

# **Childlessness among women with qualifications in South Africa**

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## **Abstract**

In the context of low fertility, childlessness has drawn the attention of demographers and social scientist. In South Africa, fertility declined from 7 children per woman in the 1960's to 2.6 children per woman in 2011. The daunting situation is that in 2011 Whites and Indian/Asian fertility rates were below replacement level. Using censuses 2001 and 2011, the paper seeks to establish childlessness among qualified women. Childlessness increased from 2001 to 2011. It increased by 10% point between women aged 25-34. Black African women had the highest chance of becoming mothers. The prevalence of childlessness was high among women with post higher degree, employed and with no income. Never married women scored the highest proportion of childlessness. With regards to field of study, mechatronics had the highest prevalence of childlessness. Across occupations, professional women and managers were childless. The majority of childless women were residing in Gauteng and Western Cape.

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## **1. Introduction**

In the context of low fertility, childlessness has become an important area of demographic research and has drawn the attention of many demographers and other social scientists. Traditionally, childlessness was mainly involuntary occurring within a large family system, and thus, there was no reason for concern (Morgan, 1991). While contemporary childlessness is mostly voluntary and it is occurring in the context of a small family system), it therefore warrants attention as it can be a potential factor to low levels of fertility in recent decades (Merlo and Rowland, 2000). Prevalence of childlessness is also an important indication of changing norms and value systems in a given society (Abbasi-Shavazi *et al.*, 2009).

Fertility postponement is among the factors that contribute to childlessness. Postponement of first birth may lead to involuntary childlessness if women underestimate age related declines in fecundity (Leridon, 2004). As childbearing gets pushed to increasingly later ages, women have a narrower window of time in which to complete their desired fertility because of biological limits. From a biological perspective, fecundity begins declining as early as the late 20s for women, with more dramatic reductions starting around age 35. Postponing fertility until the 30s, therefore, carries the risk of involuntary childlessness (Dunson *et al.*, 2002).

Amongst the wide array of influence on the trend of childlessness education and women's empowerment are key (Balk, 1994; Dyson and Moore 1983). Both education attainment and labour force participation are factors which are identified as having high correlation with childlessness (Hagestad and Call, 2007). For these women when they have pursued further education, there is a high opportunity cost associated with having children (Becker, 1981; Hoem *et al.*, 2006). These changes in fertility have significant implications for family building experiences as well as women's child bearing patterns. Since 1994, South Africa became internationally recognized for its relatively good performance in terms of common measures of gender equality and women empowerment. Crimmins *et al.*, (1991) revealed that younger educated women face a broader spectrum of choices in all spheres of life and have different aspirations with regard to marriage and families, work life, self-sufficiency and life style than their mothers and daughters.

The prevalence of childlessness in South Africa has substantially increased in the recent decades. The proportion of childless women in the age group 35-39 has increased from 1.3 percent in 1982 to 6 percent in 2003 and from 1.8 percent to 4.8 percent during the same period for women aged 45-49 years (United Nations, Department of Economic and Social Affairs, Population Division, 2013). While there is growing sentiment that modern lifestyles have led to a universal spread of those wishing to remain childless, it is also clear that women do not necessarily choose to remain childless (Kemkes-Grottenthaler, 2003). Among most developed countries one in ten women have no children, and in South Africa the percentage of childless women in their late 40s approaches 5 percentage (World fertility report, 2009).

South Africa has successfully empowered women in terms of education. A correlation between education and childlessness is well documented worldwide. On the other side of the spectrum, fertility has been declining over time, which in some populations fertility has already reached below replacement level. In this respect, it is interesting to society to study the generative behavior of highly educated women. Whereas previous literature has concentrated on the level of women's education and its impact on fertility and childlessness, this paper adds a new dimension by also focusing on other socio economic factors such as the field of education, occupation, industry, income and employment. In particular, we examine trends in childlessness for women with a range of elite qualifications. Further, the study established the significant differences among qualified childless women and women who ever had children.

## **2. Literature review**

The extents of childlessness, causes of declining fertility have and are still receiving attention because of their impact on the demography of the country. Childlessness can bring and imbalance in the country's demographic aspects because of impact of population growth. Higher education and income have been consistently linked to childlessness (Abma and Martinez, 2006).

Explanation for high childlessness among highly educated women focused on difficulty in reconciling work and family roles (Fokkema *et al.*, 2008; Lind, 2008). The

strong career orientation of female university graduates, the high opportunity cost (Liefbroer, 2005) as well as the postponement of family formation due to long time spent in education have been considered to be the main causes of childlessness. A stable career increases the likelihood of remaining childless among women. Köppen *et al.*, (2007) indicated that the lack of suitable partner or stable relationship is a central cause of childlessness in many countries of Western and Northern Europe.

Although fertility is steadily declining amongst black African women, there are still disparities in fertility levels between four population groups in South Africa (Udjo, 2014). Findings in childlessness by race are mixed to date. While Kenkel, (1985) found race to have no influence on fertility preference of younger women. Jacobson *et al.*, (1988) found higher rates of childlessness among black African women than among white women. Conversely, Bloom and Trussel, (1984) revealed that the effect of childlessness is insignificant after controlling for education and place of residence.

Veevers, (1980) found out that childless women are more likely to reside in urban settings than non-urban settings. The study conducted among the states of India indicated that rural women have higher percentage of childlessness when compared with urban women (Aiswarya and Moli, 2012). Spatial differences in South Africa indicate that fertility is higher among rural provinces than among urban provinces (Stats S.A, 2010).

The choice of education and the occupational opportunities exert a considerable influence on the timing of the transition to motherhood (Ranson, 1998). The choice of educational mirrors a woman's value and preference which may include her attitude regarding reproduction (Hoem *et. al*, 2006). Moreover, the choice of educational line tends to determine a person future employment which implies that the relationship between education and childbearing behaviour may affect the link between education and labour market.

Research has consistently shown that working women in high-status jobs are more likely to remain childless than their female counterparts (Callan, 1986; Friedman *et al.*, 1994). Ritchey and Stokes, (1974) in their study established that the percent of employed wives without children was higher by a factor of five than that of non-

employed wives. In each age grouping, childlessness among employed wives exceeds that of unemployed wives.

It seems that the evidence on the relationship between female earnings and fertility is mixed, differences in the empirical findings partially relate to different operational definitions of female income. Andersson, (2000) used data on Swedish women's annual earnings during the 1980s and 1990s and found a strong positive association between earnings and first birth risks. Using data for Norway and Finland, Rønsen (2004) finds, however, a negative impact of female wages on fertility in Denmark, Nordic country, first birth risks increase rapidly when women have reached the third income quintile, this provides strong support for the idea that a sufficient female earning situation is a precondition for forming a family in Denmark.

Some professional occupations may be more compatible with family life than others. Women in professional occupation may have greater access to spouses who facilitate family orientation than others do. Cooney and Uhlenberg, (1989) in their study revealed that educated women in professional careers are more likely than in general to be involved in parenting.

Makiwane, (1998) found a different pattern of fertility between married and never married women, in Transkei. According to his study, the TFR of married women was greater than that of never married with a TFR of 3.3 children per woman. He discovered that unmarried women are more likely to use contraceptives than married ones. Haskey, (2013) in his study of cohabitation and partnership in Britain, demonstrate that, amongst women with one, or no unions in their partnership history, the likelihood of women being childless is high for those who had no partnerships, followed by those with one cohabitation, and lastly by those who had one marriage.

### **3. Methodology**

#### **3.1. Data and scope**

To achieve the goal of the study, we relied on South African censuses 2001 and 2011. The category of childless in this paper captures all women in South Africa aged 20-49 who reported parity zero at the time of census. The question that yields

this population was asked as follows “has the women ever given birth to a child, even if the child died after birth?” Proportion childlessness was determined by dividing the number of women who reported parity zero in each age group by total number of women in the same age group.

### **3.2. Analysis**

Besides the descriptive statistics that were used to measure the level of childlessness, bivariate analysis was done to find out if there were significant differences between qualified women who were childless and women who had children. In this regard, tabulation of women who had children and who did not have children was performed by age, marital status, population group, level of education, field of education, employment status, income, occupation, industry and province.

### **3.3. Limitations**

The disadvantages in the study is that one cannot distinguish between involuntary childlessness (e.g. infertility), intended childlessness (those who do not intend to have children), voluntary childlessness (the “childfree”), and temporary childlessness related to circumstantial or delayed childbearing, which is neither voluntary nor involuntary (Graham *et al.*, 2013).

Censuses do not provide any information about whether a woman has had a sexually transmitted disease (STD) or pelvic inflammatory disease, or whether she has received treatment for infertility for all the women who are childless. It is therefore, not possible to draw any inferences about the specific causes of acquired childlessness, or to pinpoint changes in the prevailing disease patterns leading to childlessness in South Africa.

### **3.4. Assessment of parity unstated**

It is well documented that enumerators often do not record zero parity on the questionnaire to indicate that a woman had never had a child; instead the response is left blank. This is particularly prevalent among younger women. The responses are thus ambiguous, such that it will not be known whether blank is unspecified or represents a childless woman (El-Badry, 1961). If a noticeably large proportion of women are classified under parity not stated, the exclusion of these women will



overestimate average parities. Conversely, if these women are included in the denominator, the inclusion will underestimate the average parities.

The method was employed to uncertain whether unknown was in actual fact “true” unknown or parity zero. The method was applied to all women 15-49 since the target population of the study is a subset all women in their reproductive age group. The method is applied when the proportion of "not stated" at each age group is higher than 2%. On the other side, there should be strong linearity between the unstated parity and parity zero. Table 1 show that in all age groups, the proportion of women with parity unstated exceeds 2%.

**Table 1: Distribution of parity by age of women**

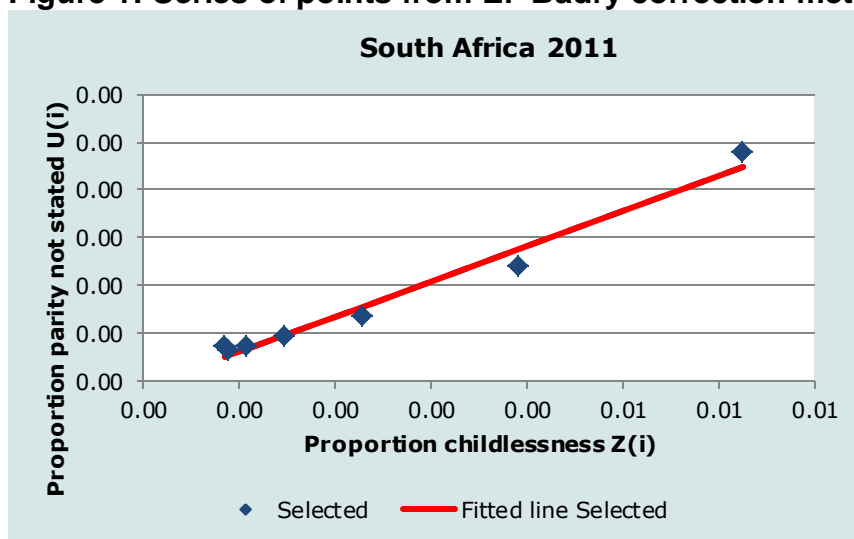
Parity	Age group						
	15–19	20–24	25–29	30–34	35–39	40–44	45–49
0	1 527 716	1 017 578	566 391	290 751	188 325	137 200	118 294
1	291 576	898 301	846 408	492 473	300 345	206 532	170 264
2	34 802	296 807	600 123	588 898	498 577	389 005	313 890
3	6 197	59 514	208 317	312 162	359 106	325 900	287 990
4	1 025	14 840	60 334	121 759	182 705	201 407	198 588
5	0	4 284	15 771	41 096	79 329	105 206	117 067
6	0	1 583	7 044	16 581	37 209	56 220	69 561
7	0	0	3 728	6 289	15 229	27 314	37 390
8	0	0	1 312	3 955	8 321	14 838	21 537
9	0	0	0	2 205	3 998	7 537	10 881
10	0	0	0	898	2 328	4 425	6 667
11	0	0	0	211	1 252	2 314	3 296
12	0	0	0	0	687	1 651	2 416
13	0	0	0	0	127	936	1 428
14	0	0	0	0	0	587	969
15	0	0	0	0	0	195	628
16	0	0	0	0	0	0	422
95	582 689	311 077	166 272	91 585	63 123	49 734	49 657
97	6 553	8 798	6 725	3 407	2 061	1 073	686
Total	2 450 558	2 612 782	2 482 425	1 972 270	1 742 722	1 532 074	1 411 631
% parity unstated	23,78	11,91	6,7	4,64	3,62	3,25	3,52
% childless	62,3	38,9	22,8	14,7	10,8	9	8,4

### 3.5. Fitting of EI-Badry correction method, Census 2011

The proportions of parity unstated above suggest that the EI-Badry technique for estimating true non-response be applied. However, requirement of linearity between parity unstated and missing values should be observed, or else, women of unstated parity should be included in the female population denominator when calculating average parity (United Nations, 1983).

Figure 1 presents the results of fitting the El-Badry correction method. The method suggests that if there is linearity between the unstated parity and parity zero, i.e. if all the values lie on the fitted line, then all points could be included in the application of the El-Badry correction method. The divergence of the proportion childlessness  $Z(i)$  and proportion with parity not stated  $U(i)$  from the fitted line is a suggestive that there is no linear relationship between childlessness and unstated parity, hence missing parity is assumed to be parity zero.

**Figure 1: Series of points from El- Badry correction method**



#### 4. Results

**Table 2: Age distribution of all women by level of education, 2001 - 2011**

age group	Level of education						All women 20-49	
	2001			2011			2001	2011
	Certificates and Diplomas	Bachelors degree	Post higher degrees (Masters, Doctorate)	Certificates and Diplomas	Bachelors degree	Post higher degrees (Masters, Doctorate)		
20-24	118106	23757	7409	156380	57537	7411	2189344	2679897
25-29	154638	42318	17160	202833	103810	17631	2034172	2516634
30-34	133041	42566	20703	173586	80147	18814	1741231	1992805
35-39	105010	38376	16567	154645	78506	21039	1635554	1758421
40-44	79936	31470	14523	125589	74172	19544	1376879	1546290
45-49	55986	22424	10023	94624	57296	16825	1125861	1424543
Total	646717	200911	86385	907657	451468	101264	10103041	11918590
Proportion of all women by age and level of education (%)								
20-24	5,4	1,1	0,3	5,8	2,1	0,3	100	100
25-29	7,6	2,1	0,8	8,1	4,1	0,7	100	100
30-34	7,6	2,4	1,2	8,7	4,0	0,9	100	100
35-39	6,4	2,3	1,0	8,8	4,5	1,2	100	100
40-44	5,8	2,3	1,1	8,1	4,8	1,3	100	100
45-49	5,0	2,0	0,9	6,6	4,0	1,2	100	100
Total	6,4	2,0	0,9	7,6	3,8	0,8	100	100

Results in table 2 indicates that amongst all woman aged 20-49, the majority attained diplomas and bachelor's degree. There was an increase though marginally in the proportion of women with diplomas and bachelors from 2001 to 2011 across all age groups. With regards to women with post higher degrees, the table indicate stable trend over the same period in all age groups. The finding implies that women tend to stop progressing to post higher education after they have acquired bachelor's degree.

**Figure 2: Childlessness of qualified women aged 20-49 by age**

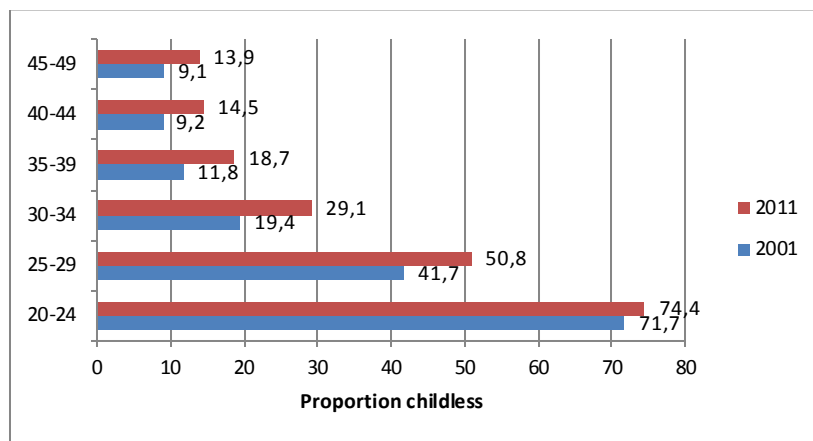
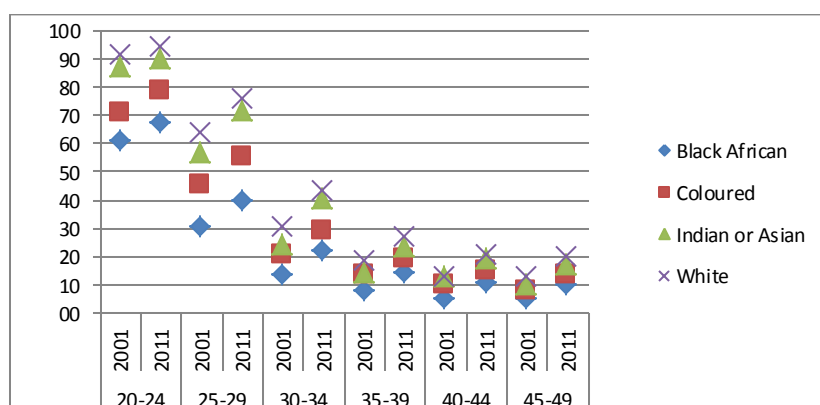


Figure 2 attest to the above discussions in that childlessness of qualified women has increased from 2001 to 2011. The proportion childless among these women was more distinct at ages 20-24 across time. The margin of increase of childlessness from 2001 to 2011 is higher in qualified women aged 25-29 (9,2%) and 30-34 (9,7%). Although childlessness decreases with age of women, the increase in the proportions of childlessness of qualified women aged 34 and above is still significant.

The decrease of childlessness of qualified women by age is an indicative that high prevalence of childlessness in young age groups is a result of fertility postponement. However, postponement of first birth may lead to involuntary childlessness if women underestimate age related declines in fecundity (Leridon, 2004).

**Figure 3: Childlessness of qualified women aged 20-49 by population group**



The results in figure 3 suggest that black African women followed by coloured, who were professionals, have a slightly greater risk of becoming mothers than remaining childless compared to White women. This is expected because of the low mean at

first birth and the high fertility rates characterizing these populations. The pattern remained almost unchanged during the period 2001-2011. Despite the increase of childlessness over time, across all the population groups, Whites and Indians/ Asian have the highest number of women who are childless, particularly in younger women aged 20-29. The findings are not surprising as the ASFR of the population's peak between the ages 25 and 35.

**Figure 4: Childlessness of qualified women aged 20-49 by level of education**

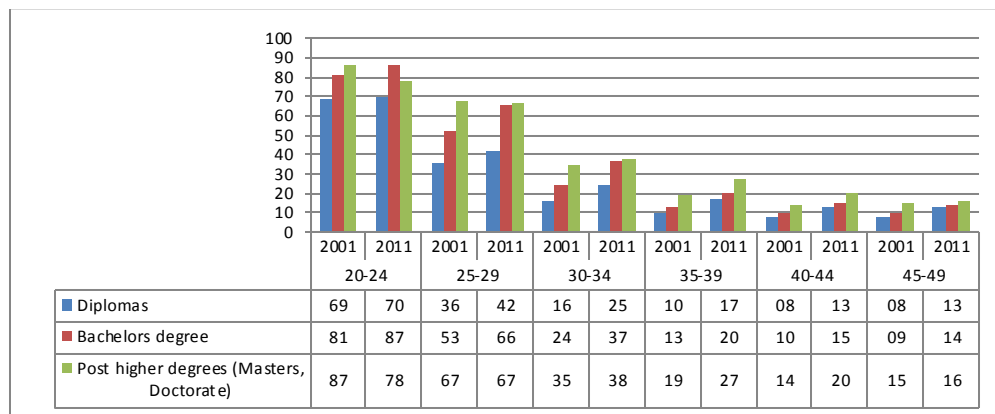
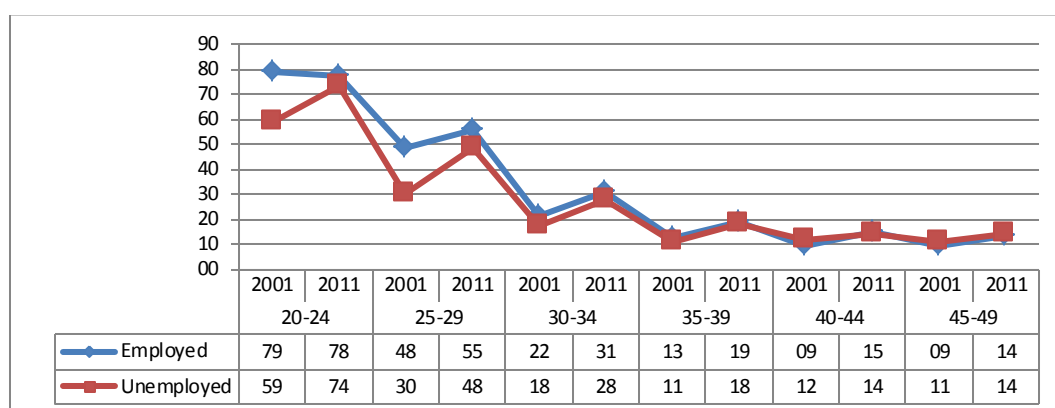


Figure 4 presents childlessness of qualified women by level of education. Education of the women shows significant association with childlessness. As the education of women increases childlessness also increases. Overall in all the years, women with post higher degree appear to have no children than those who have diplomas and bachelors across all age groups. Across all levels of qualifications, women with diplomas record the lowest prevalence of childlessness. Amongst reasons contributing to this pattern, is the dual responsibilities of traditions and professionalism. Where women have been successful in gaining academic or professional positions they frequently face cultural barriers in the form of their own internalised view of their roles and the expectations which others have of them ( UNESCO 1993).

There were little differences in the prevalence of childlessness between women with bachelors and post higher degrees particularly in younger age groups. Both groups recorded on average childlessness of over 80% for women aged 20-24 and almost 60% for subsequent age group (25-29). The proportion of childless women with post higher degrees among young women aged (20-24) decreased markedly from 86,7 in 2001 to 77,8 in 2011. The pattern gradually continued to women aged 25-29 and began to show an upward trend from women aged 30 and above.

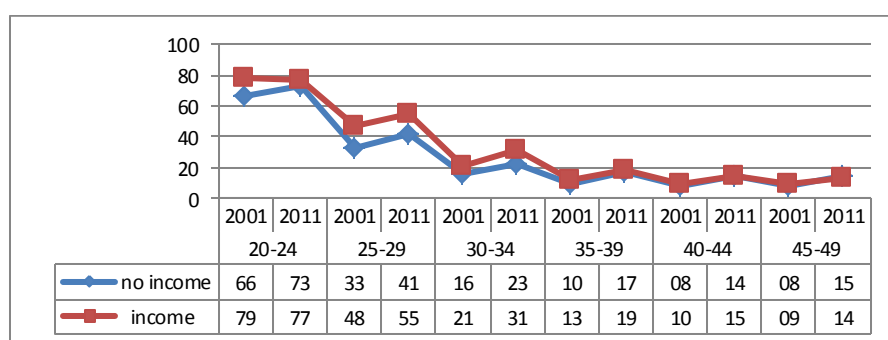
**Figure 5: Childlessness of qualified women aged 20-49 by employment status**



**NB: Official definition of employment was used in the analysis**

Figure 5 focuses on the differences in childlessness between qualified women who are employed and unemployed. The prevalence of childlessness increased over time across employment status in all age groups. Employed qualified women appear to be childless than unemployed in the two period, however, the gap began to close from ages 30-34 to 45-49. This is an indicative that the desire to have children amongst qualified women increases as age increases irrespective of the employment status. Is the narrowing gap a suggestive that high income of employed women give them opportunity to be career oriented and parenting?

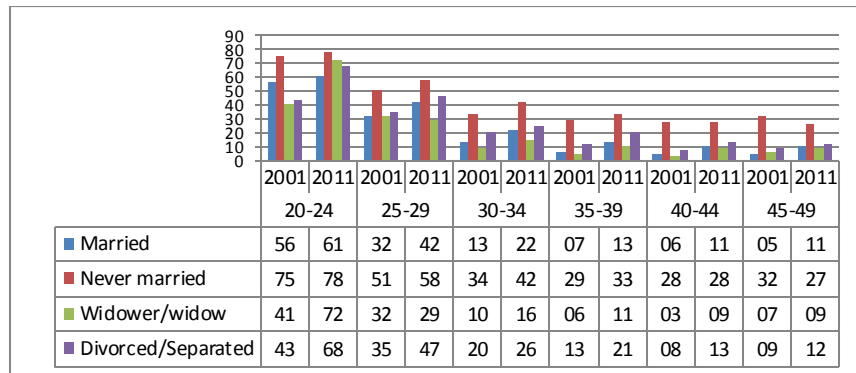
**Figure 6: Childlessness of qualified women aged 20-49 by income**



It is noticeable in figure 6 that the prevalence of childlessness is lower for women with no income than those with income over the period studied. Differences in childlessness between qualified women with income and without income starts to decline women from women aged 35-39 and older. The pattern suggests that childlessness is not influenced by income at elderly qualified women. Despite the sharp increase of prevalence of childlessness of 6,3 percentage points amongst women with no income aged 20-24 from 2001 to 2011, the considerable increase

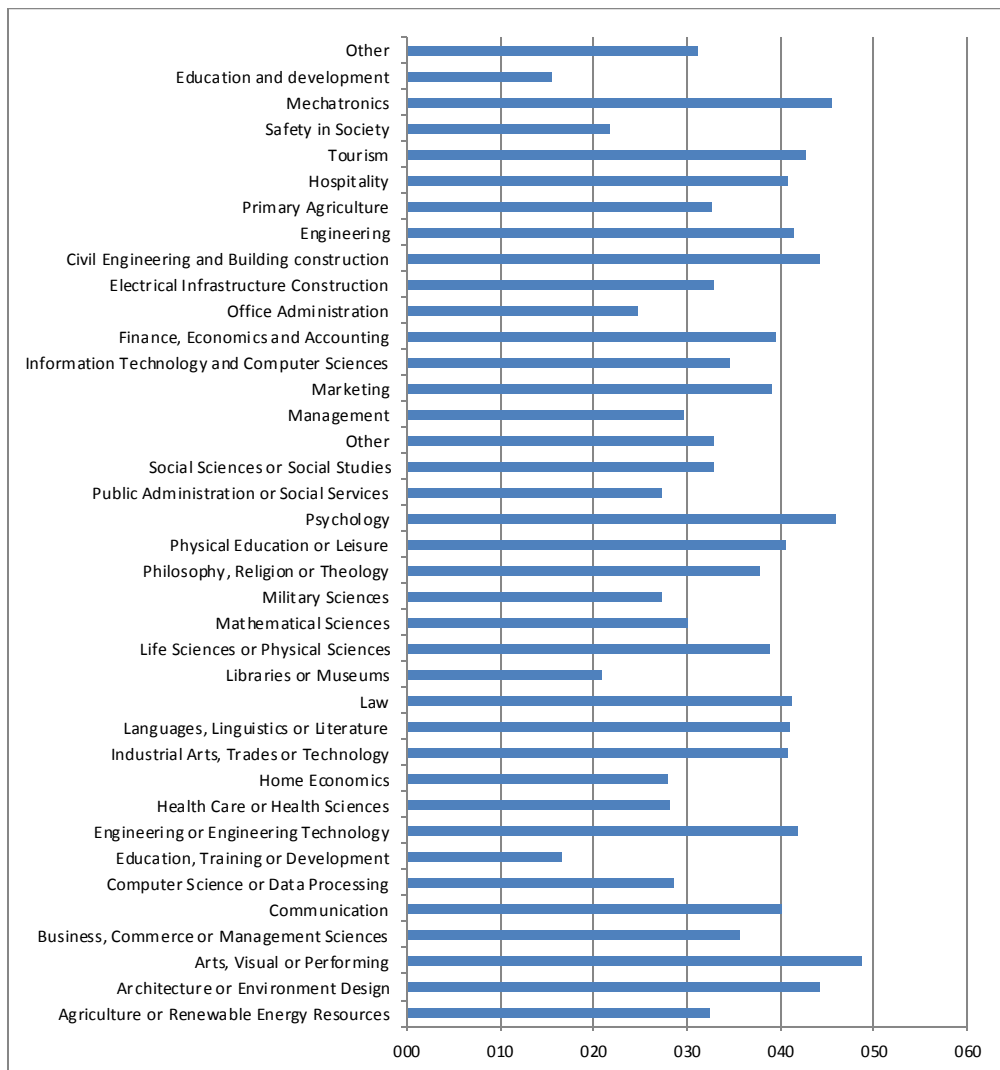
were pronounced at ages 25-34 across all women. The highest increase from 2001 to 2011 of almost 10% percentage points was observed at women aged 30-34 with income. It is established that in poor and pre industrial environments, having access to resources is related to earlier and higher fertility; however in highly developed societies and low fertility societies wealthier families tend to have fewer children.

**Figure 7: Childlessness of qualified women aged 20-49 by marital status**



Like elsewhere in the world marriages in South Africa, have undergone changes. In traditional societies, marriage marks the beginning of socially sanctioned exposure to pregnancy and sets the course of subsequent childbearing. In Sub-Saharan Africa marriage has been described as early and universal (van de Walle, 1968; Lesthaeghe, 1971). The strongest association in this study is between marital status and childlessness. Figure 7 indicates that, over time and across all marital categories, never married women aged 20-49 recorded high prevalence of childlessness. What is striking is that even at ages around MAC which is between 25 and 29 for all populations there is about an increase of 8% point of childlessness amongst qualified never married women from 2001 to 2011. The gap in childlessness between qualified never married women and ever married women began to increase significantly from women aged 30-34 and older.

**Figure 8: Childlessness of qualified women aged 20-49 by field of education, 2011**



Field of study have been proven to be both theoretically an empirically relevant for women's transition to first, second and third birth in Spain (Martín-García and Baizán, 2006). Figure 8 displays the results of childlessness by field of study. Over 45% of childlessness was noticeable high among qualified women who trained in mechatronics, followed by women trained in psychology and arts. Field of study in engineering appear to be second highest with the prevalence of childless of 44% whilst on average women who qualified in education, scored the lowest prevalence of childlessness of 16% amongst all fields. Studies have shown that young women with strong family preferences are more likely to pursue education in fields that are most compatible with motherhood (Esping-Andersen *et al.*, 2007). These women will present lower levels of childlessness than women in other field of studies. Gillespie,



(2003) indicated that women in male dominated fields often abandon motherhood in favour of 'child free' life style.

**Figure 9: Childlessness of qualified women aged 20-49 by industry, 2011**

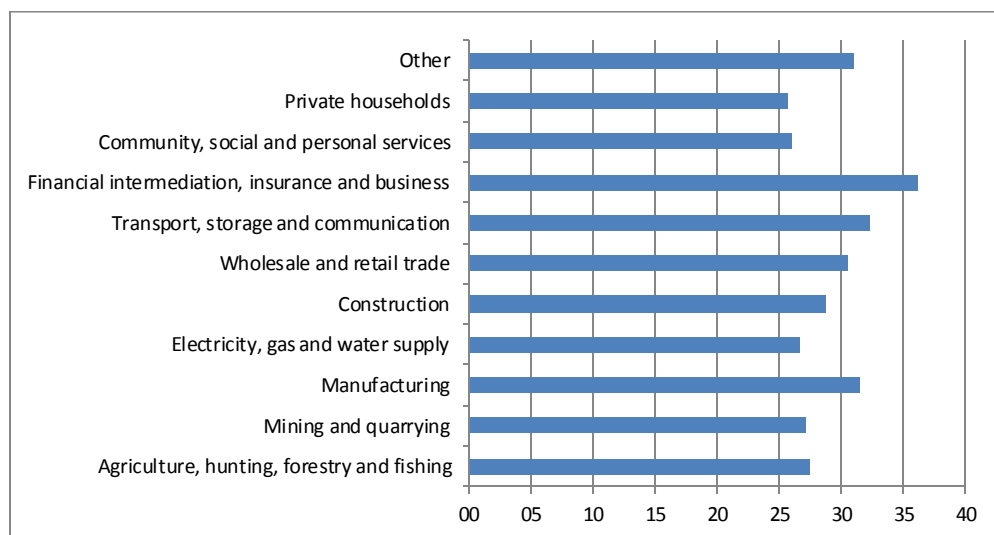


Figure 9 indicates that industrial differences in childlessness exist significantly, however the results indicates a mixed pattern. The highest proportion (36%) of qualified women who were childless was employed in financial intermediation, insurance and business industries. These were followed by women working in manufacturing and transport industries. As expected, the lowest prevalence of childlessness was observed in women in private household and those working in community, social and personal services.

**Table 3: Childlessness of qualified women aged 20-49 by province**

Province	20-24		25-29		30-34		35-39		40-44		45-49	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
WC	82,6	85,9	59,1	66,9	32,4	41,5	18,8	24,9	15,0	21,2	16,1	17,9
EC	72,0	67,5	37,0	46,3	15,4	25,5	9,4	16,0	6,5	12,1	7,4	11,1
NC	71,0	74,5	37,3	46,7	18,7	29,5	10,3	12,1	9,2	12,2	7,9	14,0
FS	74,0	74,2	40,8	47,3	13,3	25,8	9,7	16,3	6,9	10,9	6,4	10,7
KZN	68,4	70,8	40,3	47,2	18,5	27,6	11,6	18,7	8,5	14,5	7,6	13,9
NW	67,8	72,6	33,2	41,0	12,5	20,7	7,3	12,7	6,8	8,3	7,0	8,5
GP	75,1	78,3	47,4	54,8	24,5	31,2	14,8	21,2	10,7	16,8	9,9	17,1
MP	60,3	61,5	30,2	35,9	11,8	20,8	8,7	11,4	6,2	10,6	6,7	9,8
LP	49,8	60,4	20,5	31,3	9,0	13,5	5,1	9,5	4,1	6,5	2,7	7,2

Table 3 shows spatial variation of childless women in South Africa between 2001 and 2011. Variations in childlessness of qualified women have been observed in different provinces. Over time childlessness among qualified women was higher in Gauteng and Western Cape. In 2011, at the peak age of childbearing (25-29) 2 in 3 women were childless in Western Cape. Within the same period, Limpopo and Mpumalanga had the lowest levels of childlessness though the trends of childlessness decreased over time. The spatial pattern revealed in this analysis is probable because it corroborates the fertility patterns and behavior in these provinces. The variations amongst the provinces are a reflection of differences in social, economic and cultural development.

**Table 4: Childlessness of qualified women aged 20-49 by occupation**

Occupation	20-24		25-29		30-34		35-39		40-44		45-49	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
Manager	88,0	79,5	59,1	60,4	34,5	33,9	20,1	21,1	11,7	13,6	10,6	14,2
Professional	86,3	80,8	61,0	60,9	28,5	32,5	15,8	17,1	12,0	12,1	10,8	10,7
Technician	79,3	69,1	42,3	45,0	15,7	24,7	9,5	14,3	7,0	10,5	6,9	9,6
Clerk	76,5	74,0	43,9	50,7	20,2	27,4	10,6	16,4	8,5	13,2	9,3	11,8
Sales and services	78,5	74,3	43,0	48,6	21,7	27,3	15,3	16,5	10,2	13,4	12,0	10,6
Skilled agriculture	94,6	65,4	38,6	45,1	16,5	38,6	18,4	22,4	4,4	14,0	11,4	9,7
Craft and related trade	64,9	75,4	41,0	46,4	20,0	27,6	9,8	13,6	18,7	10,8	11,7	10,4
Plant and machine operator	74,4	72,4	40,4	46,5	22,5	23,9	8,7	13,0	6,6	9,5	15,6	12,0
Elementary	64,2	68,2	28,5	47,0	16,7	23,1	13,8	14,9	10,1	12,1	12,3	9,4

Table 4 indicates that occupational differences among qualified women, exist significantly, but the results indicates a mixed pattern of childlessness. Over time and across all the age groups the proportion childless was high amongst professionals and managers and low among qualified women with elementary occupation. Interestingly, at elderly ages 35-44, qualified women who were plant and machinery operators had lowest childlessness than those within elementary occupation. Within the same age group in 2011, childlessness was significantly higher amongst women with skilled agriculture relative to all occupations.

#### **4.1. Socioeconomic differentials of women age 20-49 who have children and who do not have children.**

##### **4.1.1. Introduction**

Amongst the objectives of the study was to find out if there were significant differences between predictor variables of age, marital status, population group, level of education, employment status, income, occupation, industry and provinces among women who ever had children and childless women. Bivariate analysis was performed to establish the variations between the women.

##### **4.1.2. Demographic and socioeconomic differentials**

Table 5 indicates the proportion of women by fertility status controlling for the above 9 ascribed characteristics. Overall, the mean age at childbearing in South Africa is 22, however fertility of qualified women was the highest at ages 30-34 year olds and 35 to 39 year olds with proportions of 20% and 22 % respectively. This pattern indicates that educated women, who ultimately bear children, are more likely to delay child-bearing. On the other hand the proportion of childless women was the highest with 31.3% and 32.2% at age group 20-24 and 25-29 respectively.

Marital status shows a significant difference for fertility of qualified women. Almost 3 in 5 of women who had children were married. In contrast, about 33,8% of childless women were married. Amongst the women who were childless 63,8 % were never married whilst only 28,6 % of women among those who had children were never married. The analysis is a suggestive that qualified childless women were more likely to be unmarried than qualified women with children.

Population group wise, differential of fertility status amongst qualified was insignificant. Within women who were childless, 50% were black African whilst 35% were white. The same pattern holds for qualified women with children, almost 2 in 3 black African women had children compared to 23% of white.

Type of qualification shows a little influence on fertility of both women. The proportion of women with diplomas and certificate was pronounced among all qualified women. However, there were variations with regard to women with higher degrees. In comparison, among women with bachelors degree, the proportion of childless women was slightly higher (36%) than of women with children (28,3%).

The results further show that all qualified women, irrespective of their fertility status, were more likely to be employed than being unemployed. The results provide evidence that the fertility status of qualified women is not explained by employment status. Across all occupations and within all qualified women the majority of women were technicians and professionals. Interestingly, the proportion of professional childless women (24%) was slightly higher than women with children (22%). There were, however no differences of any magnitude between women with and without children who were within elementary occupation and plant and machinery operators. A glance at fertility status and industry suggest that 1 in 2 women who had children worked in community, social and personal services relative to other industries. Similarly, the share of contribution of childless women was highest (42,5%) in the same industry. While the second largest proportion of women who had children (16%) was employed in transport, storage and communication industries, the second largest with 23% among childfree women worked in financial intermediation, insurance, real estate and business. The proportion of all qualified women was lowest in private household, agriculture and other.

About 45% of qualified childless women were in Gauteng, followed by Western Cape (17%). For women who had children, the majority of them were residing in Gauteng and Kwa- Zulu Natal with the proportions of 38% and 15% respectively. Free State had the lowest proportion of qualified women who had children and those who were childless with almost a percent in both categories.

**Table 5: Percentage distribution of women by socio economic characteristics**

Socio-economic variables		Children ever born	
		Yes	No
Age	20-24	56260 (6.0%)	133310 (31.6%)
	25-29	158489 (16.8%)	139678 (32.23%)
	30-34	191990 (20.4%)	67042 (15.9%)
	35-39	205461 (21.8%)	38496 (9.1%)
	40-44	186084 (19.7%)	24952 (5.9%)
	45-49	143914 (15.3%)	17846 (4.2%)
Marital status	Married	605941 (64.3%)	142409 (33.8%)
	Never Married	269310 (28.6%)	268829 (63.8%)
	Widower/widow	20733 (2.2%)	1696 (0.4%)
	Divorced	46215 (4.9%)	8391 (2.2%)
Population group	Black African	624182 (66.2%)	213208 (50.6%)
	Coloured	55775 (5.9%)	26465 (6.3%)
	Indian or Asian	45169 (4.8%)	31826 (7.6%)
	White	217073 (23.0%)	149825 (35.6%)
Type of education	Certificates and Diplomas	612563 (65.0%)	238215 (56.5%)
	Bachelors degrees	266265 (28.3%)	153110 (36.3%)
	Post higher degrees	63371 (6.7%)	29999 (7.1%)
Employment status	Employed	710106 (89.2%)	291853 (87.5%)
	Unemployed	85875 (10.8%)	41603 (12.5%)
Income	Yes income	725281 (77.0%)	300137 (71.2%)
	No income	216918 (23.0%)	121188 (28.8%)
Occupation	Professional	157486 (22.2%)	70392 (24.1%)
	Manager	64684 (9.1%)	34001 (11.7%)
	Technician	172846 (24.3%)	58128 (19.9%)
	Clerk	116879 (16.5%)	52122 (17.9%)
	Sales and services	67559 (9.5%)	29228 (10.0%)
	Skilled agriculture	2976 (0.4%)	1357 (0.5%)
	Craft and related trade	32447 (4.6%)	12597 (4.3%)
	Plant and machine operator	23815 (3.4%)	8423 (2.9%)
	Elementary	71343 (10.%)	25546 (8.8%)
Industry	Community, social and personal services	353682 (49.8%)	123968 (42.5%)
	Mining and quarrying	10220 (1.4%)	3820 (1.3%)
	Manufacturing	40966 (5.8%)	18828 (6.5%)
	Electricity, gas and water supply	6736 (0.9%)	2459 (0.8%)
	Construction	23221 (11.1%)	9356 (3.2%)
	Wholesale and retail trade	78984 (4.4%)	34765 (11.9%)
	Transport, storage and communication	31281 (16.8%)	14900 (5.1%)
	Financial intermediation, insurance, real estate and busines	119427 (1.8%)	67482 (23.1%)
	Agriculture, hunting, forestry and fishing	12687 (4.6%)	4818 (1.7%)
	Private households	32511 (4.6%)	11255 (3.9%)
	Other	320 (0.0%)	144 (0.0%)
Province	Western Cape	355765 (37.8%)	187964 (44.6%)
	Eastern Cape	103831 (11.0%)	70629 (16.8%)
	Northern Cape	89447 (9.5%)	29372 (7.0%)
	Free State	11483 (1.2%)	4294 (1.0%)
	KwaZulu-Natal	38840 (4.1%)	15817 (3.8%)
	North West	145414 (15.4%)	60177 (14.3%)
	Gauteng	44530 (4.7%)	14010 (3.3%)
	Mpumalanga	64184 (6.8%)	18336 (4.4%)
	Limpopo	88706 (9.4%)	20725 (4.9%)

## **5. Conclusion and discussions**

Despite variations in socioeconomic differentials, the results presented provide strong evidence that childless in South Africa, increased from 2001 to 2011. The results showed that trends of childlessness increased by age of a woman. The most important indicator of the increase in childlessness of women appears to be delaying first birth. The decrease in childlessness is congruent to the trends in fertility levels which have declined steadily from an average of 6 to 7 children per woman to 2.6 in 2011. The results of this study are consistent with some of the conclusions reached by other investigators that childless is influenced by socio economic dynamics (Boddington and Didham, 2009).

In South Africa, studies on fertility differentials have been carried since the late nineteenth century, mainly at the national level with the assumption that difference in socioeconomic status lead to a difference in fertility in all societies. Population differentials indicate that among all women, White and Indian/Asian women experience higher levels of childlessness across all ages, It is not surprising as the two populations had fertility rates of below replacement level of 1,7 children per women and 1.85 children per woman respectively. This pattern ties with the level of socio economic development amongst these populations. Direct relationship between lower socio-economic development, i.e. illiteracy, unemployment and lower education has been observed in the 1998 South Africa DHS and fertility. Large families have remained the norm in the poorer rural areas of South Africa (SADHS, 1998).

The results indicated that as the education of women increases childlessness also increases. The study further indicate that women with post higher degree and Bachelors degree are more likely to be childless than those with diplomas. South African Scholars (Moultrie & Timaeus, 2001) in the study of the determinants of fertility established that indeed educated women had the lowest number of children than those who are not educated. Generally, South Africa has, since 1994, become known internationally for relatively good performance in terms of common measures of gender equality (MDG'S, 2013). This is confirmed by the increasing trend of childless and decreasing fertility over time among qualified women. Education is regarded as the important determinant of fertility decisions (Birdsall, 1988; Ben-

Porath, 1974). The results from studies in Asia demonstrated that women's empowerment is associated with contraceptive use (Morgan and Niraula 1995; Woldemicael, 2009), lower fertility (Balk, 1994; Hindin, 2000), and longer birth intervals (Upadhyay and Hindin, 2005). Some researchers have suggested that women's empowerment is a key pathway through which education influences fertility (Jejeebhoy, 1995; Mason, 1987).

Overall, the level of childlessness is higher among the employed than unemployed. However the gap among the employed and unemployed begin to narrow from age 30-35 and above. The same pattern is evident among qualified women with income and without income. As age increases there is a slight difference among qualified childless women with income and with no income. Working women commonly postpone childbearing as a way to coordinate their work and their domestic work (Van Horn 1988). For women over thirty, work and family considerations compete for time and commitment. The majority of qualified women in their thirties maybe assumed to be in the labour force, thus their birth after thirty may reflect their ability or willingness to integrate childbearing into their work life. High income of working women also influences fertility of women. It is argued that higher earnings follow from high levels of human capital and high individual productivity. Thus, as employers make efforts to keep their most valuable employees, better educated and high income women suffer in terms of childbearing. Dex *et al.*, (1996) suggests that working women with high incomes have fewer disincentives for childbearing. Authors like Oppenheimer, (1988) noted that as women's income rise, the important ascribed characteristics such as family origin become less important than achieved characteristics such as income.

While the pattern of childlessness was similar for all women and qualified women, qualified never married women indicate higher levels of childless from women aged 30-35 and older. Numerous studies have shown that childlessness rates are higher among the unmarried women than among married women (Schoen *et al.*, 1997, 1999; Barber, 2001; Kemkes-Grottenthaler, 2003; Parr, 2005). On the other hand, the link between marriage and childbearing has weakened. Non-marital childbearing has risen drastically, both as a consequence of the greater number of years young adults spend unmarried, and of increased birth rates among unmarried women

(Smith *et al.*, 1996; Smock, 2000; US Census Bureau, 2004; Kiernan, 2004). In South Africa marriage rates are substantially lower among black African women than White women, but black African women are as likely as White women to be mothers. Although historically, non-marriage among black Africans seems to have been rare (Preston-Whyte, 1981), falling marriage rates have been documented since at least the 1960s (Hunter, 2010). Other studies suggest that changing attitudes to marriage, in the context of rising levels of education and increased employment opportunities for African women, contribute to low and falling marriage rates among Africans (Garenne *et al.*, 2001; Kalule-Sabiti *et al.*, 2007). One of the findings from this study is that educated women have high levels of childlessness than their counterpart. These observations suggest that, childlessness is more prevalent amongst single and highly educated women.

Fields of study lead to career trends that differ in their economic rewards, demands, and norms around the importance of work and family. The findings from the study indicate that the majority of qualified women who were childless were in the field of psychology, engineering and art or performance. It is found out that childlessness pattern by field of study has a lot in common with that found in other countries. This findings support the European studies (Lappegård, 2002; Lappegård and Rønsen, 2005) which revealed that fertility is highly structured by field of study. Women who are in the fields that are more male-dominated may consider their identity and self-fulfillment than being mothers.

Professional psychology in South Africa is following the trends of other countries and is steadily becoming a profession dominated by women. There has been suggestion explaining that both abroad and in South Africa, but there are no clear explanations. Among those general explanations are gender socialization and women numerical increase in the labour market. This increase of childlessness among this field could be due to increasing trends of enrollment in psychology at universities.

Results from the study indicated that childlessness was higher among women who are educated in the field of art and performance. These results concur with the studies conducted in Sweden and Australia. Swedish women educated in arts and humanities or for religious occupations have unusually high percentages of



childlessness. The pattern seems to be similar in Norway (Lappegård and Rønsen 2005). Surkyn *et al.*, (2008) in their study indicated that Australian women trained in social science, art, theology and humanities have very high percentage of childlessness.

With regards to education women trained in education appeared to have lower prevalence of childlessness than women trained in other fields. A young woman with strong family preferences may pursue education and even a career, but she is most likely to select herself into the kinds of studies and jobs that are most easily compatible with motherhood (Esping-Andersen *et al.*, 2007). Hoem *et al.*, (2006) find that in Sweden the field of education is more important than the educational level. Swedish women educated for jobs in teaching and health care have much lower permanent childlessness at each educational level than any other major educational grouping.

Childless was high amongst professionals and managers and low among qualified women with elementary occupation. It is argued that female dominated jobs offer better opportunities to combine work and family. Such areas therefore attract women who want to or who have children. There has been strong recent growth in women's representation in the labour force, including in professional occupations, and in their pursuit of higher education in South Africa. These changes have significant implications for family building experiences, including women's child bearing patterns.

## 6. Reference

- Abbasi-Shavazi, M. J., McDonald, P., & Hosseini Chavoshi, M. (2009). *The Fertility Transition in Iran: Revolution and reproduction*, Springer Dordrecht Heidelberg London New York.
- Abma, J. C., & Martinez, G. M. (2006). Childlessness among older women in the United States: Trends and profiles. *Journal of Marriage and Family*, 68(4), pp 1045-1056.
- Aiswarya, P.V., & Moli, G. K.. (2012). Childlessness among women in India. *Health and Population*, 35(3), pp 114-131.
- Andersson, G. (2000). The impact of labour-force participation on childbearing behaviour: pro-cyclical fertility in Sweden during the 1980s and the 1990s. *European Journal of Population/Revue européenne de démographie*, 16(4), pp 293-333.
- Australian Bureau of Statistics. (2006). *Pregnancy and Employment Transitions Datacubes*, Australia, November 2005, ABS Catalogue 4913.0, Tables 7, 10, 11 and 12, February 2009.
- Balk, D. (1994). Individual and community aspects of women's status and fertility in rural Bangladesh. *Population Studies*, 48(1), pp 21-45.
- Barber, J. S. (2001). Ideational influences on the transition to parenthood: Attitudes toward childbearing and competing alternatives. *Social Psychology Quarterly*, 64(2), pp 101-127.
- Becker, G. (1981). *A treatise on the family* Harvard University Press. Cambridge, MA.
- Ben-Porath, Y. (1974). Economic analysis of fertility in Israel. In *Economics of the Family: Marriage, Children, and Human Capital*. United States: National Bureau of Economic Research.
- Birdsall, N. (1988). Economic approaches to population growth. *Handbook of development economics*, Elsevier Science Publishers B.V.
- Bloom, D. and Trussell, J. (1984). What are the determinants of delayed childbearing and permanent childlessness in the United States? *Demography*, 21, pp 591-612.
- Boddington, B., & Didham, R. (2009). Increases in childlessness in New Zealand. *Journal of Population Research*, 26(2), pp 131-151.
- Callan, V. J. (1986). The impact of the first birth: Married and single women preferring childlessness, one child, or two children. *Journal of Marriage and the Family*, pp 261-269.

- Crimmins, E. M., Easterlin, R. A., & Saito, Y. (1991). Preference changes among American youth: Family, work, and goods aspirations, 1976-86. *The Population and Development Review*, pp 115-133.
- Cooney, T. M., & Uhlenberg, P. (1989). Family-building patterns of professional women: A comparison of lawyers, physicians, and postsecondary teachers. *Journal of Marriage and the Family*, pp 749-758.
- Dex, S., Joshi, H., Macran, S., & McCulloch, A. (1996). Women's employment transitions around childbearing. Working Paper No. 1408. London: Centre for Economic Policy Research.
- Dunson, D. B., Colombo, B., & Baird, D. D. 2002. "Changes with age in the level and duration of fertility in the menstrual cycle." *Human Reproduction*. 17, pp1399-1403.
- Dyson, T., & Moore, M. (1983). On kinship structure, female autonomy, and demographic behavior in India. *Population and development review*, 9(1), pp 35-60.
- El-Badry, M. A. (1961). Failure of enumerators to make entries of zero: errors in recording childless cases in population censuses. *Journal of the American Statistical Association*, 56(296), pp 909-924.
- Esping-Andersen, G. (Ed.) (2007). Family formation and family dilemmas in contemporary Europe. Madrid: Fundación BBVA.
- Fokkema, T., Valk, H. D., Beer, J. D. and Duin, C. V. (2008). The Netherlands: Childbearing within the context of a "Poldermodel" society. *Demographic Research*,19(21), pp 743–794.
- Friedman, D., Hechter, M., & Kanazawa, S. (1994). A theory of the value of children. *Demography*, 31(3), pp 375-401.
- Garenne, M., Tollman, S., Kahn, K., Collins, T., & Nqwenya, S. (2001). Understanding marital and premarital fertility in rural South Africa. *Journal of Southern African Studies*, 27(2), pp 277-290.
- Gillespie, R. (2003). Childfree and feminine: understanding the gender identity of voluntary childless women. *Gender and Society*. 17(1), pp 122-136.
- Graham, M., Hill, E., Shelly, J. & Taket, A. (2013). Why are childless women childless? Findings from an exploratory study in Victoria, Australia. *Journal of Social Inclusion*, 4(1), pp 70–89.
- Hagestad, G.O., & Call, V.R. A. (2007). Pathways to Childlessness A Life Course Perspective. *Journal of Family Issues*, 28, pp 1338-1361.
- Haskey J.C. (2013). Childlessness, cohabitation and partnership history in Great Britain. Department of Social Policy and Intervention, University of Oxford, UK.

- Hindin, M. J. (2000). Women's autonomy, women's status and fertility-related behaviour in Zimbabwe. *Population Research and Policy Review*, 19(3), pp 255-282.
- Hoem, J., Neyer, G., & Andersson, G. (2006). Education and childlessness. The relationship between educational field, educational level, and childlessness among Swedish women born in 1955-59. *Demographic Research*, 14(15), pp 331-380.  
Available:<http://www.demographicresearch.org/Volumes/Vol14/15/14-15.pdf> .
- Hunter, M. (2010). Love in the time of AIDS. Pietermaritzburg, University of KwaZulu-Natal Press.
- Jacobson, C. K., Heaton, T. B., & Taylor, K. M. (1988). Childlessness among American women. *Social Biology*, 35(4), pp 186-197.
- Jejeebhoy, S. J. (1995). Women's education, autonomy, and reproductive behaviour: Experience from developing countries. Oxford, England: Clarendon Press.
- Kalule-Sabiti, I., Palamuleni, M., Makiwane., M. & Amoateng, A.Y. (2007). Family formation and dissolution patterns, in A.Y. Amoateng and T.B. Heaton (eds), Families and households in post-apartheid South Africa: socio-demographic perspectives. Cape Town: HSRC Press.
- Kiernan, K. (2004). Changing European families: trends and issues. *The Blackwell companion to the sociology of families*. Blackwell Publishing, Oxford, pp17-33.
- Kenkel, W. F. (1985). The desire for voluntary childlessness among low-income youth. *Journal of Marriage and the Family*, pp 509-512.
- Kemkes-Grottenthaler, A. (2003). Postponing or rejecting parenthood? Results of a survey among female academic professionals. *Journal of biosocial science*, 35(02), pp 213-226.
- Köppen, K., Mazuy, M. and Toulemon, L. (2007). Kinderlosigkeit in Frankreich. In D. Konietzka and M. Kreyenfeld (Eds.), Ein Leben ohne Kinder. Kinderlosigkeit in Deutschland. Wiesbaden: VS. pp 83-105.
- Lappegård, T. (2002). Education attainment and fertility pattern among Norwegian women. Statistisk Sentralbyrå.
- Lappegård, T., & Rønsen, M. (2005). The multifaceted impact of education on entry into motherhood. *European Journal of Population/Revue européenne de Démographie*, 21(1), pp 31-49.
- Leridon, H. (2004). Can assisted reproduction technology compensate for the natural decline in fertility with age? A model assessment. *Human Reproduction*, 19(7), pp 1548-1553.

- Lesthaeghe, R. (1971). Nuptiality and population growth. *Population Studies*, 25(3), pp 415-432.
- Liefbroer, A. C. (2005). The impact of perceived costs and rewards of childbearing on entry into parenthood: Evidence from a panel study. *European Journal of Population/Revue Européenne de Démographie*, 21(4), pp 367-391.
- Lind, I. (2008). Balancing Career and Family in Higher Education—New Trends and Results. In *Gender equality programmes in higher education*. VS Verlag für Sozialwissenschaften. pp 193-208.
- Makiwane, M.B. (1998). Adolescent pregnancy and reproductive health in Transkei (rural South Africa). *African Journal of Reproductive Health*, 2(1), pp 41-48.
- Martín-García, T., & Baizán, P. (2006). The impact of the type of education and of educational enrolment on first births. *European Sociological Review*, 22(3), pp 259-275.
- Mason, K. O. (1987). The impact of women's social position on fertility in developing countries. In *Sociological forum*, 2(4), pp 718-745.
- Merlo, R. Rowland, D. (2000). The Prevalence of Childlessness in Australia, People and Place, 8(2), pp 21- 32.
- Millennium Development Goals (MDG's). (2013). Promote gender equality and empower women. Pretoria: Statistics South Africa.
- Morgan, S. P. (1991). Late nineteenth-and early twentieth-century childlessness. *American Journal of Sociology*, pp 779-807.
- Morgan, S. P., & Niraula, B. B. (1995). Gender inequality and fertility in two Nepali villages. *Population and Development Review*, 21(3), pp 541-561.
- Moultrie, T., A & Timaeus, I. M. (2001). Fertility and living arrangements in South Africa. *Journal of southern African studies*, 27 (2), pp. 207-223.
- Oppenheimer, V. K. (1988). A theory of marriage timing. *American Journal of Sociology*, pp 563-591.
- Parr, N. J. (2005). Family background, schooling and childlessness in Australia. *Journal of biosocial science*, 37(02), pp 229-243.
- Preston-Whyte, E. (1981) "Women migrants and marriage", in E.J. Krige and J.L. Comaroff (eds), *Essays on African marriage in Southern Africa*. Cape Town, Juta and Company Limited.
- Ranson, G. (1998). Education, work and family decision making: Finding the "right time" to have a baby. *Canadian Review of Sociology and Anthropology*, 35, pp 517-534.

- Ritchey, P. N., & Stokes, C. S. (1974). Correlates of childlessness and expectations to remain childless: US 1967. *Social Forces*, 52(3), pp 349-356.
- Rønseth, M. (2004). Fertility and public policies-evidence from Norway and Finland. *Demographic Research*, 10(6), pp 143-170.
- Schoen, R., Kim, Y. J., Nathanson, C. A., Fields, J., & Astone, N. M. (1997). Why do Americans want children?. *Population and development review*, 23(2), pp 333-358.
- Schoen, R., Astone, N. M., Kim, Y. J., Nathanson, C. A., & Fields, J. M. (1999). Do fertility intentions affect fertility behavior?. *Journal of Marriage and the Family*, 61(3), pp 790-799.
- Statistics South Africa. (2010). Estimation Of Fertility From The 2007 Community Survey Of South Africa, Report no.03-00-04. Pretoria: South Africa.
- Surkyn, J., Deboosere, P., Van Bavel, J., & Lesthaeghe, R. J. (2008). Demographic challenges for the 21st century: a state of the art in demography : *conference organized as a tribute to the continuing endeavours of Prof. Dr. Em. Ron Lesthaeghe in the field of demography*. Brussels, VUB Press.
- Smith, H. L., Morgan, S. P. & Koropecj-Cox, T. (1996). A decomposition of trends in the nonmarital fertility ratios of blacks and whites in the United States, 1960–1992. *Demography*, 33(2), pp 141–151.
- Smock, P. J. (2000). Cohabitation in the United States: An appraisal of research themes, findings, and implications. *Annual Review of Sociology*, 26(1), pp 1–20.
- South African Demographic Health Survey (SADHS) Project Team. (1999). South Africa in transition: selected findings from the South African Demographic Health Survey, 1998. Pretoria: Government Printers.
- Udjo, E.O. (2014). Estimating demographic parameters from the 2011 South Africa population census. *African Population Studies*, 28 (1), pp 564-578.
- United Nations Educational Scientific and Cultural Organization (UNESCO). (1993). Women in higher education management. The International Development Research Centre.
- United Nations, Department of Economic and Social Affairs, Population Division. (2013). World Fertility Report 2012. United Nations publication.
- Upadhyav. U. D., & Hindin. M. J. (2005). Do higher status and more autonomous women have longer birth intervals?: Results from Cebu, Philippines. *Social science & medicine*, 60(11), pp 2641-2655.

- United Nations. (1983). 'Manual X: indirect techniques for demographic estimation', *Department of International Economic and Social Affairs* (New York: United Nations).
- United States Census Bureau. (2004). Fertility of American women. *Current Population Survey Reports*.
- Van de Walle, E. (1968). Marriage in African censuses and inquiries. In *Demography of Tropical Africa*. Princeton: Princeton University Press.
- Van Horn, S.H. (1988). *Women, Work, and Fertility, 1900-1986*. New York: NYU Press.
- Veevers, J. E. (1980). *Childless by choice*. Toronto: Butterworths.
- Woldemicael, G. (2009). Women's autonomy and reproductive preferences in Eritrea. *Journal of Biosocial Science*, 41(02), pp 161-181.
- World fertility report. (2009). UN population division and OECD family database, 2011, Paris. Accessed on <http://www.un.org/esa/population/publications/WFR2009Web/Main.html>