

Decomposing fertility trends by cohabitation and marriage in South Africa

Introduction

This paper aims to understand the association between fertility, marriage, and cohabitation as family formation pathways in South Africa. The results show the contributions of marriage and cohabitation to overall period fertility. These measures are based on a decomposition of the total fertility rate, in which the TFR is expressed as the sum of a series of contributions from conjugal status (i.e. never-married, cohabiting, or being married), and these contributions are expressed as the sum of weighted age-specific fertility rates, which are conditional on the conjugal status of women in reproductive ages. Unlike the marital or non-marital ASFRs and TFR, whose values are typically larger than observed ASFRs and completed fertility, these measures take values that are “realistic” by design.

Background

An important point of departure for a demographic approach in the study of marriage, cohabitation and fertility as forms of family formation is the definition of the *family*. Demographers have a clear understanding and consensus on the definition of a household compared to that of a family. This is perhaps linked to the need to define units of analysis in censuses and surveys, which often collect information from households. Whilst the household is defined in terms of core-residence and resource sharing, a family is more fluid and its meaning changes depending on the disciplinary focus. Emlen (1995:8092) summarized this by indicating that “families are groups of coresident adults responsible for the production, socialization and education of offspring”. He also indicates that other disciplines such as social anthropology and psychology may focus on different functional aspect of the family in their definition. The Vanier Institute of the Family describes a family as any combination of two or more persons who are bound together over time by ties of mutual consent, birth and/or adoption or placement and who, together, assume responsibilities for effective nurturance; physical maintenance and care of group members; addition of new members through procreation or adoption; socialization of children; social control of members; production, consumption and distribution of goods and services (Vanier-Institute-of-the-Family, 2023:241). A definition that closely relate to the demographer’s approach on family studies was suggested by Elder in the book entitled “*Transitions: The family and the Life Course in Historical Perspective*”, published in 1977. He proffered a family as “setting of mutually contingent individual career, whose dynamics shape the family as a unit” (Elder, 1978, p. 18). In the same manuscript, Hareven further clarified in the introductory chapter of the book that the family’s “...major concern is the synchronization of individual timing with the collective timing of the family unit...” (Hareven, 1978, p. 1). This definition is more in line with the demographic perspective, and therefore adopted by this study, and aligns with the Elder’s definition. In this context, the first marriage, cohabitation or childbearing is a significant transition towards family formation. In the 1980s, a new field of family and household emerged as a subfield of demography. The International Union for the Scientific Study of Population (IUSSP) was instrumental in this development and established a Scientific Committee on Family Demography and the Life Cycle in 1982. The history of the study of the family by demography and population studies is succinctly summarized by Willekens in the encyclopedia of life support systems (Willekens, 2010). The importance of defining the family in the study of marriage, cohabitation, and fertility is guided by the aim of providing a demographic perspective towards understanding the role played by each process in the family formation of women in South Africa.

Family formation and partnership patterns have undergone rapid transformation in South Africa. The three decades preceding 2010 have seen a reduction in marriage rates, a rising

prevalence of divorce, increases in cohabitation, and increases in the prevalence of childbearing occurring outside of wedlock. The aim of the study is to document recent levels and trends in fertility, marriage, and cohabitation among females in South Africa between 2007 and 2022, while critically exploring the role of each process in family formation. This will be achieved through analysis of trends, decomposing each component using cross-sectional data, and estimating cause-specific hazard functions and competing risk models for each process using longitudinal data. Four nationally representative datasets are explored – the Community Surveys of 2007 and 2016, and Population Censuses of 2011 and 2022. These data provide cross-sectional changes in levels, trends and allow for decomposition of trends.

Data and methods

The study explores a number of data sources in line with the research questions that aim at exploring levels, trends and determinants of family formation processes of marriage, cohabitation, and fertility. Part of the aim of the study is to explore trends and decompose them by their components, which necessitates the use of cross-sectional data over the period of 2007 and 2022. The quantitative data that will be used are two nationally representative surveys conducted by the South African national statistics agency – Statistics South Africa, which are Community Surveys of 2007 and 2016, and a population census of 2011 and 2022. The data for the 2022 census was released in September 2024, and its analysis is still underway.

A less traditional approach was explored to better understand the contribution of each of the three family formation components toward changes in observed levels. A direct approach to explore these trends would have explored pooled analysis. A decomposition approach, however, provides better benefits after exploiting the known higher propensity towards fertility as a form of family formation in South Africa.

Decomposition has been used in demography to decompose values of the difference (mostly rates) between two indicators or time periods into underlying elements. Earlier developments of the method was derived from standardization thoughts of Kitagawa (Kitagawa, 1955), which was then refined by Das Gupta (Das Gupta, 1979). Kitagawa (1995) broke down the rates into the effect of change of structure; change of intensity and interaction between the two.

Conceptually the approach works by relating ASFR to its components. In this case, weighting each ASFR by age proportion of women in each conjugal status. The total of weighted ASFRs over conjugal status is the overall ASFR. The sum of the weighted ASFRs over age is a TFR adjusted to the proportion of women living in each conjugal state. The sum of the adjusted TFRs is the overall TFR.

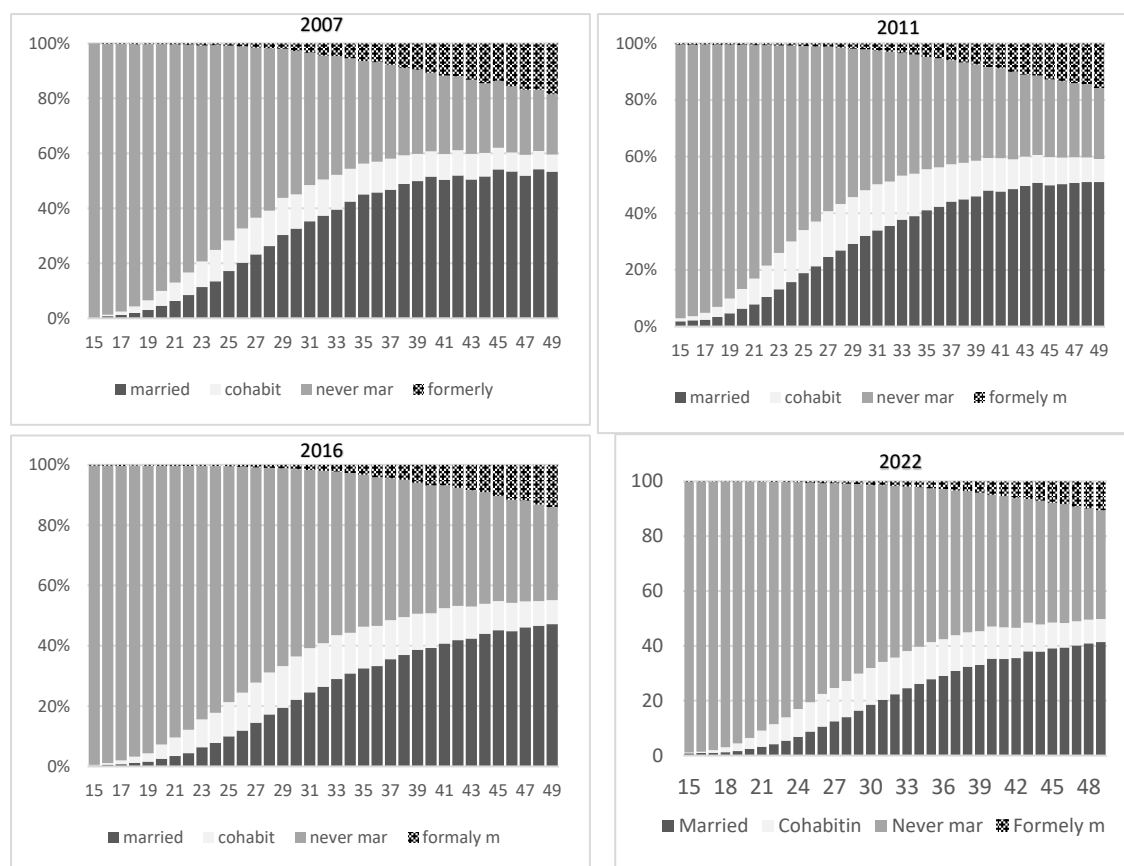
The adjusted age-specific fertility rate at age x for conjugal state s is expressed as $f_{sx}^A = p_{sx}f_{sx}$. Where p_{sx} is the proportion living in the specific conjugal state, and f_{sx} is the age-specific fertility rate for women in that conjugal state (Laplanche & Fostik, 2015).

Results

The trends in the age pattern of conjugal status in South Africa

The distribution of conjugal status for women of reproductive ages at each data point is estimated and presented in this section. The distribution by age will explore the percentage distribution by marital status for women of that age compared to other women. These were further explored by population group, province of residence, and educational attainment. This approach is expected to show the extent to which South African women transition from being never married at the beginning of the reproductive ages to other conjugal categories through the reproductive ages.

Figure 1: Conjugal status of women by age



The distribution of women by age and conjugal status is presented in Figure 1. The percentage of women who reported being formerly married was estimated and presented to complete the range of partnership patterns but will not be further explored as it is out of the scope of this current work. There is a clear variation in conjugal status by age and time. In 2007, the majority of women in reproductive ages were either never married or married. The percentage who were never married is highest in younger ages (100% at age 15) and reduces by age, reaching 22% by age 49. The decline in the percentage married by age seems to be offset by the increase in the percentage married by age, which starts at 0% at age 15 and reaches 53% by age 49. Cohabitation, like marriage, increases with age, with above 10% between the ages of 24 to 39, and reducing thereafter. A similar distribution is observed in 2011 and 2016, with noticeable changes in the age distribution of partnership patterns. The most notable change is the consistent decline in the percentage married by age between 2007 and 2011 and between 2011 and 2016. This decline appears to be inverse to the percentage never married, which is increasing with time.

Cohabitation before the age of 20 is rare, and this is constant across all three time periods. The share of women in cohabiting unions across the reproductive life span increased between 2007 and 2011, and again between 2011 and 2016 for almost all ages. The increment seems to coincide with the decline in the proportion of married women by age, which shows a steady decline for all ages – particularly in the latter part of the reproductive life span. The percentage of never married women actually increased between 2007-2011 and 2011-2016. This suggests that further investigation is required to establish whether cohabitation replaces marriage among South African women of reproductive ages or is a step towards marriage. This is not the scope

of this study, which explores first transitions into these conjugal processes as opposed to tracking women's transitions after first cohabitation, marriage, or fertility.

The age pattern of conjugal unions by province and population group

Figures 2 to 4 show the distribution of conjugal status by province of residence in 2007, 2011, and 2016. The higher share of never married women at younger ages is prevalent in all provinces, suggesting marginal transition to marriage and cohabitation prior to age 20. Provinces, thereafter, have a similar overall pattern of higher percentage married compared to other conjugal processes by the age 49. There are however unique differences by province, and to explore this, we will look closely at the distribution in 2007 in Figure 2. Firstly, marriage is highest and earlier in the Western Cape, where about 50% of women are married by the age 33 years. Limpopo follows closely with 50% of women reporting to be married by the age of 36. Provinces such as Gauteng and Mpumalanga do reach such levels at age 38 years old for Gauteng and 39 years for Mpumalanga, but they do not surpass 50% of married women over these ages. Also noticeable is that Gauteng marriage levels increase gradually, whilst in Mpumalanga the percentage married picks up after age 30 years. Provinces that do not reach 50% of women reporting to be married throughout their reproductive ages are KwaZulu-Natal, Eastern Cape, Northern Cape, and Free State. Even in these provinces, the Eastern Cape show higher percentage married before the ages of 24, suggesting that women that do marry in the province tend to do so earlier.

Provinces with low percentages of women in cohabiting unions in 2007 were Eastern Cape and Limpopo. This seem to be offset by the percentage married in Limpopo and the percentage never married in the Eastern Cape. This suggest that even though the two provinces have a similar cohabitation levels, women in the Eastern Cape were more likely to remain single. There is a unique pattern of cohabitation levels by age for the other provinces, whereby Northern Cape have highest levels. In addition, the province shows higher percentage of women in cohabiting unions compared to marriage before age 24 years. This is unique and may suggest that cohabitation is the initial conjugal union for this province, rather than marriage. The other remaining provinces have a somewhat similar pattern of increased percentage cohabiting by age. However, it is noticeable that the percentage cohabiting is lower towards the end of the reproductive ages.

Comparing conjugal distribution in 2007 and 2011 in Figures 2 and 3 suggest that the most notable differences are declines in percentage married, which seem to occur concurrently with increases in percentage in cohabiting unions and those who never married. In fact, only the Western Cape reached more than 50% percentage married by age 33 years, whilst Gauteng, Eastern Cape, Northern Cape, and Limpopo were close. There is a visible increase in cohabitation in Gauteng, Free State, Mpumalanga and the Limpopo between 2007 and 2011. The pattern is also defined by higher percentages of women cohabiting in the middle of reproductive ages (between ages 27 and 39 years), but lower towards the end of the age spectrum. A similar pattern is observed with conjugal distribution between 2011 and 2017, where a further reduction in percentage married is observed for the younger cohorts and a noticeable increase in cohabitation, particularly in provinces that previously had low levels, i.e. Limpopo and Eastern Cape.

Figure 2: Conjugal status by province in 2007

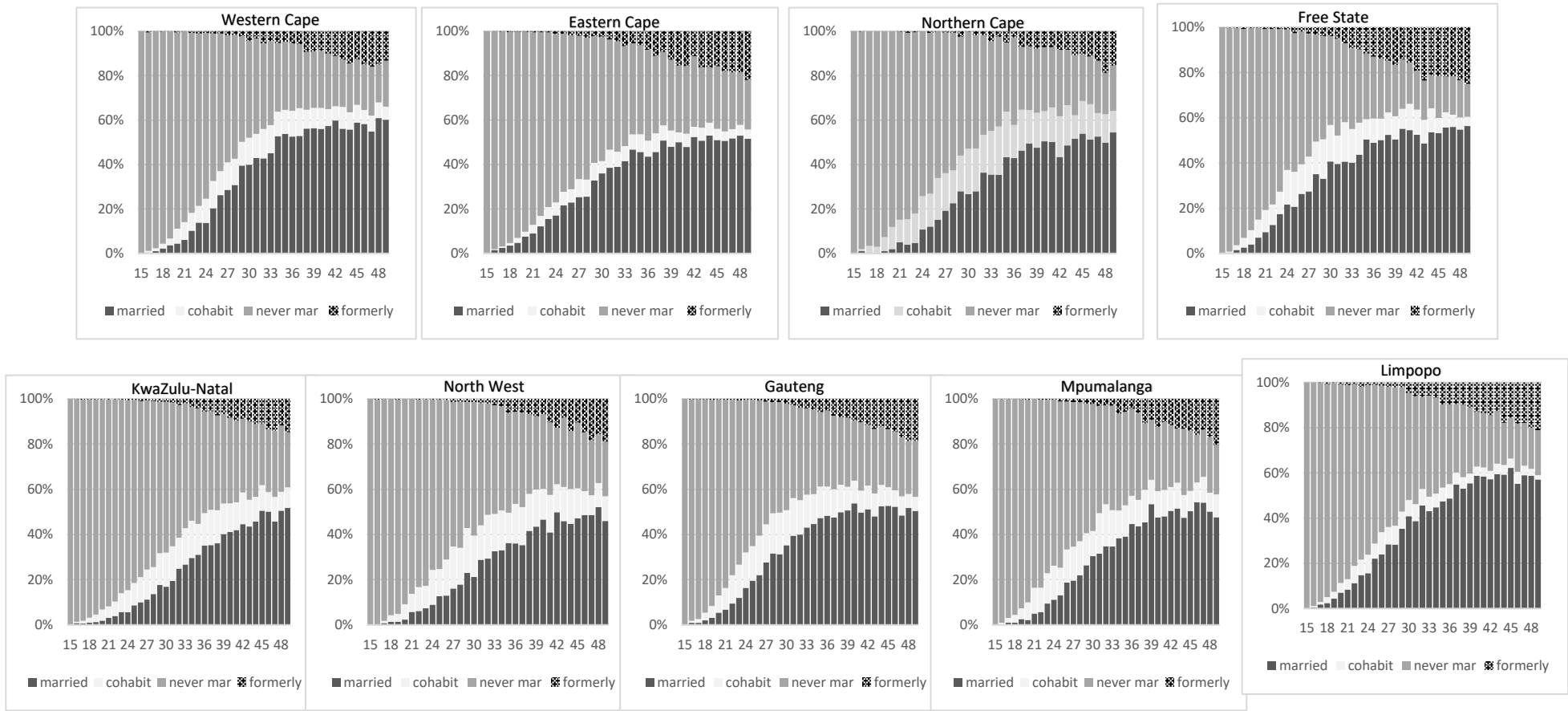


Figure 3: Conjugal status by province in 2011

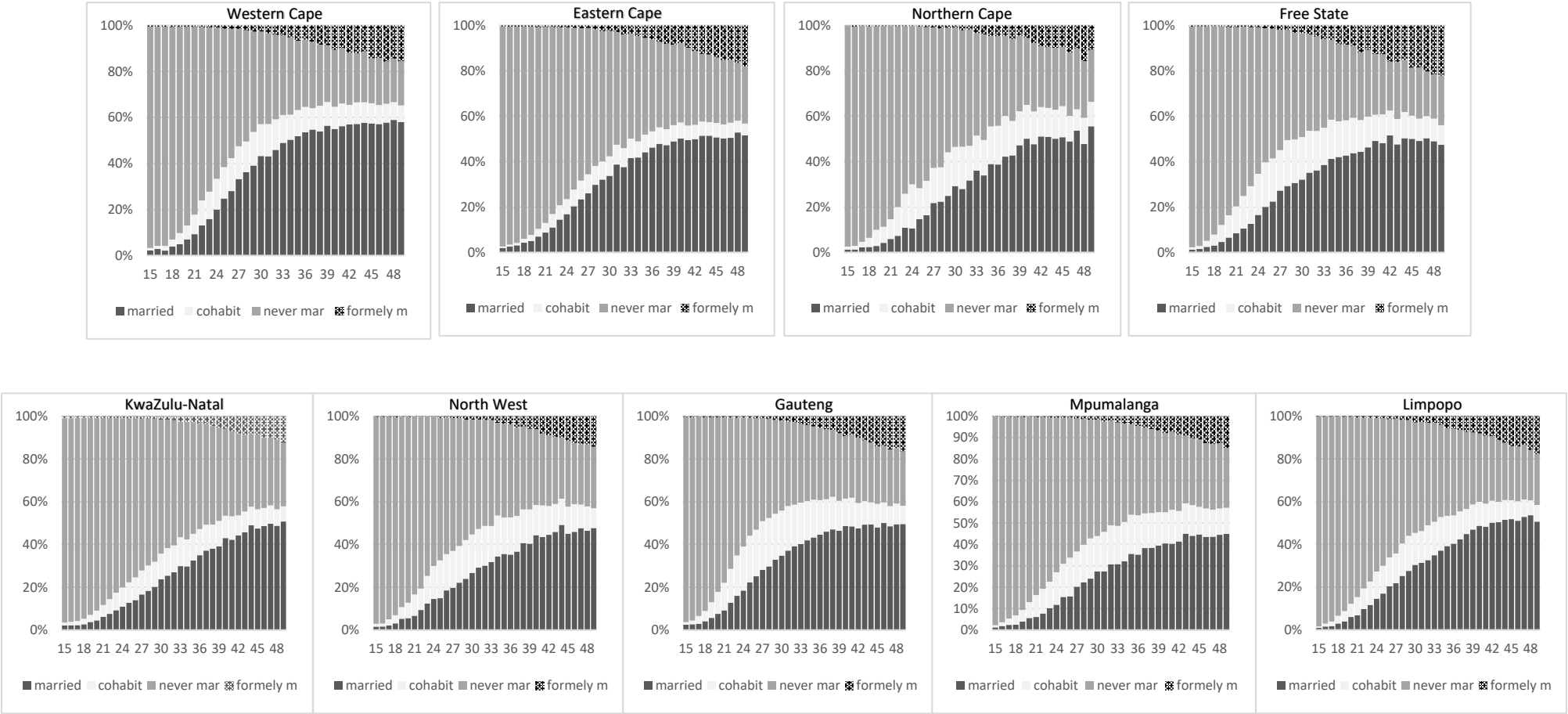
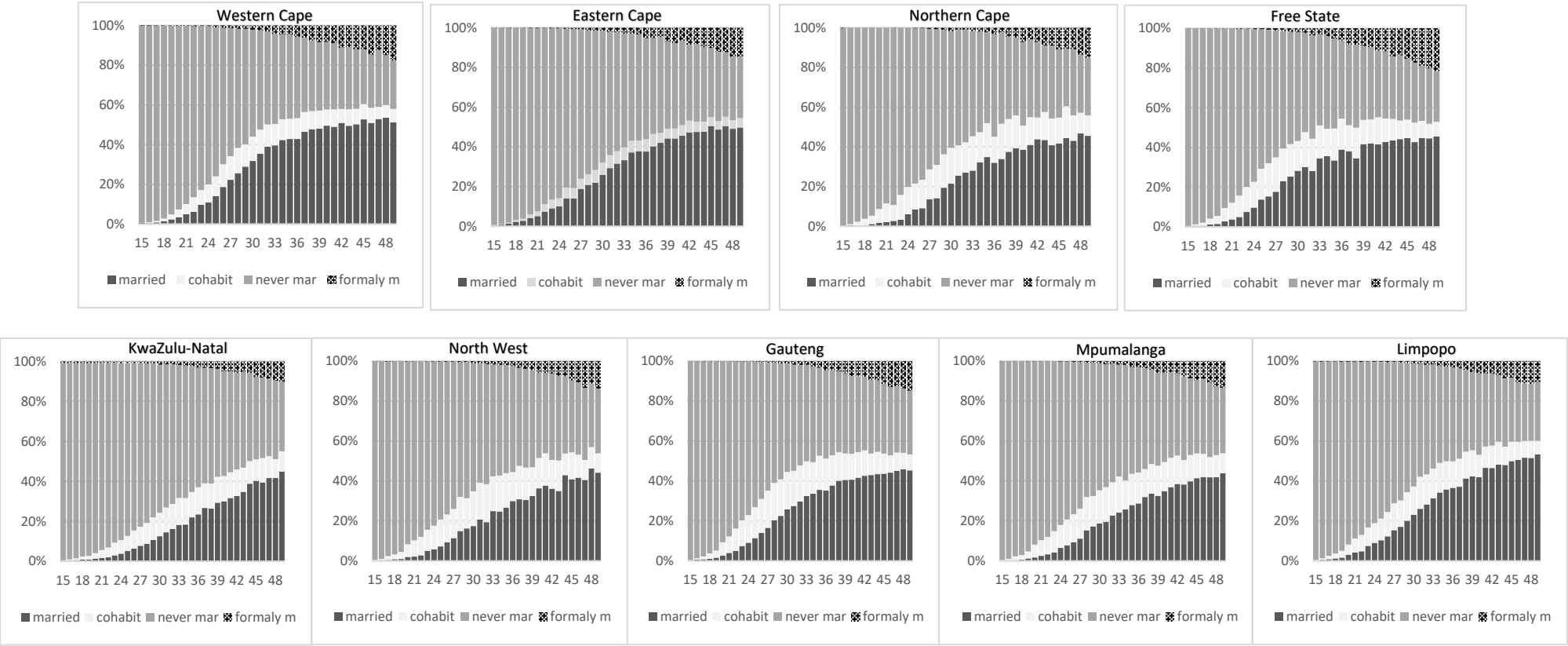


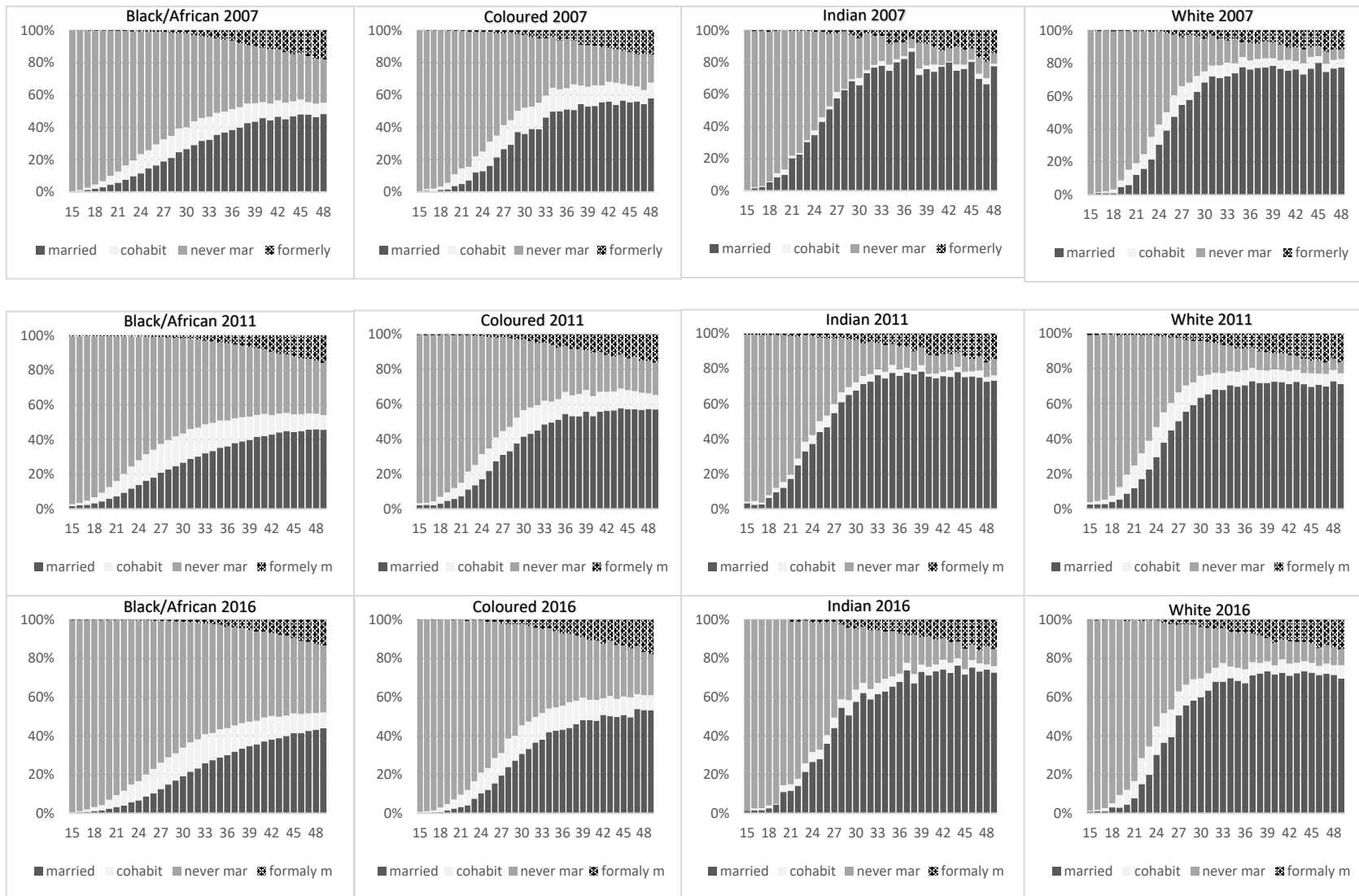
Figure 4: Conjugal status by province in 2016



The distribution of conjugal status of women in reproductive ages is shown by population group in Figure 5. There is a clear difference in conjugal pattern by population group. Indian/Asians and Whites have similar patterns, which is dominated by marriage from age 30 years onwards. This pattern remains prevalent between 2007 and 2016, although some change can be observed. Firstly, the percentage married by age is noticeably higher in 2007 compared to 2011 and 2016, particularly for the White population group. This seem to be offset by the percentage who reported to be formerly married, which increased considerably over the period. Secondly, cohabitation increased for the White population group.

Black/African and Coloured population groups have similar patterns, although levels vary substantially. The percentage married is higher for the Coloured population group for all ages compared to African/Black population group. There is evidence of declines in percentage married for both population groups between 2007 and 2016, more noticeable in 2016. The decline among the Coloured population seem to coincide with the increase in percentage never married and a slight increase in cohabitation – particularly after the age of 30 years. For the Black/African population group, this decline in percentage married is mirrored by the increase in percentage single for all ages. Cohabitation levels increases between 2007 and 2011, and minimal changes were observed between 2011 and 2016.

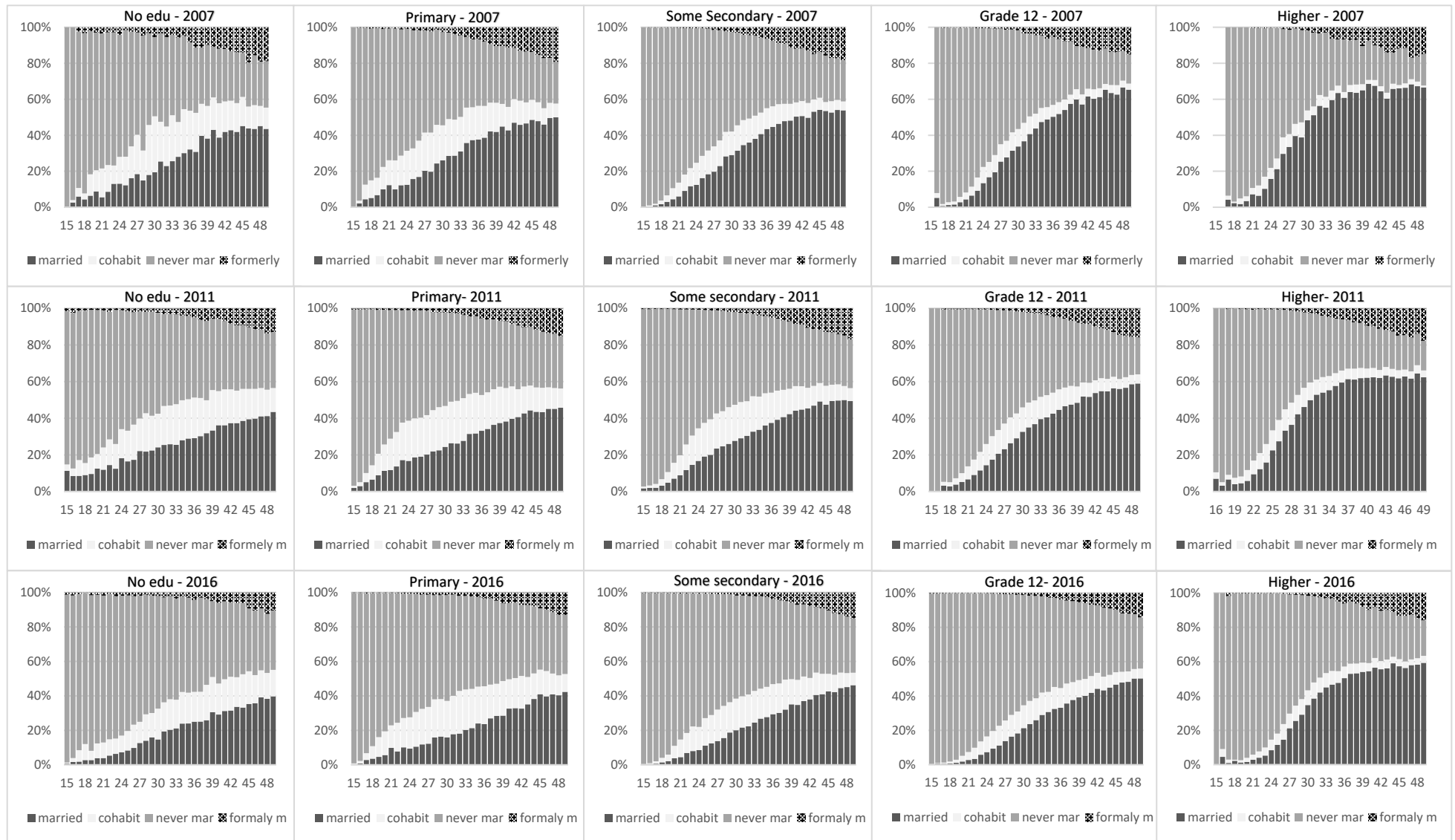
Figure 5: Conjugal status by population group between 2007 and 2016



Striking differences in conjugal status by educational attainment are observed in Figure 6 below. Firstly, the percentage of women who were married increased at each age as the level of education increases, and this is observed at each data point. Women with no education have the lowest marriage levels whilst women with post-grade 12 levels have much higher levels. Secondly, cohabitation levels also vary substantially by educational attainment, where women with no education have highest levels and women with post grade 12 levels reported lowest levels. There is also a notable graduation of cohabitation from lower levels to higher levels of education. Thirdly, the percentage never married is highest for primary and secondary levels of education.

There are notable changes in conjugal status by education between 2007 and 2016. These are characterized by declines in marriage at each educational attainment level for all age groups, and increases in cohabitation and percentage never married. This suggests that partnership patterns moved in favor of cohabitation or no union formation in later years. This is in line with the second demographic transition theory that suggest lesser formalization in the form of marriage and higher self-actualization. What is not yet clear is whether cohabitation is used as a replacement for marriage or whether it is a step towards marriage. This will be better explored through longitudinal data that track conjugal status through the life cycle.

Figure 6: Conjugal status by educational attainment



Age-specific fertility rates and cumulative fertility by conjugal status

The following section aims to link conjugal status with fertility as a family formation process. Firstly, age-specific fertility rates are estimated for each conjugal status at each data point. This was estimated to observe the relationship between current fertility, marriage and cohabitation. Secondly, cumulative fertility distribution was estimated for married, cohabiting and never married women. This illustrates the relationship between family formation processes and average number of children women have at each reproductive age. Thirdly, the decomposed contribution of each conjugal status to age-specific fertility rate and cumulative fertility are estimated. Finally, results from a negative binomial model of number of children ever born to observe the impact of conjugal status on fertility after controlling for key factors associated with childbearing.

Figure 7: Age specific fertility rates by conjugal status

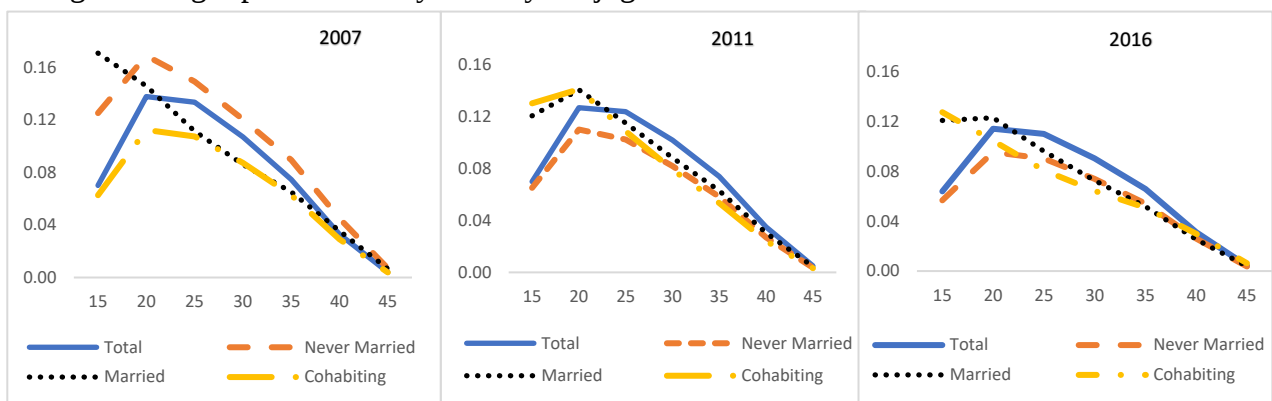


Figure 7 shows the age-specific fertility rates by conjugal status. There is a difference in fertility by conjugal status, which is depicted by the fertility schedules across time. The fertility pattern in 2007 has some anomalies and does not align with that of 2011 and 2016. The analysis will therefore focus on 2011 and 2016. The 2011 distribution suggest higher fertility for married and cohabiting women before age 20 years. This is an interesting finding, especially given high levels of early childbearing in South African and the prevailing discourse that such is not linked to marriage. This is likely linked to lower marriage levels at younger ages, which suggests that those who do marry at these ages are far more likely to have children early. This is a common aspect of fertility in measures of marital fertility (Laplane & Fostik, 2015). What is also notable are minor variations in age specific fertility rates by conjugal status after the age of 30, although married women have marginally higher fertility across all ages.

Figure 8: Cumulative fertility rates by conjugal status

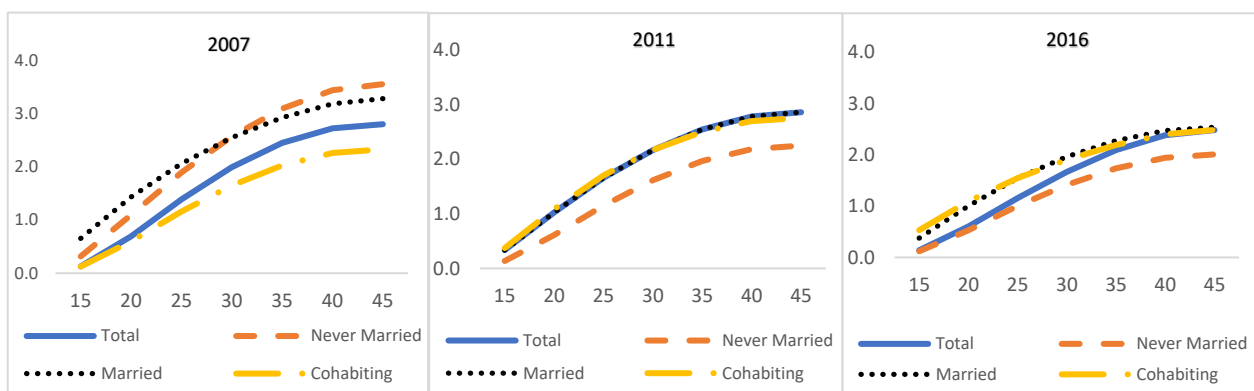


Figure 8 shows cumulative fertility rates by conjugal status. As expected based on the declining pattern of fertility presented in Chapter 5, cumulative fertility declines across time. Cumulative fertility is higher for married women across time. There however are variations in the gap between the fertility of married women when compared to those of other conjugal status. In 2007, married women before the age of 30 had highest cumulative fertility compared to other conjugal classifications, a pattern that was crossed-over by that of never-married women. This is an interesting pattern specially when observing the variation of current fertility in Figure 7, where never-married women had higher fertility.

There were similar cumulative fertility patterns for married and cohabiting women in 2011 and 2016; much lower levels for never-married women, especially in 2011. This is similar to patterns for current fertility suggesting that cross-sectional data show similar pattern of fertility levels for married and cohabiting unions in South Africa. Although South African studies do show lower levels of cohabitation, which is increasing over time, fertility patterns within cohabitation have not been explored until now. The findings may be a first indication that cohabitation may be a union on its own as opposed to a step towards marriage. Certainly, this would explain why fertility patterns are on par at the end of reproductive ages, when women would have married by then. It is also interesting to observe the current and cumulative pattern of fertility for never-married women, a group that has been understood to increasingly carry the bigger burden in the fertility transition of South Africa (Swartz, 2009). Decomposing these estimates will assist in showing the actual contribution of each conjugal status to age-specific and cumulative fertility rates.

Decomposing the contribution of each conjugal status on ASFR and cumulative fertility

Figure 9: Contribution of each conjugal state to age-specific fertility rates

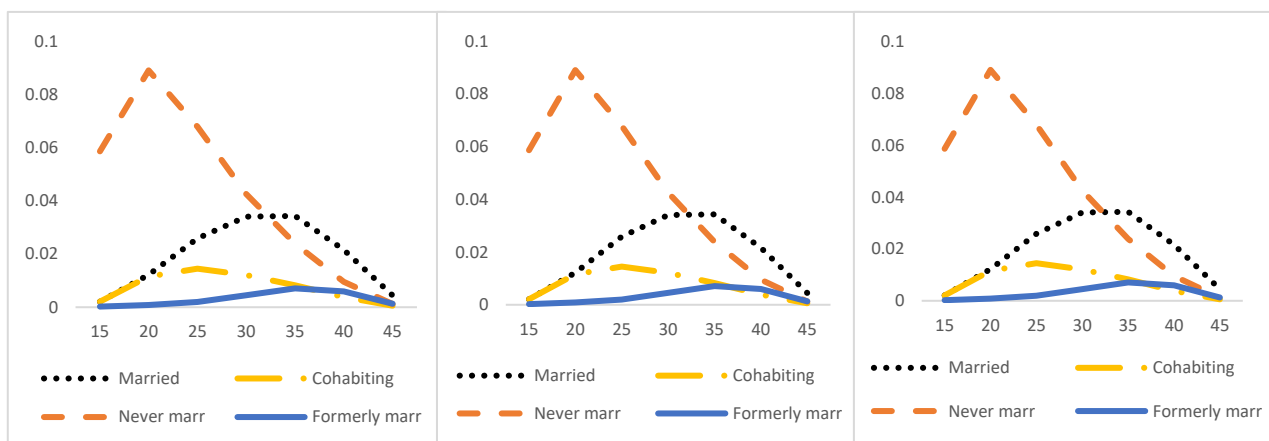
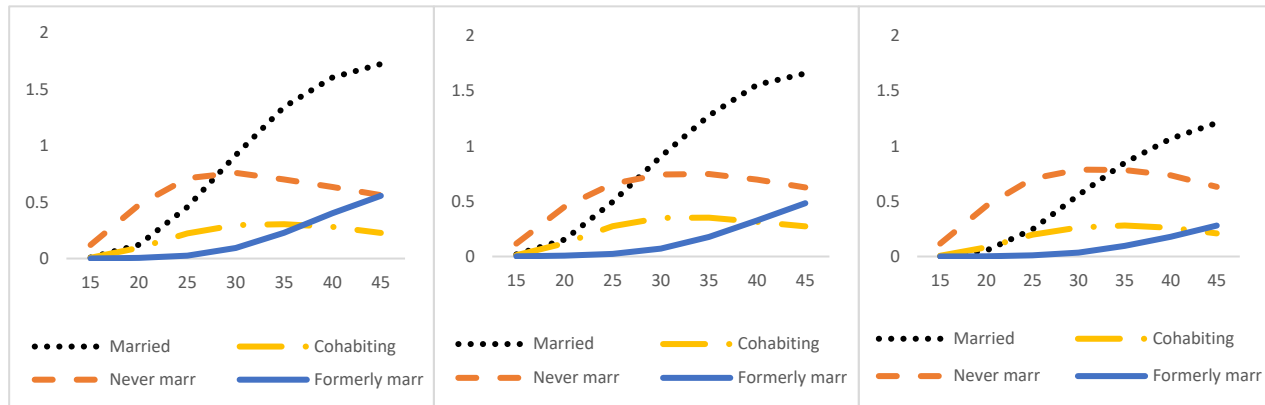


Figure 9 reports on the contribution of each conjugal state to age-specific fertility rates. The striking observation is the similar pattern between 2007 and 2016. Never married women had the highest contribution to age-specific fertility until the age of 35. This is a critical finding for South Africa that suggests that although age-specific fertility rates are higher within marriage and cohabitation before age 20, as shown in Figure 7, few women are in these unions at these ages. Secondly, married women contribute more to fertility after the age of 35. In fact, the contribution of cohabiting and never-married women after the age of 40 is quite minimal. Also critical is the finding that even though age-specific fertility rates for cohabiting and married women were similar in 2011 and 2016, married women had a much higher contribution to

current fertility compared to cohabitation. Generally, the contribution of cohabitation to age-specific fertility rates is higher for younger women.

Figure 10: Contribution of each conjugal state to cumulative fertility



The first observation from the contribution of each conjugal state to cumulative fertility (total number of children ever born) shown in Figure 10 is the change in the level and pattern across time. The overall pattern is that never-married women's contribution is higher for younger women before the ages of 30 in 2007 and 2011 and age 35 in 2016. This contribution of never-married women is also notably higher in 2016, which coincides with the declining contribution of married women. Married women contribute higher on cumulative fertility at older ages. These findings explain why fertility in South Africa is said to be independent from marriage, since never-married women carry the higher burden of fertility during the peak ages of fertility (ages 20-24 and 25-30). The pattern of cumulative fertility for cohabiting women is lower and this is consistent across time periods. In addition, the pattern of cumulative fertility is similar to that of never married, where the contribution of these two conjugal classifications are lower at age 45-49 compared to 40-44.

Table 1: Negative binomial regression models of factors associated with the number of children ever born (parity) in 2007, 2011 and 2016

	2007		2011		2016	
	IRR [95% Conf Int]	AIRR [95% Conf Int]	IRR [95% Conf Int]	AIRR [95% Conf Int]	IRR [95% Conf Int]	AIRR [95% Conf Int]
Marital status (Never married)	1.00	1.00	1.00	1.00	1.00	1.00
Married	2.11***[2.09 – 2.12]	2.19***[2.17 – 2.21]	1.64***[1.64 – 1.65]	1.77***[1.77 – 1.78]	1.75***[1.75 – 1.75]	1.86***[1.85 – 1.86]
Cohabiting	1.88***[1.86 – 1.90]	1.75***[1.74 – 1.77]	1.57***[1.56 – 1.58]	1.54***[1.54 – 1.55]	1.67***[1.66 – 1.68]	1.63***[1.62 – 1.64]
Formerly married	2.17***[2.14 – 2.20]	2.07***[2.04 – 2.09]	1.64***[1.63 – 1.65]	1.69***[1.68 – 1.70]	1.61***[1.60 – 1.63]	1.66***[1.65 – 1.68]
Population group (Black/African)	1.00	1.00	1.00	1.00	1.00	1.00
Coloured	0.90***[0.89 – 0.91]	0.89***[0.88 – 0.90]	0.96***[0.95 – 0.96]	0.95***[0.95 – 0.96]	0.93***[0.93 – 0.94]	0.87***[0.87 – 0.88]
Indian/Asian	0.69***[0.68 – 0.71]	0.61***[0.60 – 0.63]	0.73***[0.73 – 0.74]	0.66***[0.65 – 0.67]	0.61***[0.59 – 0.62]	0.53***[0.52 – 0.54]
White	0.66***[0.65 – 0.67]	0.65***[0.64 – 0.66]	0.66***[0.65 – 0.66]	0.66***[0.66 – 0.66]	0.63***[0.62 – 0.64]	0.57***[0.56 – 0.58]
Education level (No education)	1.00	1.00	1.00	1.00	1.00	1.00
Primary	0.89***[0.88 – 0.91]	0.96***[0.95 – 0.97]	0.93***[0.92 – 0.93]	0.96***[0.96 – 0.97]	1.20***[1.19 – 1.21]	1.22***[1.21 – 1.23]
Some secondary	0.55***[0.54 – 0.55]	0.60***[0.68 – 0.70]	0.69***[0.68 – 0.69]	0.78***[0.77 – 0.78]	0.88***[0.87 – 0.89]	0.98***[0.97 – 0.99]
Matric	0.48***[0.47 – 0.48]	0.61***[0.61 – 0.62]	0.58***[0.58 – 0.59]	0.67***[0.67 – 0.68]	0.76***[0.76 – 0.77]	0.86***[0.85 – 0.87]
Higher	0.50***[0.49 – 0.51]	0.59***[0.58 – 0.60]	0.53***[0.52 – 0.53]	0.60***[0.60 – 0.61]	0.70***[0.69 – 0.71]	0.76***[0.75 – 0.77]

Province	1.00	1.00	1.00	1.00	1.00	1.00
(Western Cape)	1.28***[1.26 –	1.17***[1.15 –	1.16***[1.15 –	1.12***[1.11 –	1.16***[1.15 –	1.11***[1.10 –
Eastern Cape	1.30]	1.19]	1.17]	1.12]	1.17]	1.12]
Northern Cape	1.20***[1.18 –	1.13***[1.11 –	1.15***[1.14 –	1.12***[1.10 –	1.25***[1.23 –	1.24***[1.22 –
Free State	1.23]	1.15]	1.17]	1.13]	1.26]	1.26]
KwaZulu-Natal	1.12***[1.09 –	0.99 [0.97 –	1.04***[1.03 –	0.99 [0.99 –	1.11***[1.10 –	1.03***[1.02 –
North West	1.14]	1.01]	1.05]	1.00]	1.12]	1.05]
Gauteng	1.23***[1.22 –	1.27***[1.25 –	1.15***[1.15 –	1.21***[1.20 –	1.03***[1.02 –	1.09***[1.09 –
Mpumalanga	1.25]	1.29]	1.16]	1.22]	1.03]	1.11]
Limpopo	1.21***[1.19 –	1.15***[1.13 –	1.14***[1.13 –	1.11***[1.11 –	1.19***[1.18 –	1.15***[1.14 –
	1.24]	1.17]	1.15]	1.12]	1.20]	1.16]
	1.03***[1.02 –	1.05***[1.03 –	0.99 [0.99 –	1.03***[1.02 –	0.99 [0.95 –	1.00 [0.99 –
	1.05]	1.06]	1.00]	1.04]	1.00]	1.01]
	1.28***[1.26 –	1.21***[1.19 –	1.17***[1.17 –	1.17***[1.17 –	1.12***[1.11 –	1.11***[1.10 –
	1.30]	1.23]	1.18]	1.18]	1.13]	1.12]
	1.33***[1.31 –	1.21***[1.19 –	1.23***[1.22 –	1.20***[1.19 –	1.24***[1.23 –	1.18***[1.17 –
	1.36]	1.23]	1.24]	1.21]	1.25]	1.19]

Note: IRR is Incident Rate Ratio. ***p < 0.05, AIRR: Adjusted IRR, A(95% CI):Adjusted 95% Confidence Interval. Results control for current age of the woman (offset).

To further explore the share of fertility for each conjugal state, negative binomial regression on the number of children ever born (parity) for women in reproductive ages were estimated at each data point. The models were run as a cross-section, changes across time cannot be implied due to changing cohorts of women and the non-panel nature of the data. The independent models of the relative risk of the number of children ever born by the conjugal status of women show marginal reduction on the strength of the association once other covariates are controlled for. This suggest that conjugal status is an important determinant of the relative risk of the number of children born by women, since its strength does not dissipate once other factors are included in the model.

The findings show that after controlling for relevant factors, women in conjugal unions (married and cohabiting) had higher relative risks of having higher parity compared to never married women. In fact, in 2007 married women had higher relative risks (two times) of having larger number of children ever born when compared to cohabiting women. This confirms the findings of cumulative fertility shown in Figure 10 above. These relative risks are reduced as fertility declines, in 2016, married women were 77% more likely to have higher average number of children compared to never married women. Cohabiting women on the other hand were 54% more likely to have higher parity compared to never married women.

The relative risk of the number of higher children ever born is highest among the Black/African population group compared to others. Coloureds have the second higher levels, followed by Indian/Asian and lastly Whites. The distance between the relative risk for Black/African and White is wide, where White women had a 48% lower number of children compared to Black/African in relative risk terms. The findings also find a progression in relative risks of number of children by educational attainment, where women with no education were more likely to have larger numbers of children and this declined by each level until the lowest for women with tertiary levels.

Table 2: Adjusted Odds of having a child in the last year

	2007	2011	2016
Marital status (Never married)	1.00	1.00	1.00
Married	2.33***[2.24 – 2.42]	2.25***[2.22 – 2.29]	1.93***[1.88 – 1.97]
Cohabiting	2.64***[2.53 – 2.76]	2.57***[2.53 – 2.61]	2.29***[2.24 – 2.35]
Formerly married	0.82 [0.84 – 1.02]	0.83***[0.79 – 0.86]	0.73***[0.67 – 0.79]
Control variables are current age; population group; educational level; and province of enumeration.			

Note: ***p < 0.05, [95% Confidence Interval]

The study further estimated logit models of current fertility, measured by whether women of reproductive ages had a child in the previous year of a census or survey. The models were estimated at each data point and control for all covariates indicated in the Table. The results are presented for the conjugal status variable as a key independent variable. The effects of other covariates on current fertility was similar to that observed for cumulative fertility and presented in Table 1.

The results show a change in the probability of giving birth in the last year by conjugal status. Whilst married women had higher relative risks of having larger numbers of children compared

to never married women and cohabiting women, they retain higher odds of having a child recently compared to never married women, but this is reversed when comparing with cohabiting women. In 2007, married women were 2.3 times more likely to have a child recently; while cohabiting women were 2.64 times more likely – compared to never married women. This pattern of higher fertility among cohabiting women is maintained across time. This is also better understood when looking at the pattern of the decomposition of age specific fertility rates in Figure 9, where the contribution of cohabitation is highest among women between the ages of 20 and 25, who have a highest share of annual fertility as shown by the peak in Figure 4.

Discussion and conclusions

This chapter explored the results of analysis of the contributions of marriage and cohabitation to age specific fertility and parity through the decomposition technique. The findings show higher share of fertility for married and cohabiting women before age 20 years, which is likely linked to lower marriage levels at younger ages, where those that do marry at these ages are far more likely to have children early. Marginal differences in age specific fertility rates by conjugal status after the age of 30 were observed, although married women have marginally higher fertility across all ages. Never married woman had the highest contribution to age-specific fertility until the age 35, after which married women's contribution take over. The contribution of cohabiting and never married women to age-specific fertility after the age of 40 is quite minimal.

There were similar cumulative fertility patterns for married and cohabiting women in 2011 and 2016; much lower levels for never-married women, especially in 2011. These were similar to patterns for current fertility suggesting that cross-sectional data show similar pattern of fertility levels for married and cohabiting women in their reproductive ages in South Africa. Married women contribute higher on cumulative fertility at older ages. These finding explain why fertility in South Africa is said to be independent from marriage, since never married women carry the higher burden of fertility during the peak ages of fertility (ages 20-24 and 25-30).

Overall, this chapter unpacked the role of each conjugal status and fertility towards family formation among South African women in reproductive ages. It shed light on the known independence of fertility to marriage in South Africa. This was done by firstly showing that this phenomenon applies to current fertility until the end of the peak of the fertility schedule (age 30), where never married women carried the highest share of fertility. Secondly, that married women have higher share of fertility after the age of 35, which reflects later age at marriage in South Africa (shown in Chapter 5). Married women therefore have higher fertility than never married women in ages where marriage levels are higher. This is a critical finding for a country with lower marriage levels overall. Thirdly, the chapter shows that cohabiting women have a lower share of fertility compared to married and never married women. Their pattern is however important to note as it is similar to married women for age-specific fertility but follows the pattern of never married women for cumulative fertility. This suggests that cohabitation is likely to be a union of choice for younger women before the peak of the fertility schedule, and a union that include childbearing as much as marriage.

Appendix 1

Table 1.1: Sample distribution for women between the ages of 15 to 49 per data point

	CS2007	Census 2011	CS2016
Mean age	29.8	29.8	30.3
Population group			
Black African	78.3	80.1	81.7
Coloured	11.1	9.0	9.1
Indian or Asian	2.4	2.5	2.4
White	8.3	8.0	6.8
Province			
Western Cape	11.3	11.6	11.5
Eastern Cape	14.3	11.8	12.0
Northern Cape	4.7	2.1	2.1
Free State	5.6	5.2	5.2
KwaZulu-Natal	20.8	19.9	19.5
North West	6.6	6.3	6.4
Gauteng	19.7	25.3	24.9
Mpumalanga	7.1	7.7	7.9
Limpopo	9.8	10.2	10.6
Educational attainment			
No education	4.9	3.8	3.1
Primary	18.2	11.9	7.9
Secondary	52.3	42.4	26.4
Grade 12	17.7	30.8	51.9
Higher	6.9	11.1	10.7
N	265 954	1 203 999	894 375