remained somewhat elevated, with rates hovering at around 100 births per 1000 women.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

Insufficient data made it impossible to establish trends in teenage fertility rates over time, as only four data points were identified. The limited data indicated that teenage fertility rates were high, at approximately 80 births per 1000 women aged 15–19.

DATA SOURCES AND QUALITY

Primary data sources included the 1999 and 2009 censuses and the 2013 demographic and health survey. Secondary data sources included the 1995 SPC Statistical Bulletin 42, and the peer-reviewed article *Pacific Islands' population and development – Facts, fiction and follies*.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1989	5.3	Census	Census	Indirect calculation – CEB [#] – P/F ratio method	1
1989	5.3	SPC Stat Bulletin	Not provided in source document [†]	Not provided in source document [†]	2
1999	4.8	Census	Census	Indirect calculation – CEB [#] – P/F ratio method	1
1999	4.6	Census	Census	Indirect calculation – own children method	3
2000	4.5	Peer-reviewed paper	Not provided in source document [†]	Not provided in source document [†]	4
2009	4.1	Census	Census	Indirect calculation – own children method	3
2010–2013 (2011.5)	4.2	DHS	DHS	Direct calculation – Complete Retrospective Maternal History	5

[†] Further investigation with the reporting authority is required to retrieve this information.

[#] Children ever born.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1999	92	241	227	201	101	70	26	Census	Census	Indirect calculation – CEB [#] – P/F ratio method	1
2009	66	198	201	166	107	54	22	Census	Census	Indirect calculation – own children method	3
2011–2013 (2012)	81	235	217	161	101	37	6	DHS	DHS	Direct calculation – Complete Retrospective Maternal History	5

[#] Children ever born.

Note: dates in parentheses refer to mid-point in ranges.

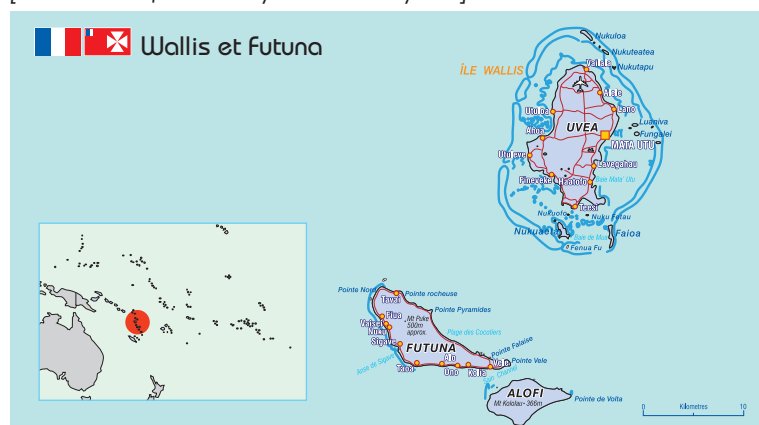
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WALLIS AND FUTUNA

Region:	Polynesia
Land area (km ²):	142
2015 mid-year population estimate:	11,750
Population growth rate (%):	-1.9

[Source: *The Pacific Community Pocket Summary 2015*]



TRENDS IN TOTAL FERTILITY RATE

The total fertility rate (TFR) has declined over 10 years, from around 2.9 over the period 1996–1999 to 2.1 between 2008 and 2012. Estimates suggest that TFR has not yet stabilised.

TRENDS IN AGE-SPECIFIC FERTILITY RATES

Fertility rates have declined among women aged 25 and older from the late 1990s to the mid-2000s, but the largest decline occurred among women aged 25–34.

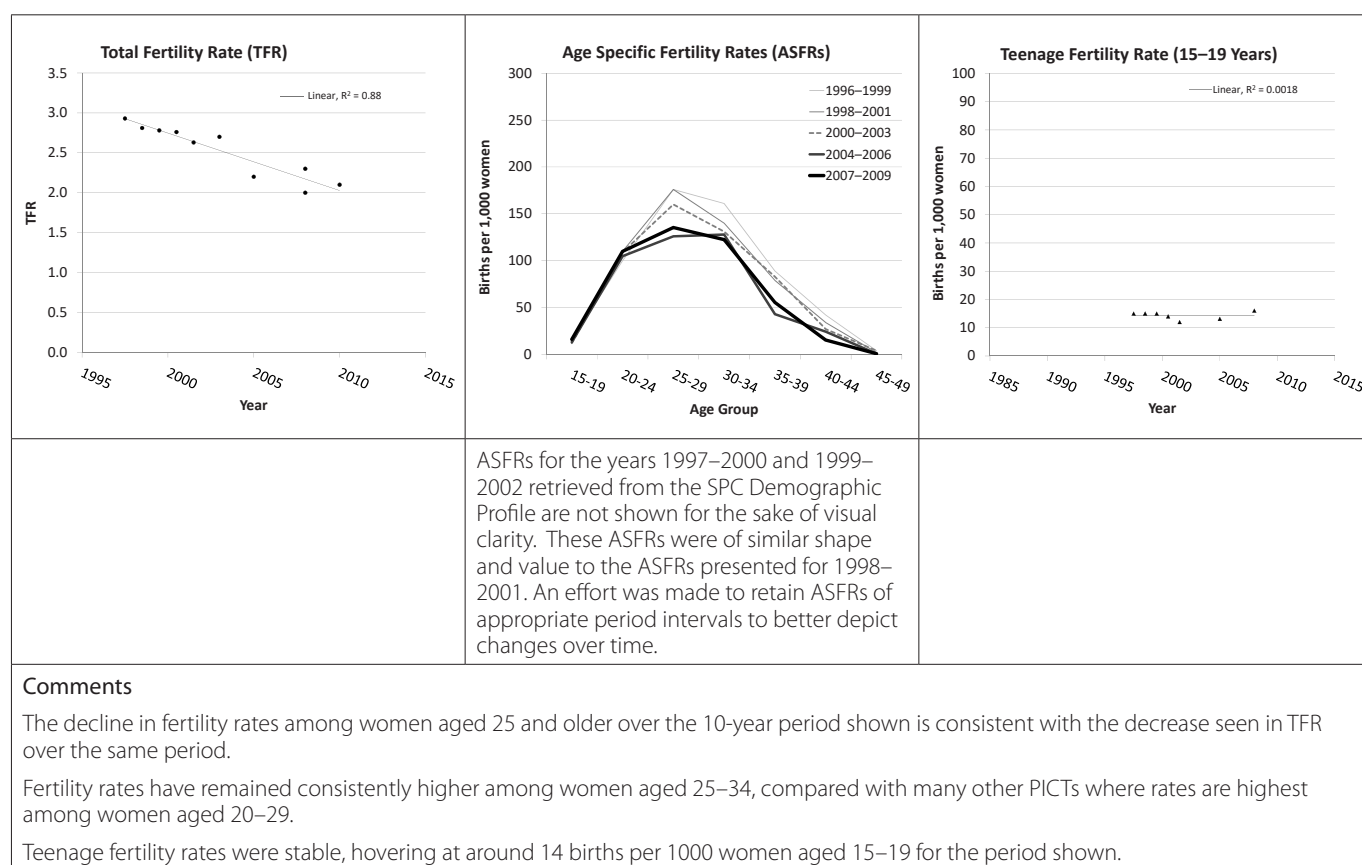
Fertility rates were generally highest among an older cohort of women than is otherwise seen in the Pacific. While women aged 25–29 experienced the highest rates, women aged 30–34 had the next highest rates, followed by younger women aged 20–24.

TRENDS IN TEENAGE FERTILITY (ADOLESCENT FERTILITY)

Teenage fertility rates over the 10-year period shown were low and remained unchanged, hovering at around 14 births per 1000 women aged 15–19.

DATA SOURCES AND QUALITY

Primary data sources included the SPC Demographic Profile of Wallis and Futuna, the Institut National de la Statistique et des Études Économique Première N° 1511 and N° 1251 bulletins, and vital registration data from the Service Territorial de la Statistique et des Études Économique website.



Total fertility rate source table

Year	TFR	Source	Data	Method	Ref
1996–1999	2.7	Census Pop Profile	Vital Registration	Direct calculation	1
(1997.5)	2.9	SPC Demographic Profile	Census	Not provided in source document [†]	1
1997–2000 (1998.5)	2.8	SPC Demographic Profile	Census	Not provided in source document [†]	1
1998–2001 (1999.5)	2.8	SPC Demographic Profile	Census	Not provided in source document [†]	1
1999–2002 (2000.5)	2.8	SPC Demographic Profile	Census	Not provided in source document [†]	1
2000–2003	2.9	Census Pop Profile	Vital Registration	Direct calculation	1
(2001.5)	2.6	SPC Demographic Profile	Census	Not provided in source document [†]	1
2003	2.7	INSEE*	Not provided in source document [†]	Not provided in source document [†]	2
2004–2006	2.8	Census Monograph	Census	Indirect calculation – own children method	4
(2005)	2.2	STSEE [^]	Vital registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3, 4
2007–2009	2.7	Census Pop Profile	Vital Registration	Direct calculation	1
(2008)	2.3	STSEE [^]	Vital registration	Manual calculation: 3 years of aggregated vital registration data/ 2008 census population estimates	3, 4
2008	2.0	INSEE*	Not provided in source document [†]	Not provided in source document [†]	5
2008–2012 (2010)	2.1	INSEE*	Not provided in source document [†]	Not provided in source document [†]	2

[†] Further investigation with the reporting authority is required to retrieve this information.

* Institut National de la Statistique et des Études Économiques.

[^] Service Territorial de la Statistique et des Études Économiques.

Note: dates in parentheses refer to mid-point in ranges.

Age-specific fertility rates source table

Year	ASFRs by age group (years)							Source	Data	Method	Ref
	15–19	20–24	25–29	30–34	35–39	40–44	45–49				
1996–1999 (1998)	15	100	176	161	89	42	4	SPC Demographic Profile	Census	Not provided in source document [†]	1
1997–2000 (1998.5)	15	107	174	143	84	36	2	SPC Demographic Profile	Census	Not provided in source document [†]	1
1998–2001 (1999.5)	15	110	176	140	79	34	2	SPC Demographic Profile	Census	Not provided in source document [†]	1
1999–2002 (2000.5)	14	115	174	137	77	33	2	SPC Demographic Profile	Census	Not provided in source document [†]	1
2000–2003 (2002)	12	109	160	131	83	27	4	SPC Demographic Profile	Census	Not provided in source document [†]	1
2004–2006 (2005)	13	105	126	128	43	24	1	STSEE [^]	Vital registration	Manual calculation: 3 years of aggregated vital registration data/ midpoint SPC population estimates	3, 4
2007–2009 (2008)	16	110	135	123	55	15	1	STSEE [^]	Vital registration	Manual calculation: 3 years of aggregated vital registration data/ 2008 census pop	3, 4

[^] Service Territorial de la Statistique et des Études Économiques.

Note: dates in parentheses refer to mid-point in ranges.

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