European University Institute (EUI, Florence)

Gulf Research Center Foundation (GRCF, Geneva)

Social and Economic Survey Research Institute (SESRI) – Qatar University

Fertility of Nationals in Qatar - Its Levels, Trends and Differentials in the Early 21st Century

A Study Based on Qatar's Population Censuses of 2004 and 2010

Philippe Fargues with the collaboration of

Noof Abdulhadi Al-Rakeb

This publication was made possible by the NPRP award [NPRP 9-190-5-022] from the Qatar National Research Fund (a member of The Qatar Foundation). The statements made herein are solely the responsibility of the authors.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. Introduction: contextualising the study of fertility in Qatar

Fertility is the most private phenomenon, confined to the couple's intimacy, and at the same time a crucial stake for the nation and a matter for public policies. How many children a woman will procreate depends on a complex web of individual and family characteristics explaining her and her husband's choices but also on the social context and the society's values and tradition. On the other side, the aggregate of individual behaviours at the nation's level determines the reproduction of its citizenry, thereby impacting its future in many ways.

Fertility is the positive component of natural demographic growth (mortality is the negative component), which combines with net migration to determine the overall population reproduction.[1] In the case of GCC States and particularly Qatar –where for decades not only net migration has been greater than natural increase but also it has brought foreign nationals with no prospect of becoming citizens[2]– the fertility of nationals is regarded a national cause. Monitoring its level and trends and understanding how and why different sub-groups behave differently are key challenges for defining and continuously adjusting policies. They are also important elements to carry out informed population projections.

Fertility has dramatically changed over the last two decades in GCC countries. Any change in fertility rates is a reflection of important changes taking place in a particular society. Presently, Gulf women are having fewer children than they did a generation ago (Table 1). This is generally attributed to rapid social change, from increasing levels of female education making women aspire to roles other than those of wife and mother, to rising economic participation of women bringing them to the public space and making work competing with raising numerous children. Changing marriage and divorce patterns are also regarded as important factors affecting fertility. Women in the GCC countries are not only delaying marriage, many of them remain permanently single, by choice or by necessity. Additionally, because of high divorce rates, especially at a young age, many women remain unexposed to childbearing during part of their reproductive years. Recent statistics showed that the divorce rate decreased from 19 divorce cases per 1,000 married in 2008 to 16 cases in 2015[3].

[1] Overall population growth = births – deaths + entries - exits

[2] Naturalisation of foreigners is exceptional and jus soli (by which sons and daughters of migrants born in a country are automatically granted citizenship of this country) does not exist in GCC states.

[3] Ministry of Development Planning & Statistics (2018). Qatar National Development Strategy 2018 – 2022

Table 1: Total Fertility Rates of GCC National Populations (Children per woman) - Various Estimates 1965-2016[4]

Bahrain		Kuwait		Oman		Qatar		Saudi Arabia		UAE	
		1965	**7.5**								
		1970	**7.3**								
		1975	**7.2**								
		1980	**6.6**								
		1985	**6.5**			**1985**	**5.26**				
						1990	**5.21**				
		1995	**5.3**			**1995**	**4.98**				
1999	**3.35**										
2000	**3.24**	**2000**	**4.3**			**2000**	**4.42**	2000		2000	
2001	**3.00**	2001				2001		2001		2001	
2002	**2.44**	2002				2002		2002		2002	
2003	**2.58**	2003		**2003**	**3.40**	2003		2003		2003	
2004	**2.68**	2004		2004		2004	**4.20**	2004		2004	
2005	**2.74**	**2005**	**4.1**	2005		**2005**	**4.23**	2005		2005	
2006	**2.69**	**2006**	**4.0**	**2006**	**3.13**	**2006**	**4.29**	2006		2006	
2007	**2.71**	2007		**2007**	**3.3**	**2007**	**4.56**	2007		2007	
2008	**2.77**	2008		**2008**	**3.19**	**2008**	**3.90**	2008		2008	
2009	**2.80**	2009		2009		2009	**3.80**	2009		2009	
2010		2010		**2010**	**3.75**	**2010**	**3.59**	2010		2010	
2011		**2011**	**3.7**	2011		**2011**	**3.38**	2011		2011	
2012		**2012**	**3.6**	2012		**2012**	**3.00**	2012		2012	
2013		**2013**	**3.6**	**2013**	**3.71**	**2013**	**3.20**	2013		2013	
2014		**2014**	**3.5**	**2014**	**3.93**	**2014**	**3.20**	2014		**2014**	**3.40**
2015		2015		**2015**	**3.14**	2015		2015		2015	
2016		2016		2016		2016		**2016**	**2.71**	2016	

Sources:
Bahrain: CIO http://www.cio.gov.bh/cio_ara/English/Publications/Statistical%20Abstract/ABS2009/Ch3/3.pd
Kuwait: 1965-1985 CSO ; 1995-2014 DV&HS

Oman: NCSI https://www.ncsi.gov.om/Elibrary/LibraryContentDoc/bar_Omani%20fertility_27c1b5f2-c3f1-4d62-ad55-e657ae18b98d.pdf

Qatar: QSA http://www.mdps.gov.qa/en/statistics1/StatisticsSite/Pages/default.aspx ; for 2009: Qatar General Secretariat for Development Planning (2009). Promoting QNV 2030's vision of a good society Towards a social policy for Qatar; for 2012: Ministry of Development Planning & Statistics (2015). Sustainable Development Indicators in the State of Qatar

Saudi Arabia: GAS, https://www.stats.gov.sa/en/854-0

UAE: Dubai only, Dubai Statistics Center - Vital Statistics System for the Emirate of Dubai

However, although they are showing a declining trend, fertility rates among Gulf nationals are still high compared with those of any other population at the same level of economic development measured in income per capita (Table 2). The TFR of Qatari women in 2014 (3.2) is high by global standards (TFR is 1.7 in developed countries, 2.6 in the least developed countries and 2.5 globally)[5]. This can be attributed to a combination of factors that make a high level of fertility desirable (tribal, patriarchal or traditional values) and at the same time affordable (subsidised economy of the family, from marriage to the procreation and education of children; help received from migrant domestic workers). The relationship between high income and high fertility in some GCC countries is indeed partly explained by: pro-birth values of the local culture; the welfare state's support to families that alleviates the financial costs of children; and the presence of migrant domestic workers in the household that alleviates opportunity costs for the woman.

[4] Table 1 was computed on the basis of available data before the findings of the present study were produced.

[5] Ministry of Development Planning & Statistics (2015). Sustainable Development Indicators in the State of Qatar

Table 2: World Trends in Total Fertility

Region / Period	1970-1975	1990-1995	2005-2010	2010-2015
World	4,4	3,0	2,5	2,5
Africa	6,7	5,7	4,9	4,7
Sub-Saharan Africa	6,8	6,2	5,4	5,1
Northern Africa	6,4	4,1	3,1	3,0
ASIA	5,0	3,0	2,3	2,2
Western Asia	5,7	4,0	2,9	2,7
Europe	2,2	1,6	1,5	1,6
Latin America & Caribbeans	5,0	3,0	2,3	2,2
Northern America	2,0	2,0	2,0	1,9
Oceania	3,2	2,5	2,5	2,4

Source: UNDESA

Policies directly aimed at reducing the cost of building and maintaining a family (marriage and family allowances, and a variety of subsidised services offered to children, in particular education and health) are nevertheless offset by other policies that promote the education of girls and employment of women, and by changing marriage patterns. Moreover, large-scale immigration of female foreign workers may produce conflicting impacts on the economic participation of national women and indirectly on their fertility. On the one hand, the presence of migrant domestic workers in the household frees women from housekeeping duties (a fact which could favour their employment outside the household); on the other hand, the availability of migrant workers makes it unnecessary for national women to leave the household to join the labour market as typically female occupations, such as school teacher or care worker, can be filled by foreign women.

II. Part I - Methodology

Objective of the study

The objective of the study is to measure fertility levels of the national population of Qatar: its current overall level; its recent trends (by comparing fertility levels at several points in time); and its differentials (by comparing fertility levels of various sub-groups of population).

The basic indicator is the age specific fertility rate (hereafter ASFR) of Qatari women at time (t) and age (a), in various sub-groups of the population defined by characteristics (i) of the woman. ASFRs are denoted as:

$$f(t,a,i)$$

The synthetic indicator used to compare fertility levels at several points in time and in several sub-groups of population is the total fertility rate (hereafter TFR), which is computed as:

$$TFR(t,i) = \sum_{a=15}^{49} f(t,a,i)$$

An indicator of the age distribution of ASFRs is M, the mean age at childbearing. If a age is the age in single year at the last birthday and women aged a have an exact age of a+0.5 on average, M is computed as:

$$M(t,i) = \sum_{a=15}^{49} a\, f(t,a,i) \Big/ \sum_{a=15}^{49} f(t,a,i) + 0.5$$

Data provided by five-year age groups (a;a+5) are the second best option. In this case, TFR is computed as:

$$TFR(t,i) = 5 \sum_{a=15}^{45} f(t,a;a+5,i)$$

The conventional method for calculating ASFR requires two administrative sources of data: vital records providing numbers of live births B(t,a,i) and population registers or population censuses providing the distribution of women by age and selected characteristics W(t,a,i). ASFRs are then computed as:

$$f(t, a,i) = B(t,a,i) / W(t,a,i)$$

In the case of Qatar numerators B(t,a,i) are not fully available and denominators W(t,a,i) are provided only at the time of the 2004 and 2010 censuses, so that the above method is not applicable.[6] The "own children method" (hereafter OCM) based only on census data offers a valuable substitute.[7]

[6] The traditional method has several weaknesses, in particular the following: numbers of women by age are available only for census years so that for all intermediate years intra- or extrapolation is necessary; births can be misreported or under-reported; only few characteristics of the women are routinely available in vital records; categories used for the vital records may not correspond to those of the census, thus making it impossible to appraise fertility differentials.

[7] The method was invented by Lee-Jay Cho, "The own-children approach to fertility estimation: an elaboration", International Population Conference - Liège 1973, International Union for the Scientific Study of Population, Liège, 1973, vol. 2, pp. 263-280. A further version can be found in United Nations (1983), Manual X: Indirect techniques for demographic estimation (United Nations publication, Sales No. E.83.XIII.2, pp. 182-195, and an evaluation in Thomas Spoorenberg 2014, "Reverse survival method of fertility estimation: An evaluation" Demographic Research, Vol. 31, Art. 9, pp. 217-246.

Simplified presentation of the own-children method

This method is based on a single source of data –a population census—and the only information it requires is the distribution of household members by age, sex and relationship to the head of household, which is commonly collected in most population censuses (though seldom fully processed). It must be noted that the method does not require a special question on births during the last 12 months (or last 5 years) in the household.

As a general rule, the household is the basic statistical unit in any population census. The same micro record comprises all the household's members. Therefore, in societies where women normally live with their surviving children until the children gain autonomy, a woman and her own children at young ages (say, under 10 to be on the safe side) are found in one single household record. In other words, ASFR's denominator and numerator can both be drawn from the population census. The calculation is conducted as follows.

At the time of the census (time t), women aged a are denoted as W(t,a) and their children aged x living with them are denoted as C(t,x,a).

C(t,x,a) are the survivors of all the children born in year t-x from mothers aged a-x. If Lx is the probability of surviving from birth to age x, the total number of live births among women aged a-x in year t-x was:

$$C(t,x,a)/Lx$$

In year t-x, the age specific fertility rate of women aged a-x can therefore be estimated as:

$$f(t\text{-}x,a\text{-}x) = [C(t,x,a)/Lx]/\ W(t,a)$$

The above calculation can be made for any sub-group i of women and their own children. Assuming that the survival probability Lx applies to all groups (no differential mortality), ASFRs become:

$$f(t\text{-}x,a\text{-}x,i) = [C(t,x,a,i)/Lx]/\ W(t,a,i)$$

Sub-groups of population can be defined by any characteristics recorded in the population census, such as:

- Individual characteristics of the women (e.g. level of education, occupation, etc.);
- Individual characteristics of other members of the household (e.g. the husband's level of education, his occupation, etc.);
- Collective characteristics of the household (e.g. socio-economic status, place of residence, number of domestic workers living within the household, etc.);
- Collective characteristics of the community (place of residence and its characteristics).

The method has the three following limitations, all of them relatively unimportant in the specific case of Qatar.

- Limitation 1: the own children method necessitates the availability of life tables applicable to the population under study at different points in time. In the case of Qatari nationals, current mortality levels are very low (infant mortality rate was 7 per 1,000 in 2010), so that possible errors in the probability of surviving have a negligible impact on the resulting estimates of age specific fertility rates. Instead of choosing a standard life table with life expectancy at birth corresponding to the average level estimated for Qatar in the period 2000-2010 it was decided to neglect this correction which in any case would be negligible.[8]
- Limitation 2: the above-described calculation is made on women who are themselves surviving at the time of the census. Women who were aged a-x in time t-x and died before time t are not taken into account. We assume that these women are in negligible numbers (Qatar is a country

[8] No correction for mortality has been made in the present note.

enjoying extremely low mortality rates at fertility ages: around 1 per 1,000 in 2010) and that their fertility was not different from that of surviving women. The same remark applies to Qatari women who emigrated from Qatar in the period between t-x and t. The latter number is also expected to be very small.

- Limitation 3: The central requirement of the method is that a mother and her children be members of the same household. In reality, not all children aged x are living with their mother. Some of them live in different households (e.g. in their father's or other relative's household in case their parents have divorced; in a boarding school abroad; etc.). We assume that these children are in negligible numbers under the age of 10. This probably applies to the vast majority of nationals in Qatar, but certainly not to foreign nationals (e.g. female domestic workers whose children are left behind in the country of origin). For this reason, the method cannot be used to compare the two populations of nationals and foreign nationals, but such a comparison is not the objective of the Project.

Data necessary to apply the own children method

The guidelines below describe in practical terms the production of the necessary data to apply the own children method.

Two tables are produced for the population of Qatari households

- Table 3 provides the distribution of children by age of the child (x) and age of the mother (a) at the time of the census (2010): C(x,a). When processing the census data, the important point is making sure that any child is actually related to his/her mother.
- Table 4 provides the distribution of women of all marital statuses by age at the census (W(a). While only ever-married women are susceptible to have children, all Qatari women (including never-married) must be included in table for the calculation of age specific fertility rates.

Table 3: Template for the distribution of children in the household by year of age and age of the mother (in year)

Age of the mother (a)	Age of the child (x)										
	0	1	2	3	4	5	6	7	8	9	10
15											
16											
…											
31								C(7,31)			
…											
59											
60											
Total number of children											

Table 4: Template for distribution of women, with or without children, by marital status

Age of women (a)	Never married	Married	Divorced	Widowed	Total
15					
16					
…					
31					W(31)
…					
59					
60					
Total number of women					

The example in Figure 1 highlights the calculation of f(2003,24), which is the ASFR of women aged 24 in 2003, who were aged 31 at the time of the census in 2010:

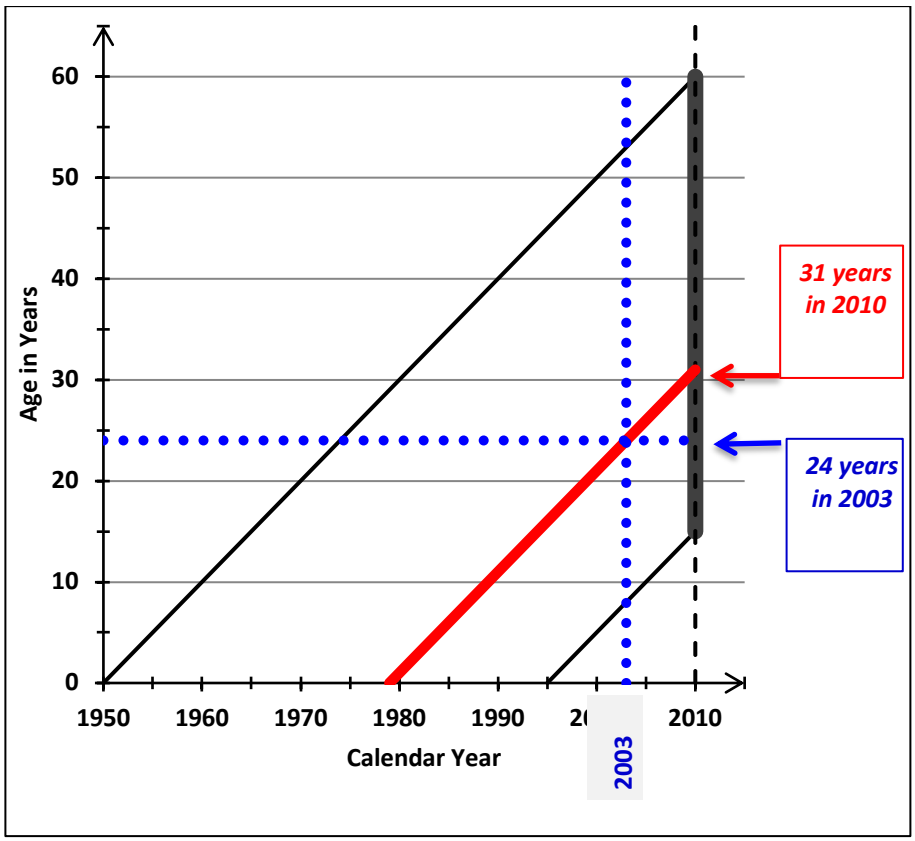
$$f(24;2003) = [C(4,31)/L7] / W(31)$$

In which L7 will be neglected, i.e. considered to equal 1.

The same method is used to estimate fertility levels and trends of several subpopulations of Qatari nationals, defined by characteristics that can be assumed to be independent variables explaining fertility. In the present note, the following characteristics are used:

- Women's level of education
- Women's economic participation
- Number of migrant domestic workers in the household.
- Head of household's education
- Head of household's occupation

Figure 1: Lexis diagram situating a child born in 2003 from a woman aged 31 at the time of the census (2010)



Specific issues to apply the own children method to Qatar census data

Applying the OCM to Qatar censuses of 2004 and 2010, one has to deal with two particular issues: the lack of information making it possible to link a child to his/her mother, the small size of the national population of Qatar.

a) First, linking a child to his/her mother is not straightforward. In most censuses, individuals are identified with reference to only one person, which is the head of household (hereafter HH). In the most common households -- those comprised of one nuclear family including a male HH, his wife and their children -- a child of the HH is also a child of his only wife. However, this does not apply to two particular kinds of households: those with no wife of the HH (unmarried, divorced or widowed HH), and those with more than one wife of the HH (polygamous HH).

To circumvent the lack of variable directly relating a child to the mother, it was decided to compute ASFR in the sub-population for which a child and the mother can reasonably be linked, in other words to eliminate the sub-population of households with more than one wife of the HH for which a child cannot be ascribed with certainty to the mother. At the numerator of ASFR, children distributed by year of age of the child and year of age of the mother (Table I above) are obtained in the sub-population of households with one and only one wife of the HH. Accordingly, denominators were obtained in the sub-population of HH with 0 or 1 wife of the HH, since ASFR are computed for all women, whether they are married or not (never married, divorced or widowed).

The above-described method may lead to the following biases at the numerator (children) and the denominator (women) of ASFR:

- Too many children are counted: in households with 1 wife of the HH. It may be that a child aged 0 to 10 is not a child of the HH's wife, but a child of the HH born from a former marriage or a

child of another member of the household (e.g. a child of a HH's son or daughter leaving with their father…).

- Too few children are counted: a wife of the HH may have children aged 1 to 10 living in another household which is not included in the sub-population of households with 1 wife.
- Too many women are counted: women in households with 0 or 1 wife (counted in Table II) may include mothers of children living in households with more than one wife (not counted in Table I), for example if a divorced woman returns to the household of a polygamous father.
- Too few women are counted: mothers who are living in households with more than 1 wife of the HH and separated from a child living in HH with 0 or 1 wife of the HH (e.g. remarried women whose children from a former marriage do not live with them).

The above-listed biases, which play in both directions, cannot be measured. Their overall result can either be overestimation or under-estimation of ASFRs, but a small error in all likelihood. One can assume that each bias is small and their combination results in a negligible bias. One can also use external information such as ASFR computed for all Qatari women using vital records to calculate a multiplier that will be applied to ASFR by category of women computed through the OCM.

It must be stressed, however, that ASFRs combining vital records (numerators) with census data and pre- or post-census estimates (denominators) must be critically assessed before using such ASFRs to compute correcting factors. Such rates might indeed be overestimated or, much more unlikely, underestimated.

- Overestimation would happen in two cases: 1) births of non-resident Qataris are reported to vital records in Qatar and therefore included in the statistics of Qatari births; 2) Qatari births registered by vital records include births from Qatari fathers but non-Qatari mothers. Both 1) and 2) are likely hypotheses. Indeed, Table 5 shows that births provided by vital records in year 2010-x are systematically in greater numbers than children aged x at the 2010 census.
- Under-estimation would happen should numerators be too small (not all births are recorded) and/or denominators too big (women are over-enumerated at the census). Both are unlikely scenarios. Indeed, on one side all Qatari women deliver in hospitals or under medical surveillance so that under-reporting of births is unlikely. And on the other side, age misreporting that could affect the age distribution of women at the census must play in both directions.

Table 5: Qatari births provided by vital records and Qatari children recorded at the 2010 census

Year	Vital records		Census of 2010		
			Age	All Qatari children	Census – Vital rec.
2010	6455		0	5907	-548
2009	6255		1	5602	-653
2008	n.a.		2	5618	n.a.
2007	6270		3	5783	-487
2006	5821		4	5742	-79
2005	5676		5	5619	-57
2004	5903		6	5675	-228
2003	5603		7	5547	-56
2002	5413		8	5414	1
2001	5364		9	5320	-44
2000	5298		10	5312	14

b) Second, the national population of Qatar is small. Numbers obtained by distributing children by year of age of the child, year of age of the wife of the HH and other characteristics of the women or the

households, can be very small and therefore subject to random variations. In order to eliminate random variations, moving averages of ASFR have been calculated. Each rate was calculated using three-year moving averages for both civil year t and age a of the woman as follows:

$$ASFR\ (t,a,i) = average\ f(t-1,t,t+1;\ a-1,a,a+1;i)$$

An example is provided in Appendix A.

III. Part II - Findings

The OCM has been applied to each of the 2004 and 2010 population censuses and to 17 groups of population defined as follows:

- Group 1: all Qatari women
- Groups 2-5: women by level of education: primary or less, preparatory or vocational; secondary; tertiary.
- Groups 6-7: women by economic participation: active; inactive.
- Groups 8-10: women by number of migrant domestic workers (hereafter MDW) living in the household: 0 MDW; 1 MDW; 2 or more MDW.
- Groups 11-14: women by level of education of the HH: primary or less, preparatory or vocational; secondary; tertiary.
- Groups 15-17: women by economic status of the HH (a variable combining occupation and activity): 3 groups (occupation 1 or 2, occupation 3-9, inactive).

For each of the above 17 groups, the basic output is a table providing ASFR by year preceding the census (9 years from 2001 till 2009) and year of age of the women (from 16 to 48 years).[9] Given the extremely large number of ASFRs produced by the OCM applied to Qatari women (17 groups x 9 calendar years x 33 years of age = 5,049 ASFRs for each of the 2004 and 2010 censuses), detailed findings are only provided in Appendix B. In the core of the paper, we will instead use graphs and synthetic tables to highlight the most relevant findings of the study.

a) Overall fertility levels and trends

As a first general statement we must acknowledge the high quality of indicators produced by the OCM applied to Qatar censuses. Internal consistency is amply demonstrated by the almost perfect regularity of ASFRs by year of age for each calendar year and sub-group of women. External consistency (e.g. with vital records) is more difficult to assess for lack of detailed data from other sources. However, because some inconsistencies were detected in data by characteristics of the woman or the household in the census of 2004, data from the two censuses of 2004 and 2010 are only used in the first section on “all Qatari women”, but subsequent sections on fertility differentials are limited to an analysis of data from the 2010 census.

The fertility of Qatari women has dramatically declined in the 15 years preceding the 2010 population census: TFRs dropped from close to 5 children per woman in 1994 to below 3 in 2010 (Table 5 and Figure 2). By all standards, this is a fast decline. TFRs, however, may have stabilised in the last three years of the period, but this would have to be confirmed by further data once a new population census allow the OCM to be conducted.[10]

[9] The smoothing technique (moving averages) makes it impossible to obtain ASFR at 15 and 49 years of age as well as for the years 2000 and 2010.

[10] The population census of 2015 was actually a sample survey, which consequently cannot be used for the OCM.

Table 6: Total fertility rates of all Qatari women 1994-2010 - Own children method applied to 2004 and 2010 censuses - Unsmoothed rates

Figure 2: Total fertility rates of all Qatari women 1994-2010 - Own children method applied to 2004 and 2010 censuses - Unsmoothed rates

Year	Census 2004	Census 2010
1994	4.94	
1995	4.55	
1996	4.69	
1997	4.59	
1998	4.04	
1999	3.88	
2000	3.76	3.57
2001	3.70	3.51
2002	3.49	3.45
2003	3.60	3.43
2004	3.63	3.47
2005		3.31
2006		3.24
2007		3.17
2008		2.95
2009		2.83
2010		2.92

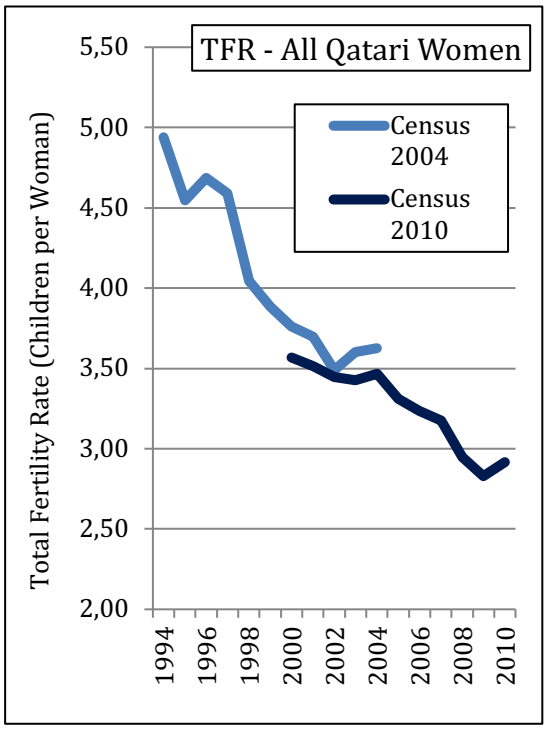


Table 7: Qatari women's mean Age at childbearing 2001-2009

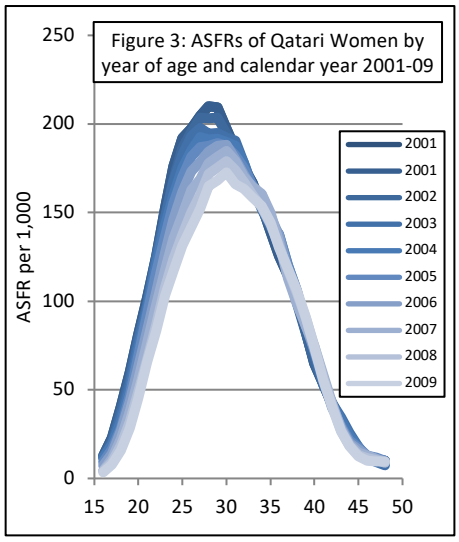
Age	Mean Age at Childbearing (years)
2001	30,3
2002	30,4
2003	30,5
2004	30,6
2005	30,7
2006	30,9
2007	31,1
2008	31,3
2009	31,5

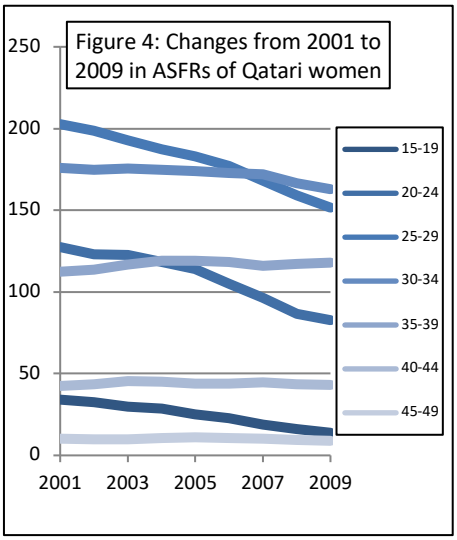
The pronounced decline of fertility has been accompanied by a regular elevation of the women's mean age at childbearing, from 30.3 years in 2001 to 31.5 years in 2009 (Table7). Actually, it is the whole age distribution of fertility that has shifted during this period. Figure 3 providing the age distribution of fertility by age of the woman for each calendar year from 2001 to 2009, and Figure 4 illustrating changes between 2001 and 2009 in each ASFR (by five-year age groups), show that the decline in fertility has

entirely taken place below 35 years of age, while late fertility (after 35 years) has remained unchanged. Recent report shows that the fertility rate of adolescent (age group from 15 to 19 years old) decreased between 2000 and 2012 from 20 to 13 births per 1,000 women.[11] These findings suggest that the decline in fertility observed in the first decade of the 2000s could be related to an elevation in women's age at first marriage in young generations or alternatively to a practice of delaying the first birth once married.[12] The average age at first marriage for women increased between 1986 and 2004 from 19 to 25 years, and for men from 25 to 29 years. This might be due to a widening gap in university education between females and males, which leads to more difficulties in marriage matching.[13] According to MDPS' Human Development Report (2015), the increase in educational gap between Qatari men and women is considered as an important factor in increasing the proportion of women remaining permanently unmarried. In addition to that, Qatari men are more likely to marry non-Qatari women than Qatari women to marry non-Qatari men.[14] Moreover, the engagement of Qatari women in the labour market results in postponing first marriage and reducing the desired number of children.[15]

Figure 3: ASFRs of Qatari Women by year of age and calendar year 2001 - 09

Figure 4: Changes from 2001 to 2009 in ASFRs of Qatari women





[11] Ministry of Development Planning & Statistics (2015). Qatar Fourth National Human Development Report.

[12] These hypotheses must be confirmed by longitudinal data including age at first marriage and at first birth.

[13] Qatar General Secretariat for Development Planning (2009). Promoting QNV 2030's vision of a good society Towards a social policy for Qatar.

[14] Ministry of Development Planning & Statistics (2015). Qatar Fourth National Human Development Report.

[15] Ministry of Development Planning & Statistics (2015). Sustainable Development Indicators in the State of Qatar.

b) Fertility differentials according to women's level of education

The spread of school education among women is usually regarded as the number one determinant of transition from high to low levels of fertility.[16] Indeed, education develops women's aspiration to be not only wives and mothers but also active participants in economic and other activities outside the household and such activities are competing for time with bearing and rearing numerous children. Moreover, education develops the couple's ambition for their children, generating a quantity-for-quality trade-off in fertility choice, which is a desire of having fewer but better educated children.[17] This is at play in Qatar as well as in most populations where rising education and decreasing fertility have developed in parallel. But the concomitance in trends does not automatically mean that, at any moment in time, the women's fertility is negatively correlated with their level of education.

On the contrary, one of the most striking findings in Qatar is a complete absence of differentials in TFRs between secondary and tertiary educated women, and a significantly lower fertility among women with preparatory and vocational education who spent fewer years at school (Table 8 and Figure 5). Would this mean that education boosts fertility? Would it rather mean that the quantity of education received by a woman is an indicator of her social status and in Qatar a high social status goes with a relatively large family? In other terms, would low fertility in Qatar be typical of a lower social status including a lower education of the woman? Having 3-4 children over a lifetime (instead of 5-6 just 15 years ago) would be valued amongst Qatari upper classes.

Table 8: Total Fertility Rates of Qatari women by level of education (children per 1,000 women) 2001-2009

Year	Primary or less	Prep. or Vocational	Secondary	Tertiary
2001	3.99	3.36	3.53	3.42
2002	3.83	3.21	3.48	3.41
2003	3.69	3.19	3.46	3.43
2004	3.57	3.05	3.42	3.37
2005	3.47	2.85	3.35	3.31
2006	3.33	2.63	3.25	3.21
2007	3.10	2.53	3.13	3.09
2008	2.84	2.41	2.99	2.98
2009	2.80	2.45	2.90	2.90

[16] John C. Caldwell (1980), Mass Education as a Determinant of the Timing of Fertility Decline, Population and Development Review, Vol. 6, No. 2 (Jun., 1980), pp. 225-255.

[17] Becker, Gary S. 1960. "An Economic Analysis of Fertility." Demographic and Economic Change in Developed Countries. Princeton: Princeton University Press.

Figure 5: Total Fertility Rates of Qatari women by level of education (children per 1,000 women) 2001-2009

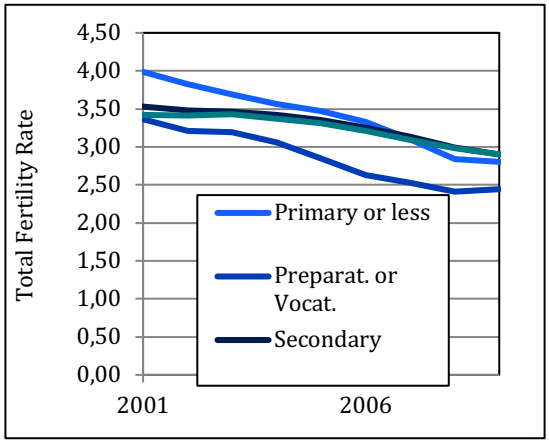


Figure 6: ASFR of Qatari women by their level of education, year of age and calendar year 2001-2009

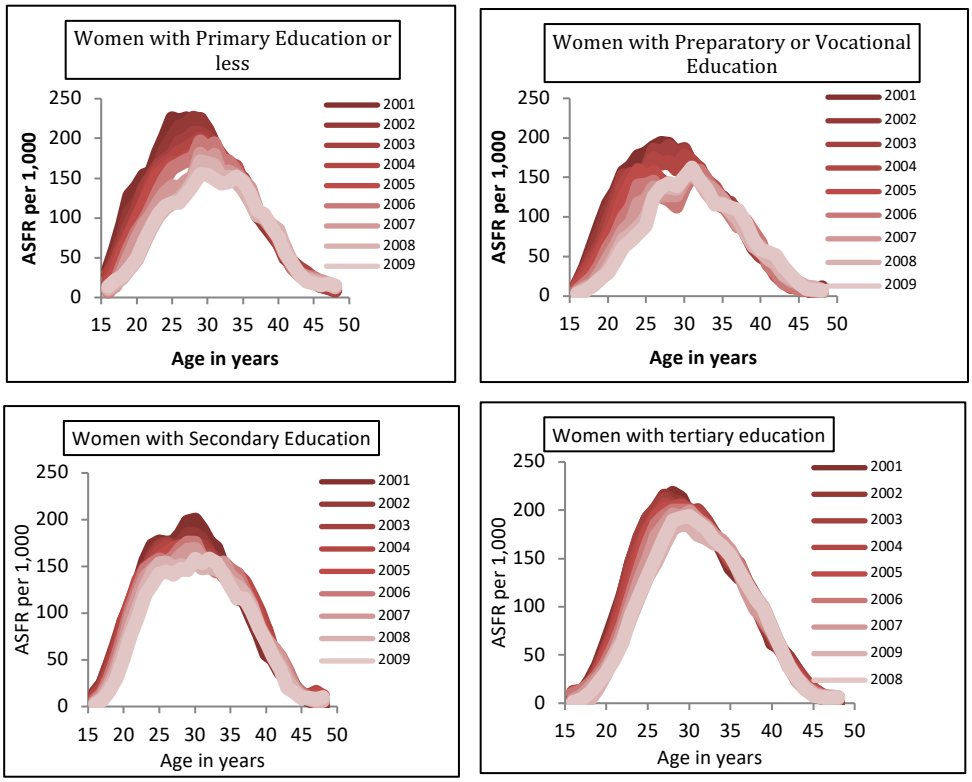


Figure 6 shows that patterns of fertility change over time are identical whatever the woman's education as ASFRs regularly decline from a calendar year to the next before 35 years of age, then remain unchanged after this age. Table 9 shows slight differences in the age pattern of fertility at any point in time according to the woman's education. Women with the highest educational level (tertiary) have slightly higher fertility rates than women with the lowest level (primary or no school education) at intermediate ages (from 25 to 39; highlighted in yellow on Table9), and lower at extreme ages (below 25 and above 40). Tertiary education would on one side delay marriage and the procreation of a first child and on the other side shorten the reproductive period. Whether it is birth control or divorce that increases with education cannot be established with census data at our disposal.

Finally, it must be noted that women's education refers to the date of the census (2010 in this case) while fertility refers to each of the 9 years preceding the census. For young women, it might be that the

level of education at the time of childbearing was lower that at the time of the census.

Table 9: Ratio of ASFR of women with tertiary education / women with primary or no school education

Age group	2001	2002	2003	2004	2005	2006	2007	2008	2009
15-19	0.25	0.27	0.30	0.38	0.40	0.57	0.49	0.43	0.20
20-24	0.69	0.75	0.76	0.77	0.72	0.75	0.75	0.84	0.81
25-29	0.93	0.95	1.03	1.06	1.13	1.08	1.18	1.21	1.22
30-34	1.00	1.03	1.07	1.03	1.04	1.02	1.12	1.15	1.15
35-39	1.08	1.05	1.04	1.08	1.05	1.09	1.02	1.13	1.08
40-44	1.04	0.99	0.99	0.97	1.00	0.93	0.89	0.89	0.99
45-49	0.33	0.38	0.58	0.48	0.45	0.41	0.41	0.39	0.38

c) Fertility differentials according to women's economic participation

Women's economic participation is expected to be negatively correlated with fertility. The relationship usually works in both directions: on the one hand having numerous children and heavy parental responsibilities often leaves mothers no time to engage in economic activity outside home; and on the other hand having an economic activity and willing to keep it are reasons why women limit their fertility. This almost universal pattern applies to Qatari women as well. TFRs have been declining in parallel for the two groups of active and inactive women from 2001 till 2009, with a constant difference of around one child between the two groups (Table 10 and Figure 7). Moreover, ASFRs were affected by comparable patterns of change for active and inactive women over the period under study, with most of the decline in fertility occurring below 35 years of age (Figure 8).

Table 10: TFR of Qatari women by economic participation 2001-2009 (OCM applied to 2010 Census – smoothed data)

Figure 7:TFR of Qatari women by economic participation 2001-2009 (OCM applied to 2010 Census – smoothed data)

Year	Inactive women	Active women
2001	4.08	3.10
2002	4.01	3.08
2003	3.96	3.09
2004	3.90	3.05
2005	3.82	2.98
2006	3.71	2.88
2007	3.58	2.75
2008	3.45	2.60
2009	3.38	2.50

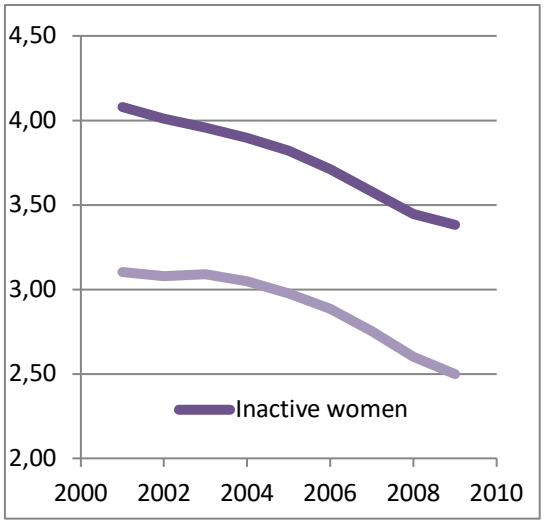


Figure 8: ASFR of Qatari women by their economic activity, year of age and calendar year, 2001-2009 (OCM applied to 2010 Census – smoothed data)

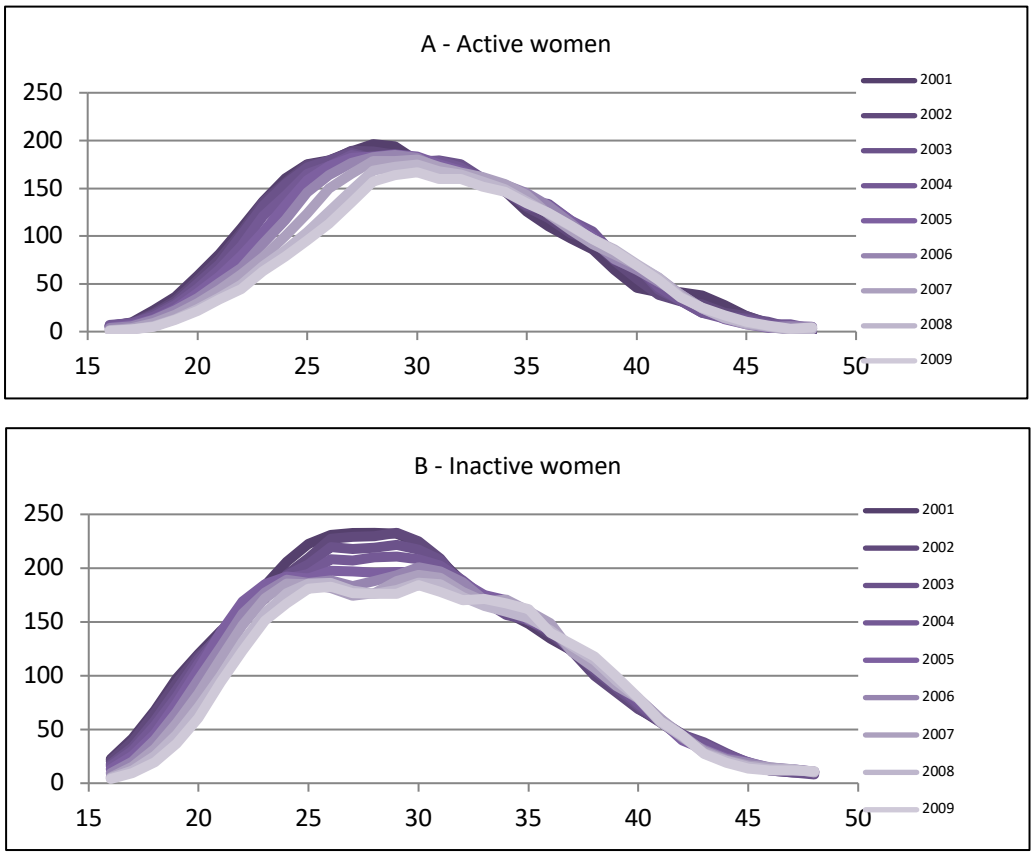


Table 11: Ratio of ASFR of active women / inactive women

Age group	2001	2002	2003	2004	2005	2006	2007	2008	2009
15-19	0.32	0.31	0.31	0.33	0.31	0.33	0.29	0.25	0.30
20-24	0.67	0.68	0.65	0.59	0.52	0.48	0.44	0.41	0.41
25-29	0.81	0.81	0.83	0.86	0.90	0.91	0.88	0.79	0.74
30-34	0.87	0.87	0.90	0.89	0.90	0.90	0.93	0.94	0.90
35-39	0.80	0.87	0.90	0.93	0.90	0.90	0.87	0.87	0.85
40-44	0.88	0.76	0.75	0.76	0.84	0.83	0.87	0.89	0.89
45-49	0.53	0.64	0.59	0.57	0.39	0.44	0.32	0.37	0.49

To interpret the above facts, one must keep in mind that economic activity is observed at the time of the census, in other terms after fertility is measured. Differences between the two groups must therefore be interpreted as women's high levels of fertility acting as an obstacle to economic participation, as much as the other way around as economic participation deterring from childbearing.

d) Fertility differentials according to the number of migrant domestic workers in the household

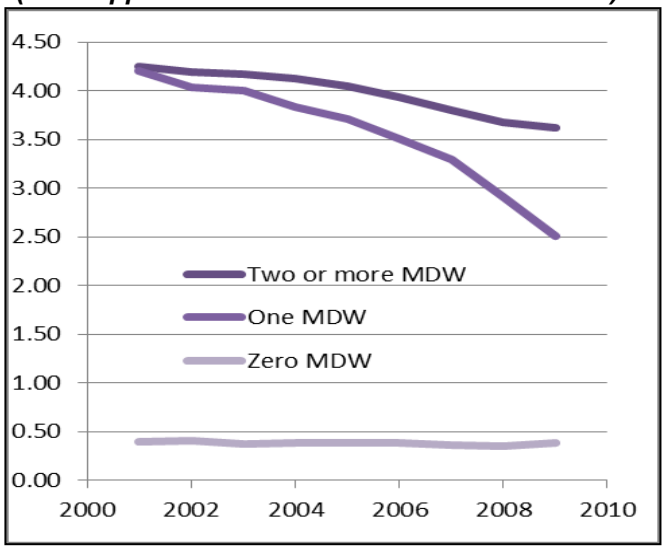
Migrant workers are not often taken into account in analyses of the transition of fertility. In a number of societies, however, they play a critical role in the way families cope with a variety of daily tasks that

increase in direct proportion to the number of children. In Qatar, we found that the presence of migrant domestic workers (hereafter MDW) in the household is one of the key correlates of women's fertility: the higher the fertility level, the larger the number of MDW (Table 12 and Figure 9).

Table 12: TFR of Qatari women according to the number of migrant domestic workers in the household, 2001-2009 (OCM applied to 2010 Census – smoothed data)

Year	Two or more MDW	One MDW	Zero MDW
2001	4.25	4.21	0.40
2002	4.19	4.04	0.40
2003	4.17	4.00	0.37
2004	4.13	3.83	0.38
2005	4.05	3.71	0.38
2006	3.94	3.51	0.39
2007	3.81	3.29	0.36
2008	3.68	2.91	0.35
2009	3.62	2.50	0.39

Figure 9: TFR of Qatari women according to the number of migrant domestic workers in the household, 2001-2009 (OCM applied to 2010 Census – smoothed data)



In households with no MDW, women have an extremely low fertility (TFR of 0.40), a fact which means that hiring MDW to take care of a new-born is a rule that suffers only few exceptions in the Qatari society. Young children with no MDW in the household are probably signs of a status of social destitution that is extremely rare amongst Qatari nationals.

Moreover, Table 12 and Figure 9 show that the gap between TFRs of households with only 1 MDW and those with 2 or more MDW has been widening over time, with fertility declining much faster in the first group than in the second. This can be interpreted as hiring MDWs being part of a strategy for maintaining large families, in particular in the wealthiest segments of the population.

Figure 10: ASFR of Qatari women by number of MDW in the household, by year of age and calendar year 2001-2009

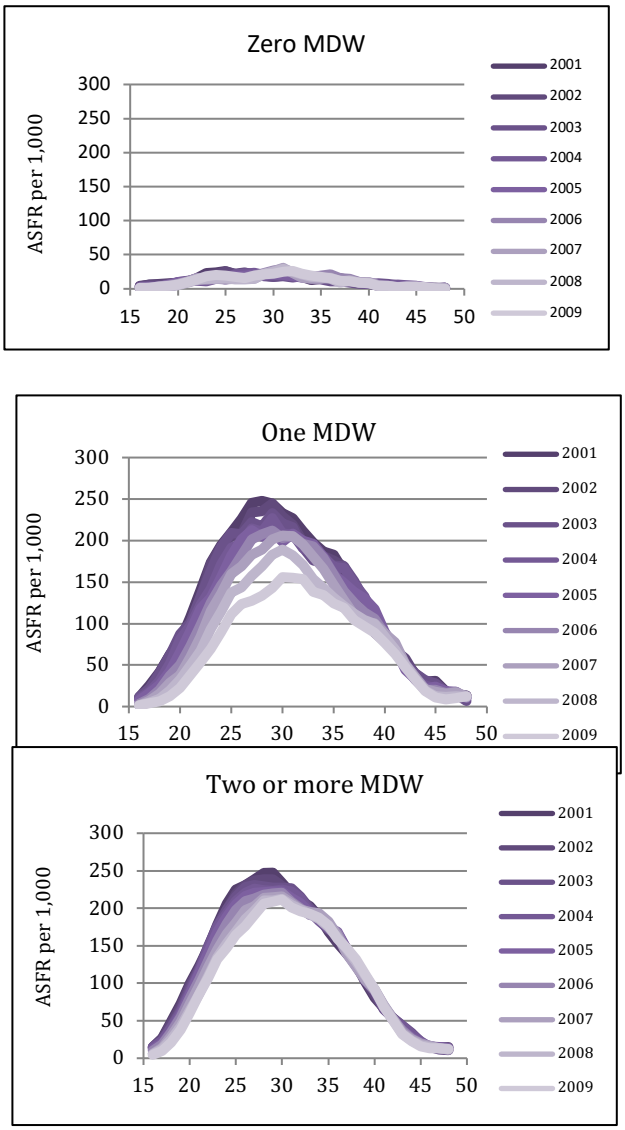


Table 13: Ratio of ASFR of women in households with 2 or + MDW / households with 1 MDW

Age group	2001	2002	2003	2004	2005	2006	2007	2008	2009
15-19	1,16	1,17	1,06	1,27	1,36	1,67	1,87	2,37	3,12
20-24	1,09	1,09	1,09	1,17	1,24	1,32	1,39	1,53	1,95
25-29	1,01	1,03	1,04	1,06	1,07	1,09	1,12	1,23	1,48
30-34	1,00	1,04	1,08	1,07	1,04	1,04	1,06	1,18	1,34
35-39	0,95	1,00	0,98	1,00	1,04	1,12	1,21	1,27	1,37
40-44	0,96	1,02	1,03	1,08	1,06	1,05	1,01	1,05	1,11
45-49	0,86	0,77	0,87	1,05	0,92	0,96	0,97	1,20	1,27

As for previous characteristics it should be recalled that MDWs are counted at the time of the census, in other terms after fertility is measured. This suggests that the positive correlation between TFRs and the number of MDWs reflects the fact that more MDW are hired as the family expands. While having one MDW makes a 1-to-10 difference at all ages in terms of fertility with having no MDW, it is mainly below 35 that having two or more MDWs makes a difference with having only one MDW (Table 13, part

highlighted in yellow). The presence of numerous MDW fosters fertility in the first half of women's reproductive life cycle.

e) Fertility differentials according to the head of household's level of education

Education of the husband (in most cases the head of household) is commonly expected to produce on fertility a comparable, though less pronounced, impact as the woman's education. The reason for this is that educational levels of husband and wife are generally positively correlated.

Table 14: Total fertility rates of Qatari nationals by head of household's level of education 2001-2009

Year	Primary or less	Preparat. - Vocat.	Second.	Tertiary
2001	3.37	1.55	4.25	4.60
2002	3.13	1.54	4.30	4.59
2003	2.90	1.55	4.30	4.69
2004	2.72	1.54	4.37	4.65
2005	2.53	1.48	4.40	4.62
2006	2.36	1.45	4.39	4.49
2007	2.20	1.41	4.25	4.36
2008	1.95	1.35	4.22	4.18
2009	1.84	1.40	4.25	3.95

Figure 11: Total fertility rates of Qatari nationals by head of household's level of education 2001-2009

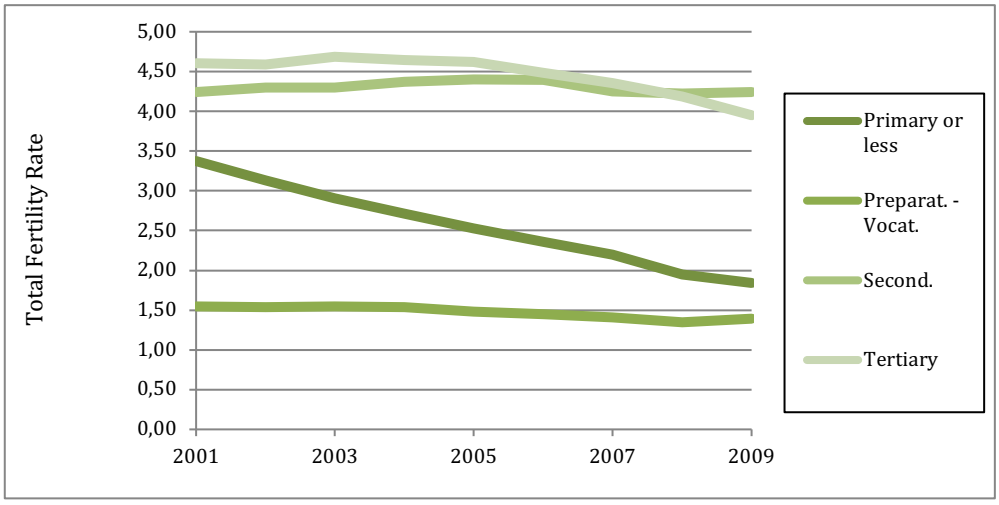


Figure 12: ASFR of Qatari women by head of household's level of education, year of age of the woman and calendar year 2001-2009 (Primary education of less)

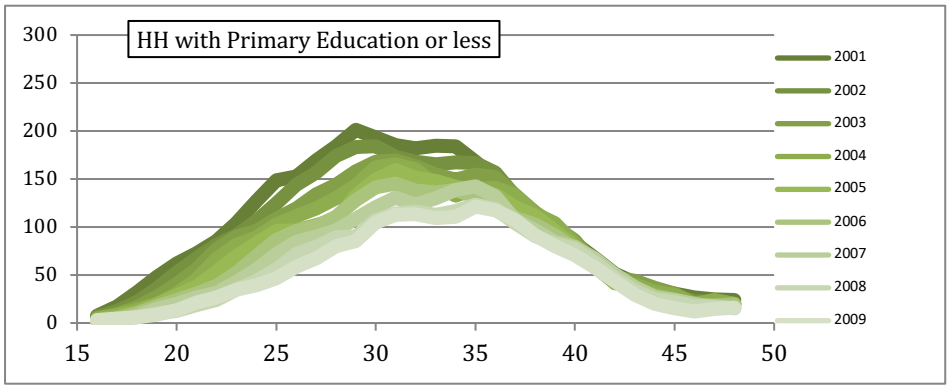


Figure 13: ASFR of Qatari women by head of household's level of education, year of age of the woman and calendar year 2001-2009 (Preparatory or vocational education)

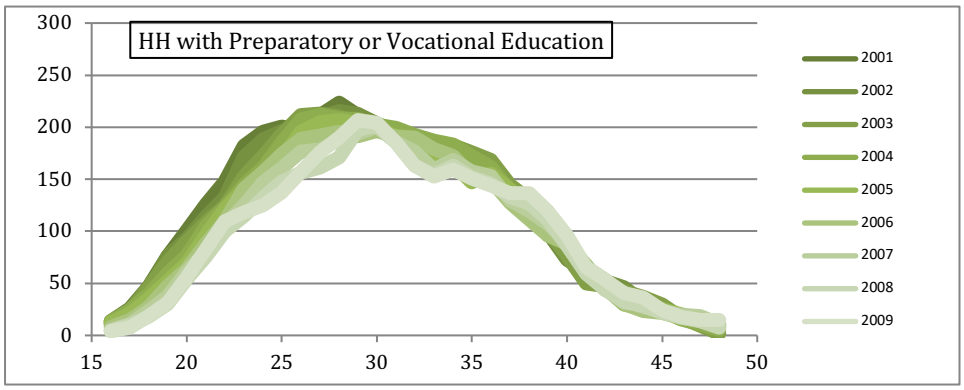


Figure 14: ASFR of Qatari women by head of household's level of education, year of age of the woman and calendar year 2001-2009 (Secondary education)

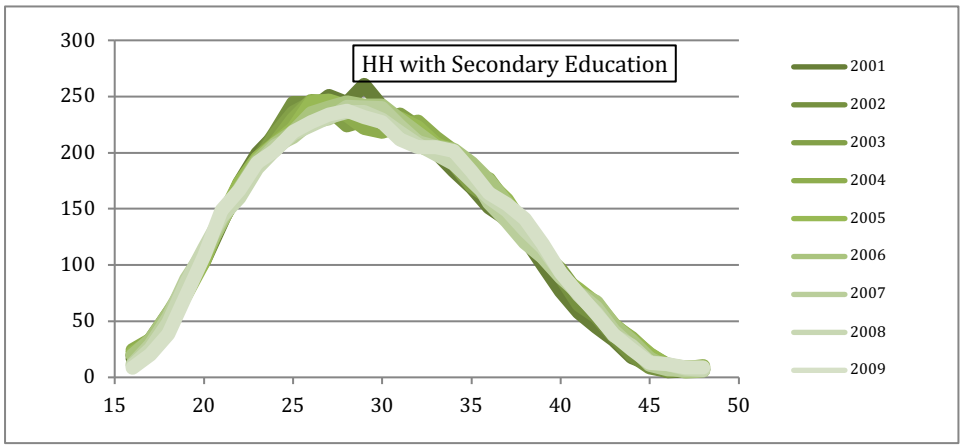


Figure 15: ASFR of Qatari women by head of household's level of education, year of age of the woman and calendar year 2001-2009 (Tertiary education)

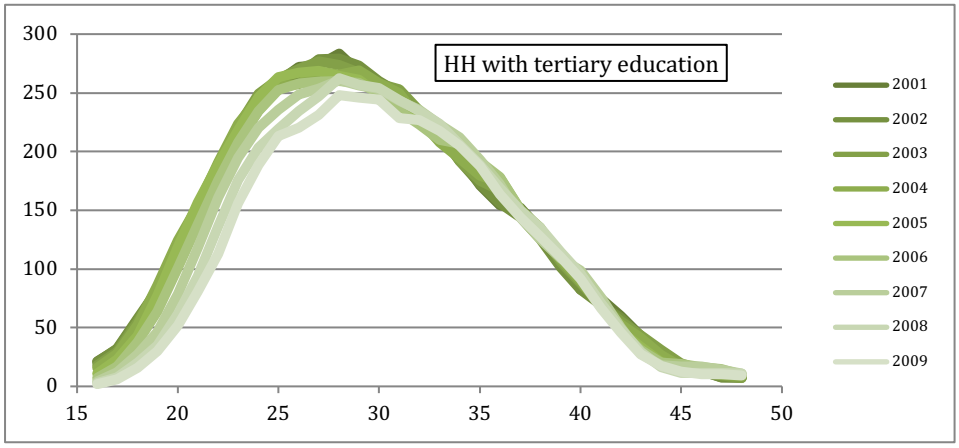


Table 15: Ratio of ASFR head of household with tertiary education / head of household with primary education or lower

Age group	2001	2002	2003	2004	2005	2006	2007	2008	2009
15-19	1.81	2.50	3.22	3.84	3.81	3.64	3.30	3.04	2.41
20-24	1.90	2.16	2.59	2.99	3.41	3.98	4.37	5.03	4.39
25-29	1.58	1.73	2.03	2.17	2.47	2.47	2.78	3.15	3.43
30-34	1.23	1.34	1.43	1.49	1.50	1.61	1.82	2.05	2.03
35-39	1.11	1.07	1.11	1.18	1.27	1.37	1.32	1.46	1.42
40-44	1.04	1.05	1.04	1.08	1.08	1.07	1.04	1.07	1.13
45-49	0.44	0.50	0.58	0.50	0.68	0.74	0.79	0.64	0.74

From this regard, results found in Qatar seem an exception to the rule. Indeed, in Qatar, the more educated the head of household the higher the fertility of the woman (Table 14 and Figure 11). Moreover, the fastest decline of fertility has been recorded among women whose husband has a primary or lower level of education. Fertility differentials between the two extremes –husband with tertiary education vs. husband with primary education or less– have continuously increased from 2001 till 2009 at all ages (Table 15). This is probably another sign that low social status (as reflected by low or no school education of the head of household) does not allow large families, or the other way around that wealthy families (in which heads of household with secondary or tertiary education are commonly found) can afford the cost of complying with a tradition valuing high fertility.

f) Fertility differentials according to the head of household's occupation

Fertility differentials according to the economic status of the household as reflected by the occupation of its head just confirm what was found looking at the head of household's educational level. Women's fertility is higher if their husbands' occupation is at the top of the ladder (legislators, senior officials and managers, professionals) compared with an occupation at the bottom (technicians and associate professionals, clerks, service workers … elementary occupations). The lowest fertility (actually far-below replacement level) is observed for women with an inactive husband (Table 16 and Figures 16 to 18).

Figure 16: ASFR of Qatari women by head of household's occupation and activity, year of age of the woman and calendar year 2001-2009 (Occupation groups 1 – 2)

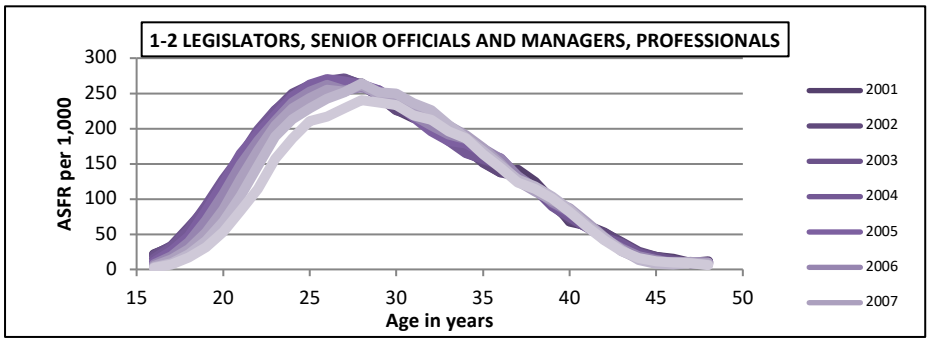


Figure 17: ASFR of Qatari women by head of household's occupation and activity, year of age of the woman and calendar year 2001-2009 (Occupation groups 3 – 5)

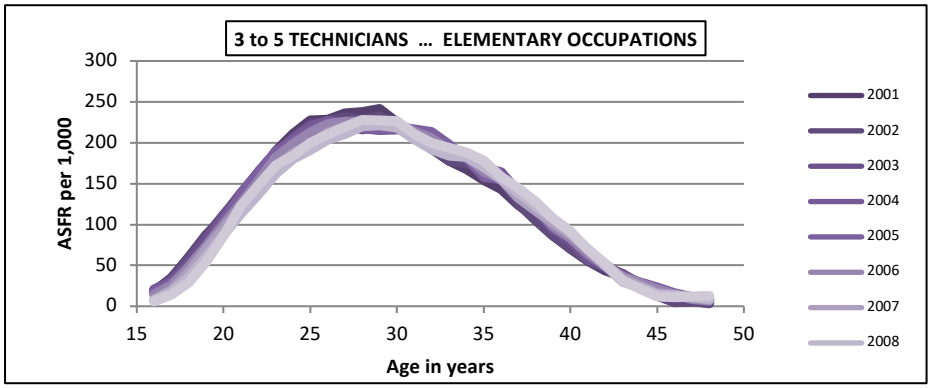


Figure 18: ASFR of Qatari women by head of household's occupation and activity, year of age of the woman and calendar year 2001-2009 (Head of household inactive)

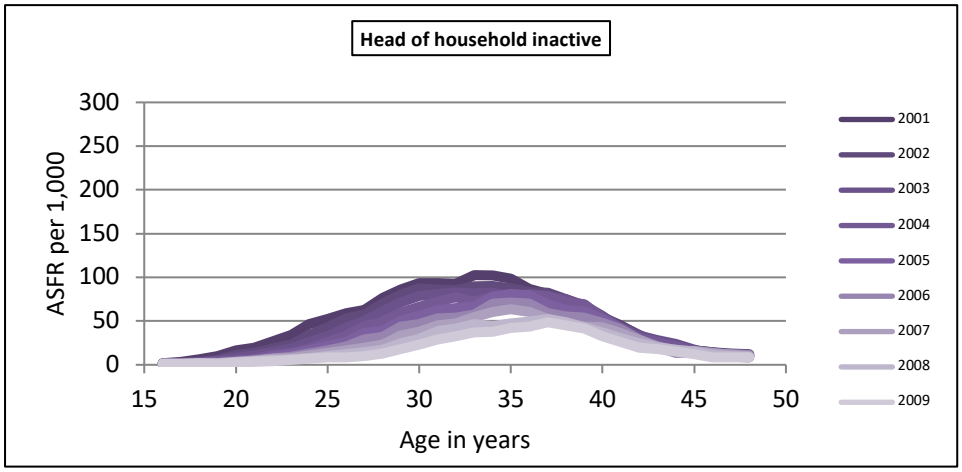
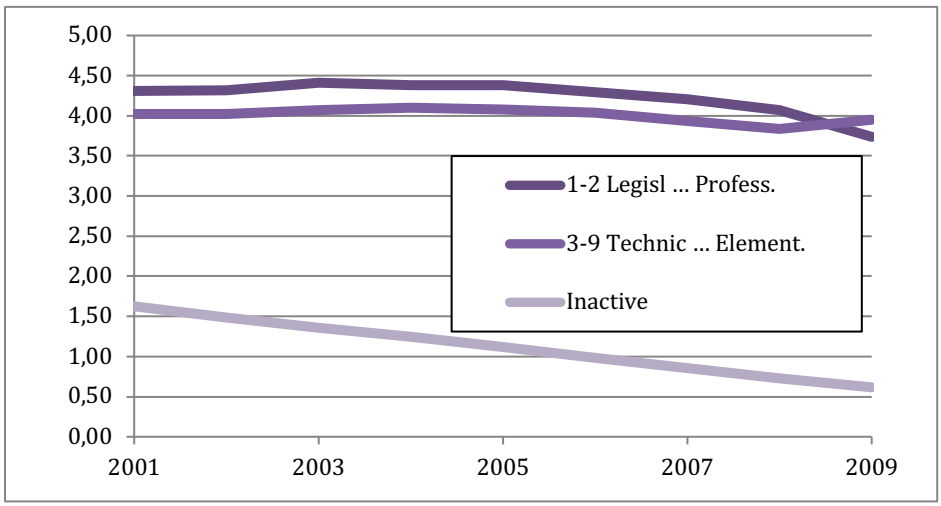


Table 16: Total fertility rates of Qatari nationals by occupation and activity of head of household 2001-2009

Year	1-2 Legislators… …Professionals	3-9 Technicians … Elementary	Inactive
2001	4.31	4.03	1.63
2002	4.32	4.02	1.48
2003	4.41	4.07	1.36
2004	4.38	4.10	1.24
2005	4.38	4.08	1.12
2006	4.29	4.04	0.98
2007	4.21	3.94	0.85
2008	4.07	3.84	0.73
2009	3.74	3.95	0.62

Figure 19: Total fertility rates of Qatari nationals by occupation and activity of head of household 2001-2009



IV. Conclusion

To how many children do women give birth over a lifetime; how much has this number changed in recent years; and by the action of what determinants? These simple questions are answered for the first time in the case of the national population of Qatar. Their policy relevance is particularly obvious for a country like Qatar in which for decades the total population has been growing extremely fast, but even more by the effect of migratory movements of foreign-nationals than by natural increase of nationals, and consequently the fertility of nationals is regarded a way to safeguard national identity.

Applying a simple methodology known as “own children method” to the two most recent population censuses of the country, we could produce a vast set of age specific fertility rates by year of age of the woman from 15 to 49 and calendar year from 1994 to 2010, for the total Qatari population and a number of its subgroups defined by educational and economic characteristics of the woman and her husband which are considered potential determinants of fertility.

The study confirmed the pronounced decline of fertility among Qatari women, with a total fertility rate decreasing by 40% from 5 to 3 children per woman in just 15 years, a period spanning half a generation. It also revealed that the entire decline took place in the first half of the women’s reproductive life, below 35 years of age, pointing to an elevation of the woman’s age at first marriage, and possibly early divorce, as strong factors of change. The study also identified fertility differentials, not all of them playing in the most common direction.

Education is not in Qatar the strong differentiating factor it is in other contexts. There are no differences of fertility between women who stopped education after high school and those who continued through university, but only between these two groups and women who attended only elementary or primary school or no school at all. Unexpectedly, women with little or no school education have the lowest level of fertility in Qatar. The same pattern was found with regard to the husband’s level of education, which is positively associated with the wife’s level of fertility.

Why is it that the most common pattern at world level according to which fertility is lower amongst highly educated women (who are also the better-off), does not apply to Qatari nationals? It can be that traditional pro-birth values are still vivid in the Qatari society and mostly economic constraints would be susceptible to curb them. In other terms, mostly those who cannot afford the cost of many children would give birth to few of them. This interpretation is consistent with another finding of the study: the highest fertility is observed among women whose husbands have occupations at the top of the occupational ladder, while the lowest fertility is recorded when the head of household is inactive.

The woman’s economic participation is a factor of marked differentials in fertility. Active women give on average birth to one child less than inactive women. While in Qatar as in many other places giving repeated births and taking care of numerous children is often contradictory with working outside home, the presence of migrant domestic workers introduces a mitigating factor. In Qatar, the highest levels of fertility are observed in households with two or more migrant domestic workers. Hiring additional migrant domestic workers makes it possible for the family to raise numerous children, and this practice could explain an apparently surprising positive correlation between wealth and fertility. It also highlights the ambivalent impact of immigration: on one side it brings foreign-nationals and reduces the share of nationals in the population, but on the other side it helps nationals to maintain a relatively high level of fertility.

APPENDIX A: APPLICATION OF THE OWN CHILDREN METHOD TO THE SUBPOPULATION OF ACTIVE QATARI WOMEN USING THE 2010 CENSUS

Step 1: Organising census data

Age of the woman in 2010	Age of the child (x) in 2010 (households with only one spouse of HH)											Women - all households
	0	1	2	3	4	5	6	7	8	9	10	
15												19
16												19
17												37
18	1	0	0	0	0	0	0	0	0	0	0	325
19	4	0	1	1	0	0	0	0	0	0	0	392
20	7	0	0	0	0	1	0	0	0	0	0	492
21	17	3	2	3	1	3	0	1	0	0	0	587
22	20	14	7	6	1	3	1	1	0	0	0	747
23	50	24	22	19	10	13	6	6	9	2	0	935
24	52	35	45	29	23	7	8	8	5	2	2	1023
25	111	60	52	41	33	25	13	10	4	6	1	1059
26	105	82	60	62	53	52	18	13	4	4	3	1028
27	119	85	86	80	71	50	43	39	14	10	3	1069
28	148	110	103	134	105	92	85	54	50	18	12	1087
29	146	117	103	116	89	78	72	61	37	25	23	975
30	176	187	188	177	187	175	156	115	102	65	62	1144
31	167	203	179	208	198	166	172	157	112	86	59	1098
32	168	165	192	179	191	191	173	173	133	117	94	1073
33	138	160	169	178	176	158	183	136	179	122	112	972
34	154	147	173	178	191	185	187	185	173	163	133	949
35	125	155	145	151	154	172	162	171	163	157	144	916
36	127	113	131	153	160	171	150	163	162	163	166	885
37	117	120	147	146	146	148	174	150	172	161	143	885
38	92	105	111	130	138	119	159	137	149	188	159	871
39	68	103	96	122	138	123	150	152	155	165	173	794
40	72	84	76	93	108	111	132	143	117	127	155	732
41	53	56	61	66	87	95	84	108	106	102	116	722
42	28	47	47	62	73	94	85	94	115	119	116	635
43	11	26	49	61	59	92	74	95	85	95	109	623
44	18	27	37	45	35	46	75	75	77	79	94	574
45	10	8	21	24	28	31	43	52	52	60	79	467
46	7	4	6	12	24	19	42	35	44	36	48	394
47	1	2	8	7	14	19	23	40	25	33	33	338
48	3	1	3	3	9	15	23	19	31	38	34	350
49	0	1	0	5	2	6	6	11	11	17	24	272
50	2	1	1	1	0	5	3	4	8	7	10	219
51	0	0	0	0	0	0	2	2	7	4	6	150
52	1	0	1	0	1	2	2	1	5	7	6	141
53	0	2	0	0	0	0	0	2	1	3	8	141
54	0	1	1	0	1	2	0	2	2	4	4	74
55	0	0	0	0	1	0	0	0	1	0	1	76
56	0	0	0	0	0	0	0	0	0	0	2	57
57	0	0	0	0	0	1	0	0	0	0	0	39
58	0	0	0	0	0	0	0	0	0	0	0	22
59	0	0	1	0	0	0	0	0	0	0	0	19
60	0	0	0	0	0	0	1	0	0	1	0	16

Step 2: Calculating ASFR by age of the woman at the census and calendar year

Age of the woman in 2010	**ASFR by age of the woman in 2010 and calendar year(own-children method)**										
	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
15	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0
18	3	0	1	0	0	0	0	0	0	0	0
19	10	0	3	3	0	0	0	0	0	0	0
20	14	0	0	0	0	2	0	0	0	0	0
21	29	5	3	5	2	5	0	2	0	0	0
22	27	19	9	8	1	4	1	1	0	0	0
23	53	26	24	20	11	14	6	6	10	2	0
24	51	34	44	28	22	7	8	8	5	2	2
25	105	57	49	39	31	24	12	9	4	6	1
26	102	80	58	60	52	51	18	13	4	4	3
27	111	80	80	75	66	47	40	36	13	9	3
28	136	101	95	123	97	85	78	50	46	17	11
29	150	120	106	119	91	80	74	63	38	26	24
30	154	163	164	155	163	153	136	101	89	57	54
31	152	185	163	189	180	151	157	143	102	78	54
32	157	154	179	167	178	178	161	161	124	109	88
33	142	165	174	183	181	163	188	140	184	126	115
34	162	155	182	188	201	195	197	195	182	172	140
35	136	169	158	165	168	188	177	187	178	171	157
36	144	128	148	173	181	193	169	184	183	184	188
37	132	136	166	165	165	167	197	169	194	182	162
38	106	121	127	149	158	137	183	157	171	216	183
39	86	130	121	154	174	155	189	191	195	208	218
40	98	115	104	127	148	152	180	195	160	173	212
41	73	78	84	91	120	132	116	150	147	141	161
42	44	74	74	98	115	148	134	148	181	187	183
43	18	42	79	98	95	148	119	152	136	152	175
44	31	47	64	78	61	80	131	131	134	138	164
45	21	17	45	51	60	66	92	111	111	128	169
46	18	10	15	30	61	48	107	89	112	91	122
47	3	6	24	21	41	56	68	118	74	98	98
48	9	3	9	9	26	43	66	54	89	109	97
49	0	4	0	18	7	22	22	40	40	63	88
50	9	5	5	5	0	23	14	18	37	32	46
51	0	0	0	0	0	0	13	13	47	27	40
52	7	0	7	0	7	14	14	7	35	50	43
53	0	14	0	0	0	0	0	14	7	21	57
54	0	14	14	0	14	27	0	27	27	54	54
55	0	0	0	0	13	0	0	0	13	0	13
56	0	0	0	0	0	0	0	0	0	0	35
57	0	0	0	0	0	26	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0
59	0	0	53	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	63	0	0	63	0

Step 3: Organising ASFR by age of the woman and calendar year

Age	Calendar Year										
	2010	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**
15	0	0	1	3	0	5	1	6	5	6	3
16	0	0	3	0	2	4	6	8	4	4	3
17	3	0	0	5	1	14	8	9	4	9	11
18	10	0	3	8	11	7	12	13	13	17	24
19	14	5	9	20	22	24	18	36	46	26	54
20	29	19	24	28	31	51	40	50	38	57	54
21	27	26	44	39	52	47	78	63	89	78	88
22	53	34	49	60	66	85	74	101	102	109	115
23	51	57	58	75	97	80	136	143	124	126	140
24	105	80	80	123	91	153	157	161	184	172	157
25	102	80	95	119	163	151	161	140	182	171	188
26	111	101	106	155	180	178	188	195	178	184	162
27	136	120	164	189	178	163	197	187	183	182	183
28	150	163	163	167	181	195	177	184	194	216	218
29	154	185	179	183	201	188	169	169	171	208	212
30	152	154	174	188	168	193	197	157	195	173	161
31	157	165	182	165	181	167	183	191	160	141	183
32	142	155	158	173	165	137	189	195	147	187	175
33	162	169	148	165	158	155	180	150	181	152	164
34	136	128	166	149	174	152	116	148	136	138	169
35	144	136	127	154	148	132	134	152	134	128	122
36	132	121	121	127	120	148	119	131	111	91	98
37	106	130	104	91	115	148	131	111	112	98	97
38	86	115	84	98	95	80	92	89	74	109	88
39	98	78	74	98	61	66	107	118	89	63	46
40	73	74	79	78	60	48	68	54	40	32	40
41	44	42	64	51	61	56	66	40	37	27	43
42	18	47	45	30	41	43	22	18	47	50	57
43	31	17	15	21	26	22	14	13	35	21	54
44	21	10	24	9	7	23	13	7	7	54	13
45	18	6	9	18	0	0	14	14	27	0	35
46	3	3	0	5	0	14	0	27	13	0	0
47	9	4	5	0	7	0	0	0	0	0	0
48	0	5	0	0	0	27	0	0	0	0	0
49	9	0	7	0	14	0	0	0	0	0	0

Step 4: Smoothing ASFR by three civil years & three years of age moving averages

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	5	6	6	7	5	4	2	1	1
17	10	9	9	9	7	6	4	2	2
18	23	19	18	16	13	12	9	6	5
19	36	33	30	28	24	22	17	13	13
20	59	54	51	45	40	35	30	24	22
21	81	76	70	65	58	51	44	36	34
22	108	104	101	90	79	67	60	49	44
23	137	136	131	121	104	92	78	69	63
24	160	156	154	143	132	117	100	85	79
25	175	174	172	165	158	146	124	104	96
26	179	178	179	173	173	164	150	125	113
27	189	189	187	185	182	176	165	148	135
28	196	188	181	181	183	183	178	168	157
29	194	185	179	181	185	185	178	173	164
30	178	174	177	179	183	182	180	175	167
31	169	172	179	179	175	171	173	168	160
32	166	167	175	172	168	163	166	164	160
33	161	159	160	158	158	159	162	157	152
34	147	147	148	147	150	154	154	149	146
35	125	130	131	137	138	145	143	136	134
36	110	119	126	134	133	131	123	123	124
37	98	103	108	116	116	114	106	110	111
38	86	96	102	105	99	95	91	97	97
39	64	74	81	80	75	76	81	86	85
40	46	56	69	69	66	64	70	71	70
41	41	38	44	46	52	52	57	57	54
42	41	32	32	33	39	39	39	37	36
43	38	28	20	20	23	25	24	24	25
44	27	20	16	13	13	14	14	14	17
45	17	17	14	13	8	8	8	9	10
46	8	9	11	8	4	5	5	5	6
47	1	4	4	8	5	6	2	2	3
48	0	0	0	3	5	5	4	2	4

APPENDIX B: AGE SPECIFIC FERTILITY RATES OF QATARI WOMEN BY AGE IN YEAR, CALENDAR YEAR AND SELECTED CHARACTERISTICS OF THE WOMAN AND THE HOUSEHOLD

Group 1: All Qatari Women

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	13	13	11	12	9	7	4	4	3
17	23	22	20	19	16	14	11	9	8
18	41	38	35	33	28	27	22	19	16
19	60	57	54	50	47	44	38	32	28
20	81	79	77	73	69	63	56	49	45
21	102	98	98	95	93	84	76	67	66
22	125	122	124	121	116	105	98	87	83
23	153	148	147	143	137	127	117	108	103
24	176	169	168	160	155	146	135	124	117
25	192	187	183	175	170	162	149	138	131
26	197	195	193	185	182	173	163	150	142
27	205	203	198	193	187	179	169	160	152
28	210	203	195	191	188	185	178	172	165
29	209	204	195	192	189	188	182	175	168
30	197	195	192	190	188	188	185	179	173
31	186	187	191	188	182	180	179	174	166
32	176	175	178	178	175	172	170	167	163
33	167	164	164	164	165	163	164	160	159
34	154	153	152	153	159	160	161	153	154
35	139	142	142	144	145	148	150	143	144
36	126	131	134	138	138	137	134	131	130
37	114	115	117	121	120	118	113	117	118
38	100	99	104	106	106	103	98	105	106
39	83	82	86	87	87	86	86	90	91
40	65	66	71	72	73	73	75	75	74
41	53	54	53	54	56	57	59	57	56
42	42	43	43	42	40	41	43	41	40
43	32	33	34	33	30	29	28	27	26
44	21	22	26	24	22	20	19	19	18
45	16	16	18	18	18	17	15	13	12
46	12	12	11	12	13	13	13	11	10
47	10	10	9	11	12	11	11	10	10
48	10	9	7	9	10	9	9	9	10
Total Fertility Rate	**3.49**	**3.44**	**3.43**	**3.39**	**3.32**	**3.23**	**3.11**	**2.97**	**2.89**
Mean Age at Childbearing	**30,3**	**30,4**	**30,5**	**30,6**	**30,7**	**30,9**	**31,1**	**31,3**	**31,5**

Group 2: Qatari women with primary education or less

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	35	28	29	20	17	7	9	11	14
17	61	52	45	41	31	17	15	18	21
18	92	75	67	62	56	40	31	24	27
19	128	107	91	77	77	63	52	36	37
20	139	119	110	91	99	83	75	47	50
21	153	136	138	117	118	96	92	67	71
22	157	147	151	143	136	113	103	86	88
23	183	163	166	161	155	133	119	101	105
24	203	187	173	169	162	150	132	112	115
25	225	201	179	173	169	162	140	119	119
26	222	215	195	184	169	167	138	124	119
27	225	218	198	187	176	172	147	134	129
28	222	226	207	194	170	175	152	147	142
29	224	224	207	199	186	196	181	171	155
30	211	211	202	194	180	187	170	169	155
31	192	191	192	191	192	194	180	166	149
32	174	170	168	179	176	172	152	149	144
33	161	159	154	167	169	171	158	152	145
34	156	154	151	160	165	160	154	146	152
35	144	150	146	142	143	139	147	135	145
36	128	133	134	130	134	130	137	120	130
37	103	107	110	107	108	106	110	103	110
38	94	92	100	99	103	98	101	101	105
39	83	80	86	87	88	88	89	91	89
40	71	68	70	71	73	78	81	85	75
41	54	54	49	52	53	60	62	60	54
42	38	42	44	42	38	38	41	43	41
43	29	34	37	35	30	29	30	28	29
44	21	25	31	31	27	26	25	23	20
45	18	20	23	24	24	25	23	21	17
46	14	15	14	16	18	20	21	18	16
47	13	12	12	14	16	16	17	17	17
48	12	10	9	11	13	13	13	13	16
Total Fertility Rate	**3.99**	**3.83**	**3.69**	**3.57**	**3.47**	**3.33**	**3.10**	**2.84**	**2.80**
Mean Age at Childbearing	**29,3**	**29,6**	**29,9**	**30,2**	**30,3**	**30,8**	**31,1**	**31,5**	**31,4**

Group 3: Qatari women with preparatory or vocational education

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	16	15	16	14	10	7	5	4	3
17	36	32	32	28	22	15	11	9	7
18	64	56	50	43	35	24	16	12	13
19	91	81	66	59	53	40	30	22	23
20	117	109	95	82	73	62	47	34	29
21	133	128	122	111	94	76	64	52	45
22	157	149	153	140	125	99	83	72	62
23	164	149	152	154	143	112	92	78	70
24	177	158	155	154	159	140	118	87	79
25	180	160	156	157	150	141	122	99	89
26	189	182	185	174	157	144	138	126	125
27	194	178	182	167	146	126	127	138	137
28	192	190	190	170	142	122	128	137	143
29	179	182	176	160	126	113	127	136	139
30	176	186	185	178	141	137	146	150	150
31	162	164	168	171	154	153	153	157	162
32	154	153	161	160	160	159	148	145	146
33	135	132	136	138	146	144	140	129	135
34	129	122	126	124	138	133	133	118	116
35	126	115	114	113	120	116	123	117	116
36	114	114	118	110	111	102	107	107	112
37	100	104	103	95	91	88	90	97	109
38	86	81	80	82	88	95	82	79	93
39	64	61	63	68	72	81	63	64	72
40	58	50	51	53	60	67	63	56	59
41	42	44	45	46	43	40	46	47	56
42	38	38	31	31	27	30	42	41	52
43	26	27	29	25	18	16	26	27	37
44	22	17	19	13	11	13	19	22	27
45	16	10	15	12	13	9	16	17	16
46	11	8	10	9	10	8	10	12	9
47	5	4	5	6	7	7	8	11	8
48	11	10	5	8	6	7	6	8	7
Total Fertility Rate	**3.36**	**3.21**	**3.19**	**3.05**	**2.85**	**2.63**	**2.53**	**2.41**	**2.45**
Mean Age at Childbearing	**29,4**	**29,5**	**29,7**	**29,8**	**30,1**	**30,6**	**31,2**	**31,6**	**32,0**

Group 4: Qatari women with secondary education

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	13	15	12	11	8	7	4	4	2
17	24	25	21	19	16	14	11	9	7
18	44	45	40	37	30	30	24	21	16
19	64	67	63	59	53	51	43	36	30
20	85	91	91	89	79	76	66	59	51
21	104	106	110	111	109	103	96	83	75
22	131	124	128	132	135	127	119	106	97
23	156	143	139	141	148	146	138	127	119
24	172	162	159	154	153	152	147	144	131
25	177	174	170	165	159	157	153	153	143
26	175	174	175	172	164	155	152	154	145
27	176	172	167	169	169	160	153	148	141
28	185	174	165	165	172	169	162	151	147
29	198	185	169	159	171	175	168	150	146
30	200	184	173	165	173	175	169	155	158
31	189	179	172	161	158	158	157	148	153
32	176	165	164	161	154	152	154	149	158
33	170	157	154	148	145	144	149	146	154
34	149	140	141	142	149	154	154	143	142
35	135	132	138	144	146	146	141	133	128
36	116	121	129	141	142	142	134	129	116
37	113	115	120	134	132	125	118	121	116
38	95	105	109	119	117	109	105	108	102
39	77	89	97	102	95	86	85	84	84
40	56	69	82	82	75	69	72	70	69
41	50	50	57	57	61	63	63	55	53
42	43	36	42	44	50	53	51	44	40
43	38	29	29	29	35	39	33	28	20
44	22	19	20	20	20	21	19	18	15
45	14	15	11	13	11	14	11	11	8
46	7	8	8	11	10	9	8	8	10
47	4	7	8	16	13	10	5	6	8
48	0	2	6	11	11	8	7	6	10
Total Fertility Rate	**3.36**	**3.28**	**3.27**	**3.28**	**3.26**	**3.20**	**3.07**	**2.91**	**2.79**
Mean Age at Childbearing	**30,1**	**30,2**	**30,4**	**30,6**	**30,7**	**30,8**	**30,9**	**30,9**	**31,1**

Group 5: Qatari women with tertiary education

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	6	6	6	12	11	10	3	1	0
17	11	9	9	13	13	13	8	5	1
18	24	21	20	19	18	20	16	11	4
19	39	35	35	33	30	28	25	21	15
20	62	56	56	52	49	42	36	31	31
21	87	81	76	73	70	60	51	46	51
22	113	111	110	101	93	81	74	64	66
23	144	146	146	136	120	110	101	92	90
24	172	169	172	160	151	139	127	113	111
25	192	192	192	182	177	165	148	133	131
26	202	201	201	192	195	186	174	152	146
27	212	215	211	206	202	194	185	172	165
28	218	210	204	203	203	200	196	190	181
29	213	208	204	206	204	199	193	192	185
30	195	194	198	199	201	200	198	194	184
31	187	193	200	198	193	189	190	188	175
32	180	184	189	187	185	180	183	181	171
33	173	176	176	174	174	170	174	171	166
34	159	164	162	161	163	166	168	163	163
35	140	148	145	149	148	157	158	153	154
36	131	137	140	145	143	144	136	138	137
37	126	121	121	124	125	124	116	123	123
38	110	103	109	108	106	102	97	109	110
39	88	83	86	84	85	85	89	98	99
40	62	65	71	72	75	74	76	76	79
41	57	56	56	55	59	58	58	58	57
42	47	48	44	42	40	40	39	39	38
43	34	35	34	33	29	27	24	25	26
44	20	20	23	21	19	16	15	15	17
45	11	10	14	13	14	12	9	8	10
46	7	6	9	7	8	8	8	6	6
47	1	4	5	6	6	7	7	6	5
48	0	3	5	6	5	5	6	6	5
Total Fertility Rate	**3.42**	**3.41**	**3.43**	**3.37**	**3.31**	**3.21**	**3.09**	**2.98**	**2.90**
Mean Age at Childbearing	**30,6**	**30,7**	**30,8**	**30,9**	**31,0**	**31,1**	**31,3**	**31,6**	**31,8**

Group 6: Active Qatari women

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	5	6	6	7	5	4	2	1	1
17	10	9	9	9	7	6	4	2	2
18	23	19	18	16	13	12	9	6	5
19	36	33	30	28	24	22	17	13	13
20	59	54	51	45	40	35	30	24	22
21	81	76	70	65	58	51	44	36	34
22	108	104	101	90	79	67	60	49	44
23	137	136	131	121	104	92	78	69	63
24	160	156	154	143	132	117	100	85	79
25	175	174	172	165	158	146	124	104	96
26	179	178	179	173	173	164	150	125	113
27	189	189	187	185	182	176	165	148	135
28	196	188	181	181	183	183	178	168	157
29	194	185	179	181	185	185	178	173	164
30	178	174	177	179	183	182	180	175	167
31	169	172	179	179	175	171	173	168	160
32	166	167	175	172	168	163	166	164	160
33	161	159	160	158	158	159	162	157	152
34	147	147	148	147	150	154	154	149	146
35	125	130	131	137	138	145	143	136	134
36	110	119	126	134	133	131	123	123	124
37	98	103	108	116	116	114	106	110	111
38	86	96	102	105	99	95	91	97	97
39	64	74	81	80	75	76	81	86	85
40	46	56	69	69	66	64	70	71	70
41	41	38	44	46	52	52	57	57	54
42	41	32	32	33	39	39	39	37	36
43	38	28	20	20	23	25	24	24	25
44	27	20	16	13	13	14	14	14	17
45	17	17	14	13	8	8	8	9	10
46	8	9	11	8	4	5	5	5	6
47	1	4	4	8	5	6	2	2	3
48	0	0	0	3	5	5	4	2	4
Total Fertility Rate	**3.08**	**3.05**	**3.07**	**3.03**	**2.96**	**2.87**	**2.74**	**2.59**	**2.49**
Mean Age at Childbearing	**30,4**	**30,5**	**30,7**	**30,9**	**31,1**	**31,3**	**31,6**	**31,9**	**32,1**

Group 7: Inactive Qatari women

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	23	21	18	16	13	9	6	5	4
17	41	39	34	30	25	20	15	12	9
18	68	65	58	53	45	41	32	25	20
19	98	94	87	80	74	66	56	45	37
20	120	118	115	112	106	97	84	71	61
21	141	136	139	139	140	127	116	100	94
22	159	156	163	167	169	158	147	131	123
23	184	171	176	178	185	178	172	158	151
24	206	194	193	191	192	189	186	177	167
25	223	210	203	195	190	186	185	186	181
26	231	227	219	208	198	189	181	186	183
27	233	229	218	207	197	183	174	179	177
28	233	230	219	210	196	188	177	176	176
29	232	233	222	211	196	193	188	180	176
30	223	225	217	209	196	201	194	186	184
31	207	209	208	202	195	197	191	185	178
32	187	184	183	189	187	187	178	173	170
33	172	169	169	173	175	170	169	165	171
34	159	159	156	162	170	169	171	160	167
35	148	152	151	151	153	152	160	154	162
36	134	139	141	142	144	145	149	142	140
37	123	122	124	124	123	122	122	127	129
38	107	100	105	107	111	110	107	114	118
39	88	84	88	92	95	94	90	95	99
40	70	69	72	74	77	79	79	79	79
41	56	58	56	58	58	60	60	57	58
42	42	46	45	44	40	42	44	43	44
43	31	34	38	36	31	31	30	28	27
44	20	23	28	27	24	22	21	21	19
45	16	16	19	19	20	19	17	15	13
46	12	12	12	12	14	15	15	13	12
47	11	10	10	12	13	12	13	13	12
48	11	9	8	10	11	10	11	10	11
Total Fertility Rate	**4.01**	**3.94**	**3.89**	**3.84**	**3.77**	**3.66**	**3.54**	**3.41**	**3.35**
Mean Age at Childbearing	**29,7**	**29,8**	**29,9**	**30,0**	**30,1**	**30,3**	**30,5**	**30,7**	**30,9**

Group 8: Qatari women in households with no migrant domestic workers

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	4	4	3	2	1	1	1	1	1
17	6	7	4	3	3	2	1	1	2
18	7	6	3	3	4	3	2	2	4
19	8	7	6	6	6	5	4	3	5
20	9	8	10	9	10	8	7	6	6
21	11	10	12	11	11	10	11	9	10
22	16	13	14	12	16	14	16	13	14
23	23	19	15	11	13	13	14	15	18
24	24	21	16	14	16	15	16	15	21
25	26	26	18	16	14	14	14	15	19
26	21	22	21	21	19	16	15	14	18
27	22	24	23	22	19	17	15	14	16
28	19	20	22	24	21	19	15	15	19
29	20	19	19	20	20	23	21	22	21
30	19	18	17	20	21	27	26	25	22
31	21	19	19	19	21	29	31	29	25
32	19	19	17	18	19	24	24	25	26
33	17	18	19	19	16	17	16	22	22
34	13	14	15	17	17	17	15	18	20
35	15	16	14	18	19	19	15	16	17
36	14	16	11	16	17	21	17	15	16
37	14	16	11	15	15	16	11	9	12
38	11	13	9	12	12	15	13	12	11
39	10	9	7	9	10	10	9	9	9
40	7	7	7	7	9	9	10	10	9
41	5	6	8	6	7	5	5	4	4
42	4	6	7	5	4	3	4	4	4
43	2	4	5	6	3	3	1	2	2
44	0	2	3	5	4	3	1	2	4
45	1	1	2	5	5	3	0	2	3
46	2	1	1	2	2	1	0	1	2
47	2	2	1	1	1	1	1	0	0
48	1	2	1	1	1	1	1	0	0
Total Fertility Rate	**0,39**	**0,39**	**0,36**	**0,38**	**0,37**	**0,38**	**0,35**	**0,35**	**0,38**
Mean Age at Childbearing	**29,5**	**30,1**	**30,3**	**31,0**	**31,0**	**31,2**	**30,8**	**31,0**	**30,8**

Group 9: Qatari women in households with one migrant domestic worker

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	11	10	12	10	7	3	1	2	1
17	26	20	22	18	16	10	7	5	4
18	42	41	41	31	27	20	16	10	6
19	63	63	62	52	42	37	28	20	12
20	79	81	87	81	65	50	38	33	23
21	108	98	101	97	91	73	60	49	38
22	141	132	132	123	118	98	84	67	54
23	173	172	164	142	131	125	115	94	69
24	194	193	193	171	156	146	136	115	89
25	210	205	209	191	182	163	160	137	111
26	226	208	208	197	201	182	169	144	124
27	245	234	223	214	213	201	183	157	127
28	248	235	217	211	204	207	189	169	134
29	245	245	233	227	211	212	202	183	143
30	233	229	221	208	199	203	206	189	156
31	227	219	216	208	208	206	205	182	155
32	211	198	191	191	200	196	195	170	153
33	198	183	176	185	196	193	180	153	138
34	187	181	173	181	181	179	166	143	135
35	183	176	170	169	160	159	147	131	124
36	163	169	169	166	149	139	128	121	119
37	149	145	151	149	138	125	110	112	105
38	124	118	129	132	130	113	100	104	96
39	106	89	106	106	117	106	100	99	89
40	85	78	86	88	89	87	88	84	77
41	73	68	67	67	71	73	77	68	64
42	54	58	52	50	44	49	51	50	47
43	40	39	40	33	33	33	36	34	34
44	30	28	32	25	22	20	21	20	18
45	31	28	28	22	24	20	18	12	11
46	19	19	18	15	18	17	16	12	8
47	13	15	15	15	18	18	17	12	10
48	14	14	7	11	10	11	12	12	13
Total Fertility Rate	**4.15**	**3.99**	**3.95**	**3.79**	**3.67**	**3.47**	**3.26**	**2.89**	**2.49**
Mean Age at Childbearing	**30,7**	**30,7**	**30,8**	**31,0**	**31,2**	**31,4**	**31,6**	**31,8**	**32,2**

Group 10: Qatari women in households with two or more migrant domestic workers

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	15	15	14	15	12	10	6	5	4
17	27	26	24	24	20	18	14	12	10
18	49	46	42	41	35	35	29	25	21
19	73	69	65	62	58	55	49	42	38
20	99	96	93	88	85	80	72	63	60
21	123	120	119	116	114	105	97	85	86
22	148	147	150	147	142	130	122	109	107
23	178	173	176	175	169	157	145	134	132
24	206	198	198	193	189	179	166	154	147
25	225	219	215	209	205	198	181	169	164
26	231	231	228	221	216	209	198	186	177
27	238	237	231	226	221	213	203	197	191
28	247	239	229	224	221	218	214	210	206
29	247	238	228	223	222	220	214	210	208
30	234	230	228	225	222	221	216	213	212
31	220	222	227	223	214	209	207	205	201
32	210	210	215	214	207	200	198	198	196
33	203	200	199	195	194	191	195	191	192
34	189	187	185	183	189	191	193	186	187
35	168	173	172	172	174	178	183	175	177
36	153	159	163	167	168	167	164	161	159
37	140	140	142	146	147	143	140	146	147
38	125	123	129	129	129	126	121	129	132
39	102	105	108	108	104	104	105	111	112
40	80	84	90	90	90	90	92	92	91
41	67	67	65	68	69	70	71	70	68
42	54	53	53	52	51	52	53	51	50
43	43	43	44	43	38	37	35	33	32
44	28	29	34	32	28	26	25	24	23
45	20	19	22	23	21	20	19	18	16
46	16	15	15	15	16	17	17	15	13
47	14	12	12	15	15	13	13	14	13
48	15	12	11	13	14	13	12	11	12
Total Fertility Rate	**4.19**	**4.14**	**4.12**	**4.08**	**4.00**	**3.89**	**3.77**	**3.64**	**3.58**
Mean Age at Childbearing	**30,4**	**30,5**	**30,6**	**30,7**	**30,8**	**30,9**	**31,1**	**31,3**	**31,4**

Group 11: Qatari women in households in which the head of household has primary education or less

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	8	7	5	5	3	2	2	2	3
17	18	13	10	9	7	5	4	4	5
18	32	22	17	14	12	10	8	6	6
19	48	36	27	20	19	17	15	10	9
20	62	53	40	31	28	24	20	13	13
21	73	68	56	45	38	30	27	18	21
22	85	81	76	67	53	38	31	24	27
23	104	91	90	81	70	52	43	35	34
24	127	107	96	90	83	70	56	44	39
25	149	125	109	103	96	87	72	56	47
26	153	144	119	112	97	96	85	72	59
27	169	157	134	120	102	101	90	80	67
28	184	174	144	130	108	111	97	89	80
29	201	183	158	143	132	128	108	90	85
30	193	184	168	162	149	141	120	108	105
31	185	173	170	165	160	145	131	114	113
32	182	168	163	160	152	138	123	116	114
33	185	165	155	144	148	136	130	113	110
34	184	168	149	133	142	139	138	117	111
35	168	166	155	140	138	131	142	123	121
36	151	157	152	141	134	125	132	119	117
37	125	132	133	133	121	109	107	104	107
38	111	106	115	114	112	103	97	91	91
39	94	93	101	104	96	91	85	83	80
40	83	79	86	82	80	77	79	77	70
41	68	66	62	60	59	64	67	63	58
42	51	49	47	41	42	45	50	47	43
43	42	41	44	40	37	36	37	33	29
44	33	32	37	33	29	26	27	25	20
45	31	29	30	29	25	24	24	22	15
46	27	23	20	20	18	20	20	17	12
47	25	22	20	24	19	18	16	17	15
48	24	20	16	20	20	19	16	15	16
Total Fertility Rate	**3.37**	**3.13**	**2.90**	**2.72**	**2.53**	**2.36**	**2.20**	**1.95**	**1.84**
Mean Age at Childbearing	**31,7**	**31,9**	**32,3**	**32,6**	**32,8**	**33,0**	**33,4**	**33,8**	**33,7**

Group 12: Qatari women in households in which the head of household has preparatory or vocational education

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	14	11	11	14	13	8	5	5	4
17	26	25	23	25	21	15	11	10	8
18	47	45	46	39	35	27	24	18	19
19	76	76	71	60	52	47	38	30	32
20	101	93	90	77	69	64	62	54	56
21	126	114	109	105	97	88	81	76	83
22	148	132	124	123	121	109	106	100	109
23	182	171	153	145	141	141	125	114	118
24	195	188	172	161	153	157	147	132	125
25	201	196	193	185	170	174	161	148	137
26	198	200	212	207	195	189	176	156	157
27	212	210	213	212	205	192	178	161	176
28	224	216	210	209	207	196	188	171	190
29	212	213	203	208	204	192	194	197	207
30	204	204	202	202	197	196	200	201	205
31	192	195	193	199	192	190	186	185	185
32	186	175	182	193	189	190	177	163	163
33	166	163	172	187	174	179	159	154	153
34	161	169	183	183	165	172	169	163	159
35	160	170	176	172	147	154	157	152	151
36	154	161	168	162	156	149	153	146	144
37	135	137	144	138	140	127	130	133	137
38	120	117	130	122	127	112	119	127	137
39	103	99	101	96	100	96	107	111	120
40	75	73	76	88	90	88	90	86	96
41	60	61	50	65	66	68	62	59	65
42	46	52	48	53	46	46	44	44	54
43	42	46	42	34	30	30	34	32	41
44	27	32	37	27	26	23	27	28	36
45	24	24	29	23	26	22	23	22	24
46	18	19	17	15	20	17	20	17	18
47	13	12	9	11	16	15	19	14	15
48	11	9	2	5	8	8	11	8	15
Total Fertility Rate	**3.86**	**3.81**	**3.79**	**3.75**	**3.60**	**3.48**	**3.38**	**3.22**	**3.34**
Mean Age at Childbearing	**30,3**	**30,5**	**30,7**	**30,8**	**30,9**	**31,0**	**31,4**	**31,5**	**31,7**

Group 13: Qatari women in households in which the head of household has secondary education

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	17	19	20	24	22	19	12	11	9
17	32	33	32	33	32	34	29	25	20
18	55	57	52	51	48	57	53	49	39
19	79	79	78	75	74	83	87	85	73
20	104	108	108	107	104	109	112	115	108
21	137	138	139	139	141	138	141	143	148
22	173	168	167	166	173	168	165	160	167
23	199	193	190	188	195	193	190	186	191
24	216	218	216	209	208	207	206	203	202
25	234	244	236	230	221	219	214	217	219
26	239	244	244	246	245	235	227	224	227
27	250	246	239	246	246	240	230	232	234
28	244	229	224	234	241	245	241	236	237
29	260	237	229	222	231	242	240	236	232
30	241	223	227	218	235	242	239	229	227
31	229	226	234	224	230	229	224	218	212
32	207	216	223	228	223	218	209	207	205
33	200	205	205	213	208	205	205	199	205
34	184	192	190	202	201	203	197	190	201
35	169	175	170	182	184	191	182	175	183
36	151	164	160	177	174	175	155	160	164
37	141	144	141	155	158	156	139	148	154
38	124	135	129	135	133	133	120	131	141
39	100	110	111	108	107	107	107	115	119
40	77	89	96	93	90	90	89	93	93
41	58	65	74	74	78	75	75	74	74
42	45	54	61	64	66	67	62	58	56
43	34	36	41	46	47	47	42	37	38
44	18	19	25	35	34	33	27	28	25
45	12	9	13	20	21	17	11	14	13
46	5	6	7	11	11	9	7	12	11
47	6	7	7	8	9	5	7	8	9
48	7	6	8	10	9	6	7	7	9
Total Fertility Rate	**4.25**	**4.30**	**4.30**	**4.37**	**4.40**	**4.39**	**4.25**	**4.22**	**4.25**
Mean Age at Childbearing	**29,9**	**30,1**	**30,2**	**30,4**	**30,4**	**30,4**	**30,2**	**30,3**	**30,5**

Group 14: Qatari women in households in which the head of household has tertiary education

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	21	21	18	16	11	7	4	3	2
17	32	32	30	28	23	17	12	8	6
18	57	58	55	53	43	38	27	20	16
19	80	82	83	86	77	64	46	35	30
20	112	114	123	125	119	101	79	62	52
21	137	137	148	154	157	138	118	94	81
22	165	172	189	191	189	175	161	136	113
23	204	208	221	224	218	208	194	176	156
24	240	235	249	245	246	234	220	203	189
25	260	254	262	256	263	252	236	219	213
26	272	266	270	257	267	258	248	234	220
27	274	279	277	268	269	260	254	247	231
28	283	279	274	265	264	260	261	262	248
29	268	273	267	269	261	258	256	257	246
30	256	260	258	259	248	250	253	254	244
31	241	250	253	250	233	235	243	244	228
32	233	232	235	228	225	223	235	235	227
33	219	217	215	208	213	210	223	223	217
34	196	192	192	194	208	207	212	206	205
35	171	172	175	180	187	191	193	189	188
36	154	156	167	174	178	178	172	169	164
37	152	144	148	150	150	150	144	150	144
38	134	125	131	136	135	133	126	135	128
39	110	102	106	108	111	112	109	115	110
40	82	82	88	89	93	96	99	96	92
41	75	69	69	68	71	71	76	71	67
42	60	58	56	53	47	47	50	49	46
43	43	42	44	42	34	31	28	29	27
44	27	28	31	27	21	20	18	16	18
45	18	18	20	17	18	19	17	11	13
46	13	13	14	11	14	16	17	12	11
47	8	8	9	10	13	15	14	12	10
48	7	7	7	9	10	10	11	11	9
Total Fertility Rate	**4.60**	**4.59**	**4.69**	**4.65**	**4.62**	**4.49**	**4.36**	**4.18**	**3.95**
Mean Age at Childbearing	**30,1**	**30,0**	**30,0**	**30,0**	**30,1**	**30,4**	**30,6**	**30,9**	**31,1**

Group 15: Qatari women in households in which the head of household has an occupation coded 1-2 Legislators, Senior Officials and Managers, Professionals

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	21	21	20	15	11	7	5	3	2
17	32	33	33	31	26	19	14	9	7
18	56	58	59	56	47	39	28	22	17
19	82	84	87	91	83	69	52	40	32
20	116	117	124	128	123	107	85	68	54
21	143	141	151	160	164	149	129	105	83
22	170	176	192	198	194	183	169	147	114
23	202	209	225	226	218	210	204	188	157
24	231	233	250	246	245	237	229	214	186
25	246	250	262	253	262	252	243	229	210
26	256	260	268	258	270	262	255	242	217
27	259	270	271	265	267	255	252	251	228
28	264	263	261	260	263	259	262	264	240
29	245	246	246	255	254	251	248	251	237
30	227	226	234	240	237	242	246	250	234
31	215	219	229	228	216	219	229	236	218
32	213	212	209	202	196	204	219	226	212
33	203	202	191	183	183	192	204	206	196
34	178	172	166	166	179	186	191	187	186
35	153	152	156	157	166	172	173	168	163
36	138	138	147	150	158	157	151	148	144
37	141	133	131	129	132	133	125	127	123
38	124	116	114	114	116	115	111	117	115
39	98	91	94	90	94	95	98	103	101
40	68	72	76	75	79	83	87	86	81
41	63	61	62	60	64	63	67	63	60
42	53	51	46	45	42	45	46	45	41
43	38	39	36	37	31	29	26	28	26
44	23	25	24	23	18	19	15	13	16
45	18	18	17	14	14	13	11	8	12
46	15	13	12	8	10	9	10	7	10
47	9	9	9	10	10	10	10	9	8
48	11	11	8	9	9	8	10	7	6
Total Fertility Rate	**4.31**	**4.32**	**4.41**	**4.38**	**4.38**	**4.29**	**4.21**	**4.07**	**3.74**
Mean Age at Childbearing	**29,9**	**29,8**	**29,6**	**29,6**	**29,7**	**29,9**	**30,2**	**30,4**	**30,8**

Group 16: Qatari women in households in which the head of household has an occupation coded 3-9 Technicians And Associate Professionals, Clerks, Service Workers and Elementary Occupations

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	18	19	18	20	17	14	8	8	6
17	35	33	31	30	27	25	20	18	14
18	60	59	54	51	46	48	42	35	29
19	87	86	81	75	72	73	69	61	54
20	108	112	111	107	102	100	95	87	85
21	133	136	138	136	135	126	122	113	122
22	159	161	164	163	165	153	147	138	148
23	190	187	188	188	189	182	171	162	172
24	211	207	204	204	201	198	187	180	184
25	227	223	220	220	215	212	199	192	200
26	228	227	225	227	224	223	212	203	210
27	236	231	224	224	224	225	219	211	220
28	237	228	216	217	219	226	223	220	228
29	241	232	220	215	216	222	224	221	227
30	225	221	218	216	219	223	221	219	227
31	211	212	215	215	216	214	211	205	211
32	194	193	202	210	213	206	196	192	200
33	178	178	187	195	197	191	188	184	194
34	167	175	180	182	181	183	187	183	188
35	154	168	170	169	159	165	172	170	178
36	144	157	161	164	155	156	155	156	159
37	124	126	135	139	141	137	132	139	144
38	109	105	118	121	127	122	116	122	128
39	90	86	95	94	97	98	102	107	108
40	71	71	79	84	83	84	88	90	92
41	56	57	57	62	62	65	70	70	70
42	44	47	49	51	49	50	51	50	53
43	36	40	39	37	35	36	34	30	31
44	22	23	28	28	29	28	25	23	21
45	13	13	19	22	23	21	16	14	12
46	6	5	10	14	16	14	14	13	11
47	6	6	10	11	11	9	11	11	12
48	6	4	6	8	9	7	8	9	13
Total Fertility Rate	**4.03**	**4.02**	**4.07**	**4.10**	**4.08**	**4.04**	**3.94**	**3.84**	**3.95**
Mean Age at Childbearing	**29,8**	**29,8**	**30,1**	**30,2**	**30,3**	**30,3**	**30,5**	**30,7**	**30,7**

Group 17: Qatari women in households in which the head of household is inactive

Age	2001	2002	2003	2004	2005	2006	2007	2008	2009
16	2	1	1	1	1	1	1	1	1
17	4	2	1	2	1	1	1	1	1
18	7	3	3	3	2	2	1	1	2
19	10	6	5	3	3	2	2	1	1
20	17	11	8	5	5	3	3	2	2
21	20	14	11	7	6	5	5	4	3
22	26	19	15	11	9	7	7	6	4
23	34	23	18	14	12	9	8	7	6
24	46	34	26	19	16	13	10	8	7
25	53	43	33	26	22	17	14	10	8
26	59	53	43	33	26	21	16	12	8
27	63	57	50	44	36	29	20	15	10
28	76	70	61	49	39	32	23	17	13
29	86	80	72	60	50	43	33	25	18
30	93	88	79	67	56	46	38	30	23
31	93	86	81	72	63	53	45	38	29
32	93	86	83	77	65	54	47	42	33
33	103	90	82	72	66	58	55	47	37
34	102	90	82	78	78	70	61	45	37
35	99	88	78	78	81	71	64	47	42
36	87	83	79	81	80	70	61	50	44
37	81	82	78	79	69	59	52	52	49
38	74	75	75	72	63	55	47	49	45
39	65	67	67	69	61	54	43	43	42
40	55	54	56	54	53	48	43	37	33
41	45	44	41	42	41	41	36	30	26
42	34	34	33	30	28	29	29	24	20
43	26	25	28	26	22	20	21	20	18
44	19	20	24	21	16	14	16	17	15
45	17	16	18	16	14	14	16	15	12
46	14	14	12	11	11	13	13	11	8
47	13	12	9	11	12	12	11	10	9
48	12	11	8	10	11	11	10	9	9
Total Fertility Rate	**1.63**	**1.48**	**1.36**	**1.24**	**1.12**	**0.98**	**0.85**	**0.73**	**0.62**
Mean Age at Childbearing	**33,2**	**33,7**	**34,1**	**34,6**	**34,8**	**35,2**	**35,5**	**35,9**	**36,1**