Fertility in Curaçao: a Census 2011 analysis

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Introduction

Only sixty years ago women in Curaçao gave birth to five children on average. The rate of natural increase (births minus deaths per 1000 population) of the population was at its peak at an increase of 30 persons per 1000 population per year. By 1960 the population size reached 125,000 but the rate of growth stalled. The spread of birth control and the increased participation of women on the labour market, amongst others, caused fertility rates to drop sharply. In just twenty years time fertility rates nearly halved. Since the 1980s the fertility rate has slowly decreased further to its current level of 2.13 children per woman.

This article explores current fertility patterns in Curaçao. The combination of data from the census of 2011 and the births registrations of the population register allow for an analysis of current fertility. The data provides for some more insight in historical fertility levels as well. The goal of this article is to gain more insight in the contemporary state of fertility of the female population of Curaçao. The article is an excerpt of the chapter on fertility of the Census 2011 publication on the demography of Curaçao by the Central Bureau of Statistics (to be published end of 2014).

First some general measures of fertility, e.g. the crude birth rate and the total fertility rate, will be discussed. The following paragraphs give an insight on the breakdown of the total fertility rate by age, the mean age at childbearing and fertility by marital and cohabitational status. The final two paragraphs deal with cohort fertility and fertility by migrational background respectively.

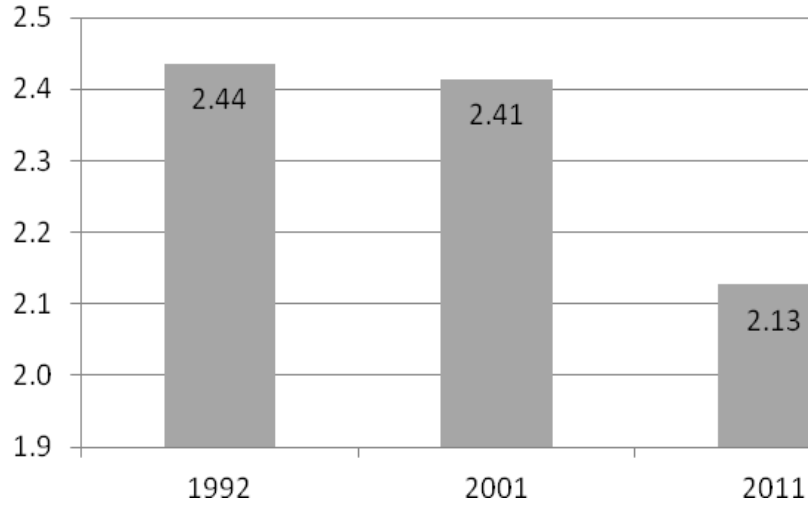
Some general measures of fertility

During the six months prior to, and the six months after the 2011 census 1,985 live births were registered in Curaçao. A general measure of fertility is the Crude Birth Rate (CBR), i.e. the number of births per 1,000 population. For Curaçao the CBR in 2011 stood at 13.2 births per 1,000 population which means a decrease from 20.3 in 1992 and 16.1 in 2001. However, as only women in their reproductive years (generally 15-49 years) are able to bear children it seems more appropriate to express the level of fertility as the number of live births in a certain period per 1,000 women aged 15-49 instead. This measure is called the General Fertility Rate (GFR). In Curaçao the GFR has decreased from 60.2 live births per 1,000 women aged 15-49 in 2001 to 52.5 in 2011. Both the CBR and the GFR indicate a decline in fertility between 2001 and 2011, but lack more insight in age-specific behaviour in fertility. The Total Fertility Rate (TFR) is the most universal measure of fertility that meets this requirement (see Table A1 in the Appendix for fertility tables and indicators).

The TFR indicates the average number of children a woman would bear if she survived through the end of the reproductive age span and experienced at each age a particular set of age-specific fertility rates. The *period fertility rates* (pertaining to the one year period with the census population as the mid-year population) for the census 2011 female population add up to a total fertility rate of 2.13 children per woman. Compared to 2001 the TFR has decreased by 0.28 children per women.

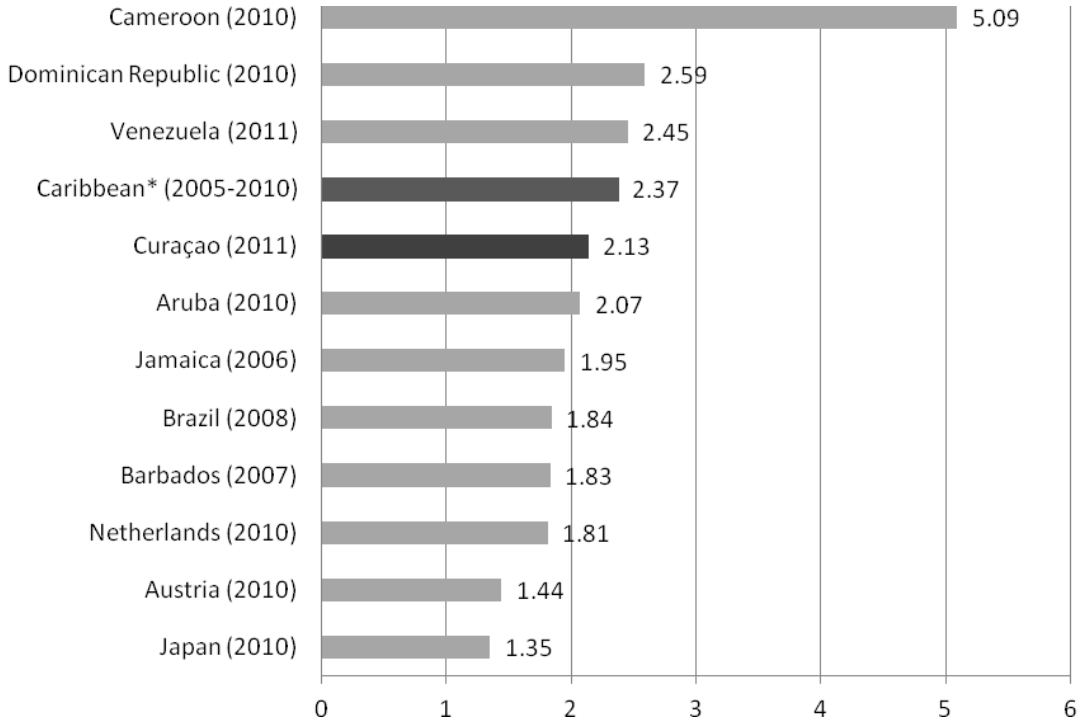
A decade earlier the decline in TFR was more than ten times as small, the TFR then dropped from 2.44 to 2.41 between 1992 and 2001 (Figure 1).

Figure 1. Total Fertility Rate Curaçao, 1992-2011



Even though more women aged 15-49 years were living in Curaçao in 2011 (37,788 women) compared to 2001 (34,942 women), less children were being born in 2011 (1,985 children in 2011 against 2,102 children in 2001), causing the drop in TFR.

Figure 2. Total Fertility Rate for selected countries, most recent period available



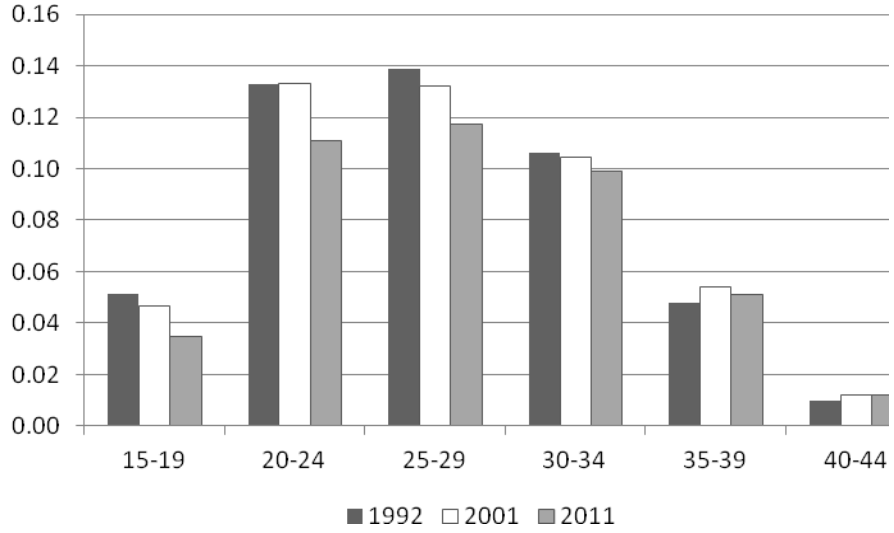
* By definition of the UN Composition of macro geographical regions (United Nations, 2013)
Sources: (United Nations, Department of Economic and Social Affairs, Population Division, 2013); Oficina Nacional de Estadística (Dominican Republic); Instituto Nacional de Estadística (Venezuela); Central Bureau of Statistics (Aruba)

The declining TFR is however no exception when looking at other countries in the region or worldwide. Depending on a country's level of development populations of contemporary states transit through different stages of demographic development. Part of this transition is a decline in fertility levels, from levels as high as 5 or more children per woman to levels as low as 1.5 children or less. A TFR of 2.1 is considered *replacement level* fertility. At this level of fertility the female population 'reproduces' itself, meaning that the female population exactly replaces itself (under condition of continuation of current fertility and mortality rates) providing for sustenance of current population levels. Figure 2 shows the TFR for a selection of countries (most recent data available), ranging from 5.09 in Cameroon (2010) to 1.35 in Japan (2010). Curaçao's replacement level TFR is ranked beneath the average for the Caribbean region as a whole (2.37 children, over the period 2005-2010), but is placed well above the very low TFR recorded in Austria and Japan.

Age-specific fertility

When the TFR is broken down into age-specific fertility rates for broad age groups (for the TFR is the sum of the age-specific fertility rates) information on the timing of childbearing becomes visible. Figure 3 shows the age-specific fertility rates for 5-year age groups for the census-years 1992, 2001 and 2011 (see also Table A2 in the Appendix). From 1992 to 2011 fertility rates have decreased especially for the lowest three age groups, 15-19, 20-24 and 25-29 years of age. In the higher age groups fertility rates have decreased slightly or remained more or less stable. Most significantly between 2001 and 2011, the drop in fertility among women aged 20-24 years accounts for about forty percent of the drop in total fertility between both censuses. In 1992 and in 2001 the fertility rate for this age group was identical, around an average of 0.13 children per woman, but in 2011 it has dropped to an average of 0.11 children.

Figure 3. Age-specific fertility by broad age groups, Census 1992, 2001, 2011

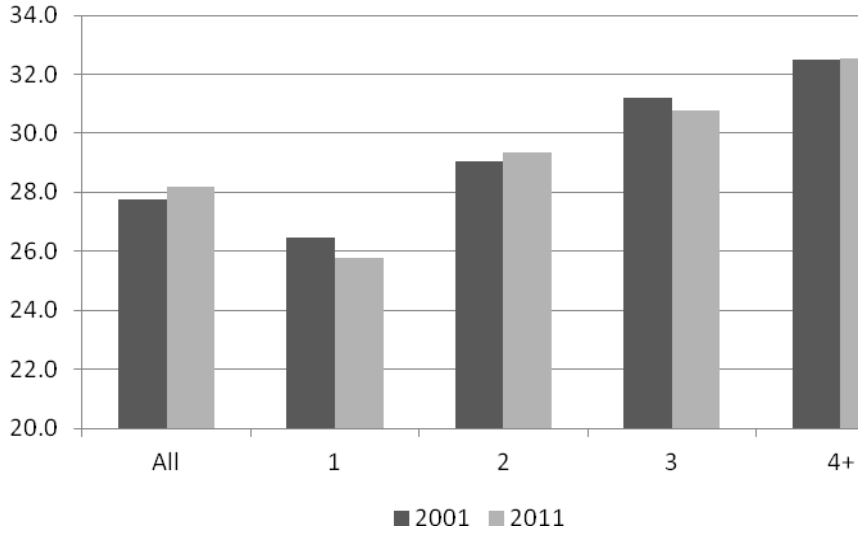


Mean age at childbearing

The mean age at childbearing can be deduced from the age-specific fertility rates. In the ten years between the last two censuses the mean age at childbearing for all births in the pre-census year has increased from 27.8 to 28.2 years old (Figure 4). Interesting to note, however, is the decrease in mean age at first birth in

2011. From the combined population register data and census data a decline of 0.7 years between 2001 (26.5 years) and 2011 (25.8 years) has been recorded. Women were having their first child at an earlier age in 2011 than in 2001. At the same time the mean age at the second birth has increased, resulting in a considerably increased average amount of time between first and second birth in 2011 (3.5 years) compared to 2001 (2.3 years). For third births the mean age has decreased by 0.4 years to 30.8 years in 2011.

Figure 4. Mean age at childbearing by parity*, Census 2001 and 2011



* the cumulative number of a woman's live births

Fertility by marital status and cohabitational status

Legitimacy of childbirth, i.e. whether children are born within marital union between the parents or out-of-wedlock, gives an idea of the proportion of children being (legally) recognized by both their parents. Cohabitational status is another good indicator that can be assessed for this purpose. Because the birth data from the population register does not include both indicators the census-enumerated women who gave birth in the year preceding the census have been examined for this analysis. Census data has its limitations however, because it measures the marital and cohabitational status of women at the time of the census and not at the time of childbirth. For this analysis it is therefore assumed that the mother's marital and cohabitational status at the time of childbirth (in the year preceding the census) is equal to that at the time of the census.

Compared to the census of 2001 the proportion of out-of-wedlock births has increased in 2011. Almost 66 percent of the in 2011 reported childbirths were given by *never married* women, an increase of about 8 percentage points from 2001 (see Figure 5). The share of childbirths that took place within marital union obviously has dropped by about the same level, from 39 percent in 2001 to 32 percent in 2011. Childbirths that took place among divorced or widowed women have been left out of Figure 5 (less than three percent of all births).

However, marital status alone is not a good indicator for (legal) acknowledgement of children by their father as nowadays many couples are living together without being married, i.e. in consensual union[1] (either

1 Two people usually living in the same dwelling, but not in a registered marriage to each other, who: share mutual concern for each other; have a degree of economic, social and emotional interdependence; and consider their relationship to be akin to marriage.

legal or extralegal). Therefore the cohabitational status of the mother serves as an important addition to marital status.

Figure 5. Proportion of live births in the year preceding the census by marital status (excluding widowed and divorced) and cohabitational status of the mother, Census 2001 and 2011

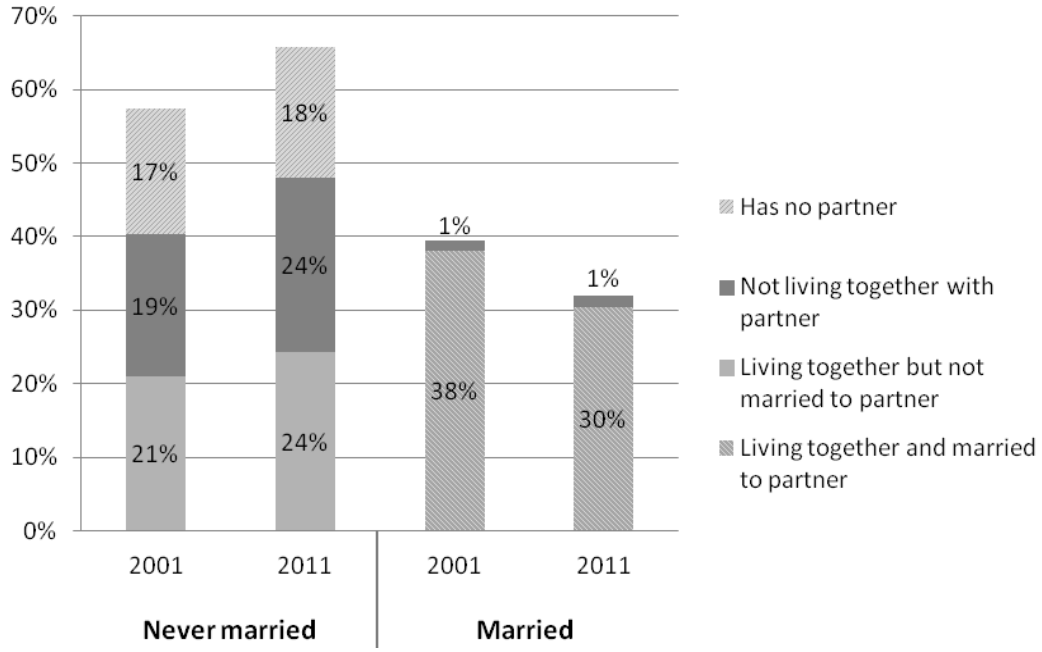
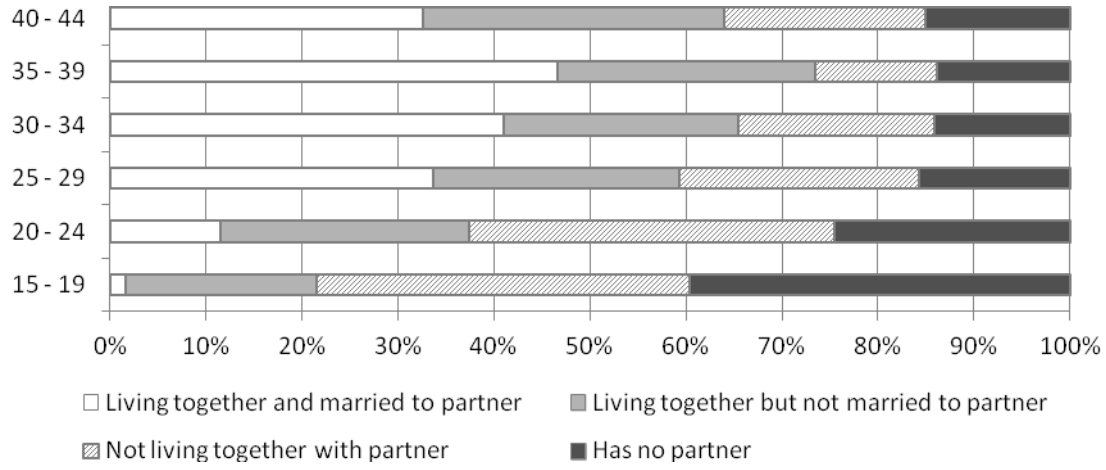


Figure 5 shows that in 2011 almost a quarter of the live births in the year preceding the census have been to women who are living together but not married to their partner at the time of the census. Added up to the 30 percent of births to women who are married and living together with their partner and 1 percent of births to divorced or widowed women living together with a partner (not depicted in Figure 5, see table A3 in the Appendix) the proportion of births that took place to couples living together is 56 percent. Compared to 2001 this means a decrease of 4 percentage points (60% in 2001). The share of births to women who are not living together or who don't have a partner, regardless their marital status, has increased from 40 percent in 2001 to 44 percent in 2011.

The younger the women who gave birth the year preceding the census, the less likely they are living together with a partner (Figure 6). Of the women aged 15-19 almost 80 percent are either not living together with a partner (39%) or did not have a partner (40%). On the opposite, of the children born to women in the age-group 35-39 most children's mothers are living together with their partner, either married (47%) or not married (27%).

Figure 6. Proportion of live births in the year preceding the census by cohabitational status and age of the mother, Census 2011



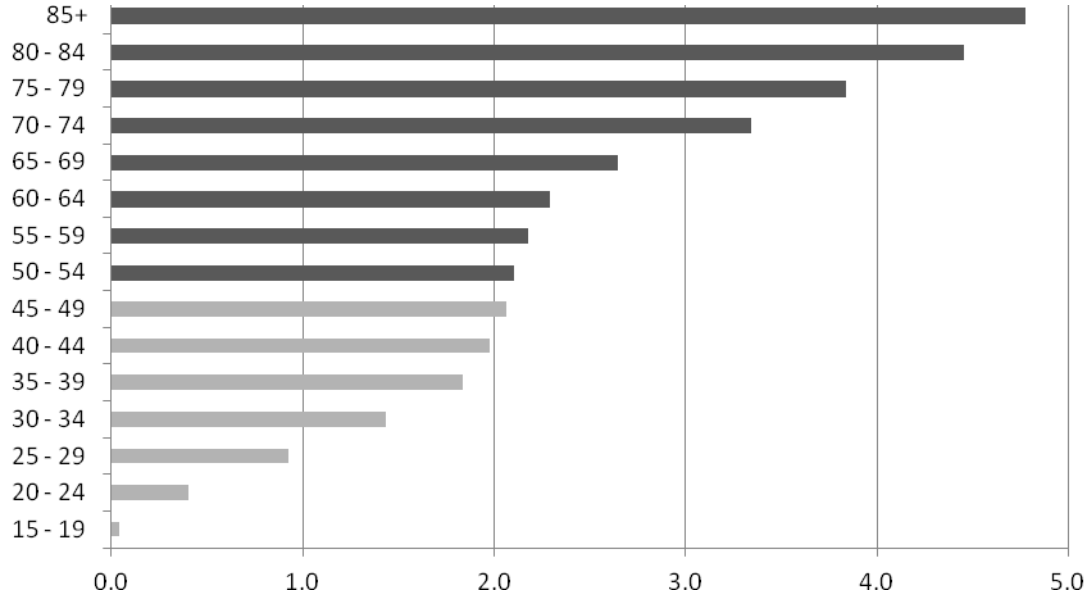
Cohort fertility

Cohort fertility is another way of looking at fertility. In the census the question 'How many live-born children have you given birth to?', referring to lifetime births, was asked. This question enables the estimation of completed fertility for women who have reached the end of their reproductive lifespan, i.e. women aged 50 years or older. Since these women have reached the end of their fecundity they will bear no additional children. Hence the number of live births they had is their completed fertility. The average number of live born children women in a specific cohort have given birth to, equals their cohort TFR. For women aged 15-49 years the cohort fertility is not completed fertility, these women may have more children in the future.

The cohort fertility rates of 5-year birth cohorts of women in Curaçao (the dark grey bars indicating completed fertility and the light grey bars incomplete fertility) are presented in Figure 7. The sharp decline in fertility in Curaçao that started after 1960 (ter Bals, Census 2011: Ageing in Curaçao, 2013) is clearly visible when looking at the cohorts of women of 65 years and older. Women in the 85+ cohort, born in 1926 or earlier, have reached their peak fertile period in the 1950s resulting in an average of around 4.8 children per woman. In the following four birth cohorts, women aged 65 up to 84 years, fertility has declined to less than three children per woman (2.6 children for the cohort 65-69). In other words, fertility has dropped from 4.8 to 2.6 in about 20 years time.

In the following cohorts, women born between 1946 and 1966, or women aged 45 to 64 years, fertility has continued to decline, but at a much slower pace. The cohort TFR has dropped from 2.6 to about 2.1 children per woman. The last cohort in this series, i.e. the cohort of women who reached the age of 45-49 in 2011, has reached near-completed fertility. The youngest cohorts, aged 15-44 years, have not completed fecundity, but the average number of children these cohorts have reproduced so far are indicated in the figure.

Figure 7. Cohort TFR[1], Census 2011



[1] 162 out of 67,451 women aged 15 years or over did not report their number of lifetime births. These women are excluded from the cohort fertility calculations (N=67,289).

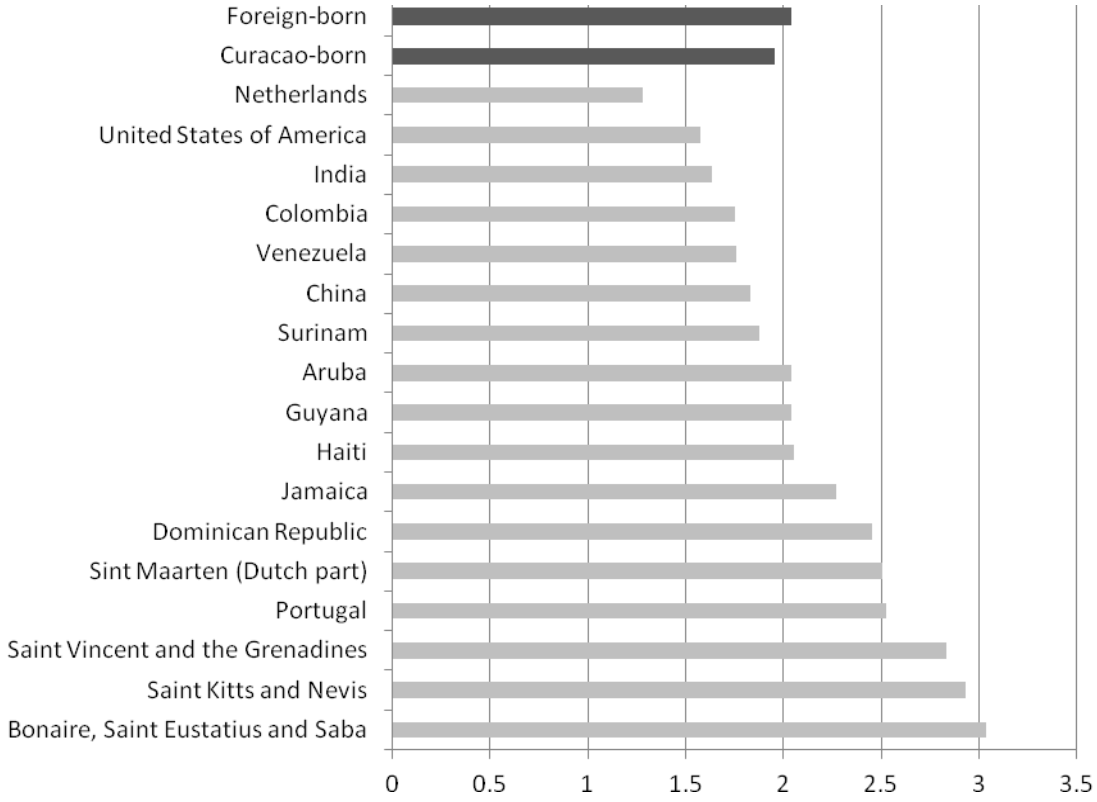
For those interested, a more in depth fertility analysis on the proportions of women who reach a certain parity and the proportion that then precedes to have more children, i.e. so-called *parity progression rates*, can be found in the Census 2011 publication on the demography of Curaçao.

Fertility by country of birth

In a society with increasing numbers of migrants it is evident that certain demographic indicators are becoming more dependent on the migrant population. The percentage of foreign-born persons within the female population aged 15 years or older is much higher than the percentage of foreign-born persons within the total population. Forty percent of the female population of 15 years or older is foreign-born compared to a share of 24 percent of the total population that is born abroad. Cohort fertility indicators therefore are for 40 percent determined by the foreign-born female population. Period fertility indicators are less determined by the foreign-born population because the female population aged 15-49 years consists of 30 percent foreign-born women.

Figure 8 gives an overview of the average number of children per woman by a selection of countries of birth of the mother. This selection consists of the 18 most occurring countries of birth (including Curaçao) among females aged 15 years or older. The first two bars indicate the average number for all foreign-born women (15+) and for all Curaçao-born women (15+) respectively. Not much difference can be noted between the foreign-born population and the Curaçao-born population which stand at respectively 2.03 and 1.95 children per woman. However, when the foreign-born group is broken down to individual countries of birth more dispersion in average number of children is observed. From the selection of countries women born in the Netherlands on average have the least number of children, i.e. 1.28 children. Women born in one of the BES-islands have the highest average number of children, i.e. 3.04.

Figure 8. Average number of children per woman by country of birth mother[1], Census 2011

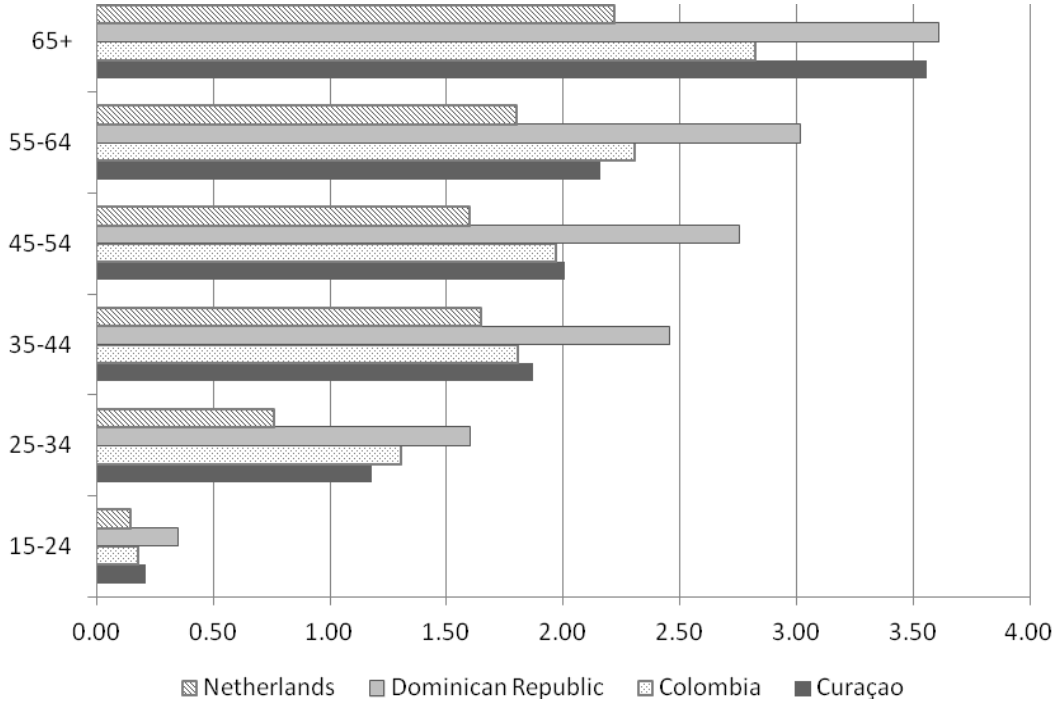


[1] 413 out of 67,451 women aged 15 years or over did not report their number of lifetime births and/or their country of birth. These women are excluded from the fertility calculations (N=67,038).

While the average number of children per woman by the mother's country of birth is indicative of the total fertility of these groups it does not control for age differences in fertility within each population group. It remains unknown whether an average number of children for women born in a specific country is prone to increase much further in the future or to remain more or less stable given the current age-composition within this particular group.

In Figure 9 cohort fertility rates for four different countries of birth are compared. One low fertility country of birth (see Figure 8), i.e. the Netherlands, one higher fertility country of birth, i.e. the Dominican Republic, one country of birth that falls in between, i.e. Colombia, and finally Curaçao. The 10-year age cohorts demonstrate clearly that cohort fertility differs greatly between the different birth country groups. In all depicted age cohorts the Dominican-born women are the most fertile ones and the Netherlands-born women have the smallest average amount of children in each age cohort. Curaçao-born women and Colombian-born women have pretty similar cohort fertility rates for all age cohorts up to females aged 55-64, but the cohort fertility of the 65+ cohort is higher for Curaçao-born women (3.56 children per Curaçao-born woman versus 2.83 children per Colombia-born woman). Again, as in Figure 7, from age 45 upwards the cohort fertility is (near) completed fertility.

Figure 9. Cohort TFR by country of birth mother[2], Census 2011



[2] 132 out of the 58,343 women aged 15 years or over from the selected countries of birth did not report their number of lifetime births. These women are excluded from the fertility calculations (N=58,211).

For the interested reader an analysis on period fertility, i.e. fertility in the year 2011, by country of birth is included in the Census 2011 publication on the demography of Curaçao.

Summary

From 2001 to 2011 the total fertility rate in Curaçao has dropped from 2.4 to the replacement level of 2.1 children per woman. Fertility rates have mainly dropped for women aged 15-29 years. Especially women aged 20-24 showed a rather large decline in fertility between 2001 and 2011.

Even though the mean age at childbearing for all births has increased from 27.8 to 28.2 years old from 2001 to 2011, the mean age at first birth has decreased from 26.5 to 25.8 years.

More women have given birth outside of marriage in 2011 compared to 2001. However, the proportion of births that took place to couples in consensual union and to couples that don't live together has increased.

Of the women aged 50 years or over, older women have had more children on average than younger women. Cohort fertility also varies by country of birth.

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Appendix

Table A1. Fertility tables and fertility indicators, Census 2001, 2011

Census 2001				Census 2011			
Age	Number of women	Births	Total fertility	Age	Number of women	Births	Total fertility
15-19	5032	235	0.0467	15-19	5651	197	0.0349
20-24	3030	403	0.1330	20-24	4182	463	0.1108
25-29	3983	526	0.1321	25-29	4248	498	0.1172
30-34	4965	519	0.1045	30-34	4628	458	0.0990
35-39	6218	335	0.0538	35-39	5625	288	0.0513
40-44	6142	74	0.0120	40-44	6275	76	0.0121
45-49	5572	4	0.0007	45-49	7179	1	0.0001
Total	34942	2102		Total	37788	1985	
CBR	16.1	TFR	2.41	CBR	13.2	TFR	2.13
GFR	60.2	Mean age	27.8	GFR	52.5	Mean age	28.2

Table A2. Age-specific fertility and total fertility rate by broad age groups, Census 1992, 2001, 2011

Age	Age-specific fertility rate		
	1992	2001	2011
15-19	0.26	0.23	0.17
20-24	0.66	0.67	0.55
25-29	0.70	0.66	0.59
30-34	0.53	0.52	0.50
35-39	0.24	0.27	0.26
40-44	0.05	0.06	0.06
45-49	0.00	0.00	0.00
TFR	2.44	2.41	2.13

Table A3. Proportion (%) of live births in the year preceding the census by marital status and cohabitational status of the mother, Census 2001 and 2011*

	Never married		Married		Widowed		Divorced		Total	
Cohabitational status	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
Living together with partner	21	24	38	30	0	0	1	1	60	56
Not living together with partner	19	24	1	1	0	0	1	0	22	25
Has no partner	17	18	0	0	0	0	1	1	18	19
Total	58	66	39	32	0	0	3	2	100	100

* Individual numbers may not add up to totals because of rounding.