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Across the world, is men's fertility different from that of women?

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Fertility is generally calculated by dividing the number of births by the number of women of reproductive age to obtain a mean number of children per woman. Looking at the question from a male perspective, Bruno Schoumaker has calculated the mean number of children per man for most countries of the world and explains here why men's and women's fertility are sometimes very different.

The various dimensions of female fertility – lifetime number of children, age at childbearing, fertility trends over time and disparities across social groups – are quite well documented. On the other hand, little is known about male fertility in many countries, developing countries especially. As attention habitually focuses on female fertility, the characteristics of men's reproductive behaviour are often overlooked, or assumed to be much the same as those of women. The importance of men in fertility choices is now gaining recognition, and major survey programmes such as the Demographic and Health Surveys (DHS) have included questions on male fertility in their questionnaires. Using data from these surveys and combining them with other sources – civil registration and censuses (Box 1) – we can draw a picture of male fertility in almost 150 countries and show that in most of them it is very different to that of women.

Average fertility that ranges from less than 1 child to more than 13 children per man

While the mean number of children per woman ranges between 1 and 8, depending on the country, the differences

in male fertility are much greater (Figure 1). In European countries, male fertility is between 1 and 2 children on average, and is generally similar to that of women. It is especially low in the countries of southern and eastern Europe, at around 1.2 children per man on average, while in western and northern Europe it is between 1.7 and 2.1 children, on a par with North America, Australia and New Zealand. Disparities are greater in Asia. Male fertility levels are very low in Japan and South Korea (around 1.2 children), and even lower in certain Gulf States (below 1 in Qatar) where there are large populations of predominantly male immigrants (Box 2). They are much higher in other Asian countries, however, reaching 5 children per man in Pakistan, and 7 in Afghanistan. In Latin America, male fertility is generally lower than in Asia, but disparities are also large, with fewer than 2 children per man in some countries (Cuba, Chile, Costa Rica), but more than 5 in Haiti. Sub-Saharan Africa has by far the highest levels of male fertility. It is above 8.5 children per man in half of the 41 sub-Saharan countries for which we have data, and above 10 children in one quarter of them. The highest fertility levels are observed in Niger (13.6 children on average), South Sudan (13.5 children), Chad (12.1 children) and in the Sahelian countries more generally. In only four countries (South Africa, Botswana, Lesotho and Namibia) is male fertility below 6 children per man.

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Box 1. Measuring male fertility

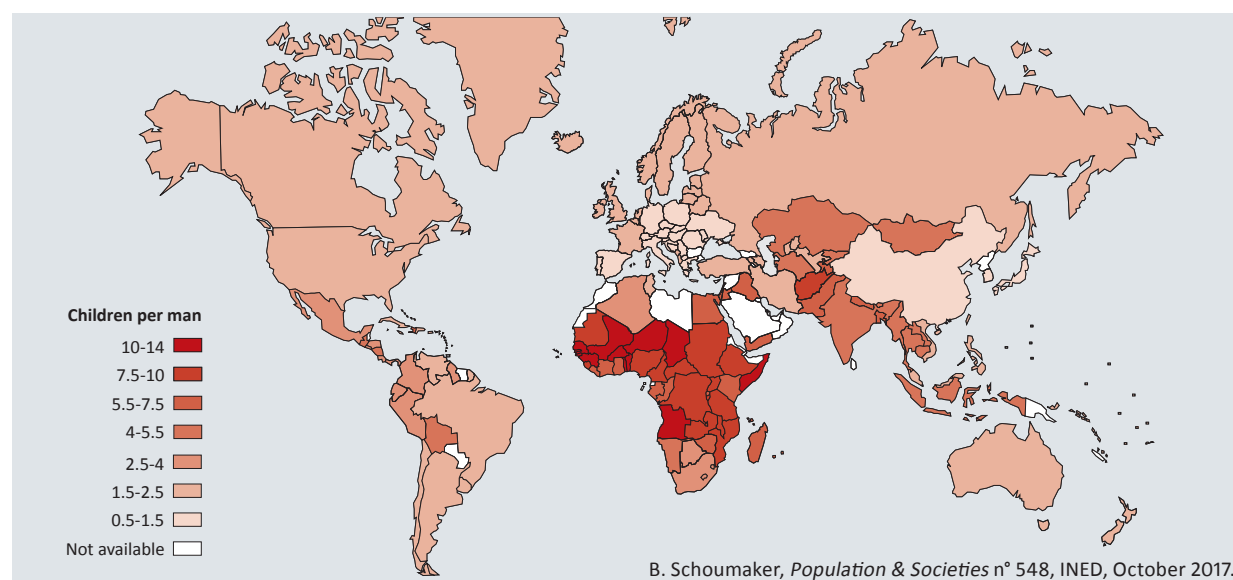
Two main data sources can be used to measure male fertility. Civil registration data are used to calculate the male age-specific fertility rates published in the Demographic Yearbooks of the United Nations [1]. These statistics are available for around 80 countries, mainly industrialized nations but also a few developing countries. They are imperfect, however, notably because the father's age is often unknown (for 15-20% of births), or because rates are sometimes only available for births within marriage. While adjustments are often necessary, these data provide relatively reliable fertility rates.

Demographic surveys are also useful for estimating male fertility rates, especially in developing countries where civil registration is often incomplete. Survey data on children living in the household and on their biological father can be used to estimate men's age-specific fertility rate using the "own children" method [2]. This method is applied here to measure the fertility of men in almost 70 countries of Africa, Asia and Latin America using data from the DHS surveys and the Multiple-Indicator Cluster Surveys (MICS). It is also applied to census data in several additional countries. Reliable estimates have thus been obtained for almost 150 countries in all, using survey and census data in slightly more than half of cases.

Female and male fertility are sometimes very different

In most western countries, fertility is low, and men's fertility is slightly below that of women, often by around 0.1 children (Figure 2). However, men's fertility is much higher than women's in many other countries of the world where the fertility transition is still under way (Figure 2). The gender gap is especially wide in sub-Saharan Africa, notably in countries where the age difference between spouses is large and polygamy is widespread. In Senegal and Gambia, for example, men have twice as many children as women by the end of their reproductive life. These large differences, already observed at local and regional level in western Africa [4], are also confirmed at national level in several countries, and are by no means exceptional. In all countries, men also have their children later than women, sometimes at very advanced ages (Figure 3). Indeed, it is these age differences which explain in part why men's and women's fertility levels can be so different (Box 2). In Senegal, for example, men begin their reproductive life much later than women, and continue to have children well beyond age 50; men's mean age at fatherhood is 44 years, 14 years more than women's mean age at childbearing (30 years). The timing of reproduction is thus very different for men and women, with fertility peaks occurring at distinct stages in the life cycle (in the early 40s for men, at ages 25-30 for women). Outside sub-Saharan Africa, gender differences are less pronounced, as illustrated by the situations of Haiti and France (Figure 3), although men's fertility is always later than women's. Among the

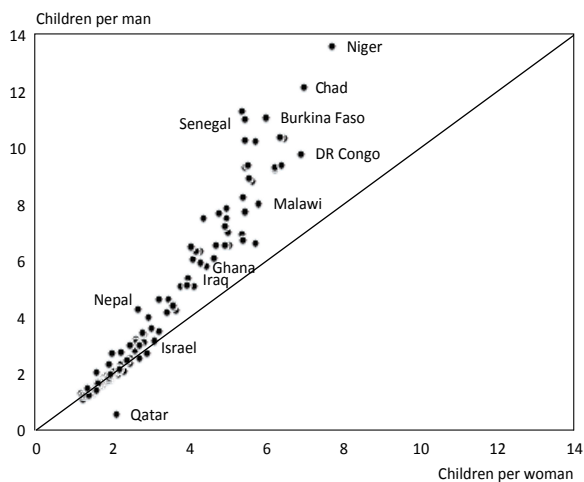
Figure 1. Male fertility across the world circa 2010 (146 countries)



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Source: *United Nations Demographic Yearbook* [1] and author's calculations based on DHS surveys, MICS surveys and censuses. For China, estimates drawn from [3].

Figure 2. Comparison of male and female fertility in 146 countries, circa 2010



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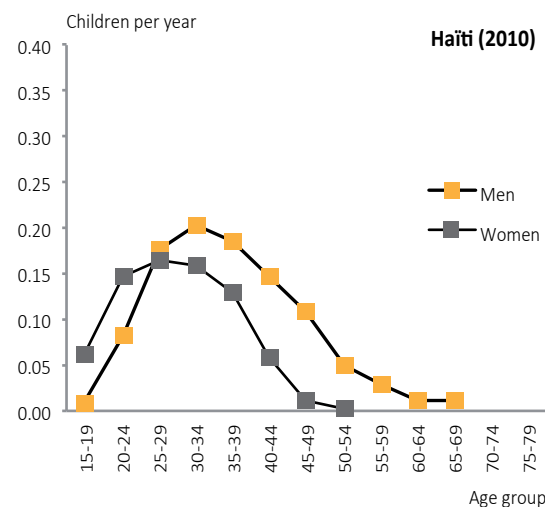
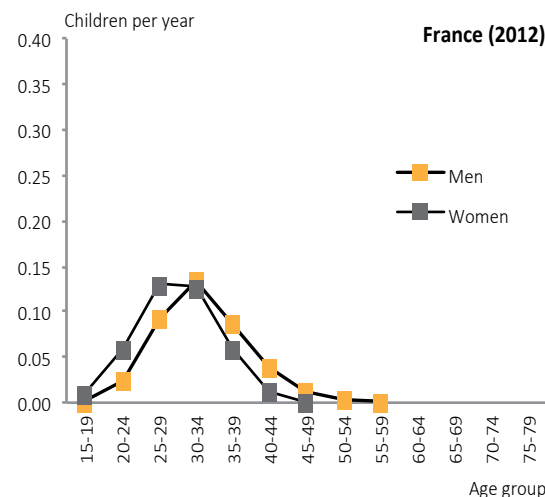
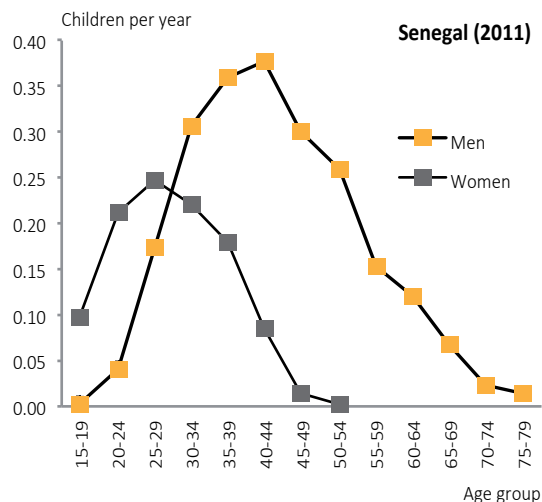
Source: *United Nations Demographic Yearbook* [1] and author's calculations based on DHS surveys, MICS surveys and censuses. For China, estimates drawn from [3].

146 countries considered here, the mean age at fatherhood is 33.6 years, versus 28 years for the mean age at childbearing. The mean age at fatherhood is more than 40 years in around 20 countries, all of them in Africa.

Are male and female fertility converging?

In countries where the fertility transition is starting or under way, men's fertility is higher than that of women. Historical data from a few countries also show that while male fertility is higher during the transition, it rapidly decreases thereafter to converge with that of women [3, 5]. This suggests that in the Global South, changes in fertility will be faster for men than for women. This is visible in Ghana for example, where male fertility fell from 12 to 7 children per man between 1980 and 2010, and where this decline – primarily above age 35 – was accompanied by a substantial decrease in the mean age at fatherhood. While female fertility has also decreased, the changes are less pronounced. The fertility transition is following a clearly different path for men and for women, with a gradual convergence of levels and, to a lesser extent, of fertility timing. But this convergence does not mean that the determinants of fertility will be the same for both sexes. In Greece, for example, the least educated men have the lowest fertility, while the reverse is observed for women. Employment also has a very positive effect on fertility for men, while for women its impact is negligible [6].

Figure 3. Age-specific fertility rate of men and women in three countries



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Source: *United Nations Demographic Yearbook* [1] for France, and author's calculations based on DHS surveys for Senegal and Haiti.

Box 2. Why is men's fertility different from women's?

How is it possible, within a single country, for men to have a total fertility rate of 12 or 13 children, while that of women is around 6 children? This "anomaly" is linked to the fact that women are more numerous than men at the ages where they have their children [2, 4]. In many countries, those of sub-Saharan Africa especially, men have children much later than women, reflecting the age difference between spouses. For example, in Senegal, men have their children at age 44 on average, and women at age 30. At the ages when they have their children, women also outnumber men for two main reasons: first, when populations are growing, each new birth cohort is larger than the preceding one; second, fewer men survive to the mean age at fatherhood than women to the mean age at childbearing because the age at fatherhood is older and because male mortality is higher than female mortality. Consequently, fertility rates at advanced ages are much higher for men than for women, and the mean number of children per man is higher than the mean number per woman. This is particularly true in countries where polygamy is widespread, as is the case in many West African countries.

In western countries, on the other hand, where the age difference between spouses is smaller and where there are slightly more men of reproductive age than women, male fertility is often slightly lower than female fertility. In contexts where the sex ratio is severely skewed, due to migration, excess male or female mortality (due to war for example) or son preference, the gender gap in fertility is wider. This is the case in Qatar, for example (Figure 2), where men greatly outnumber women at reproductive ages due to mass immigration of male workers. This illustrates the limits of measuring male fertility in countries with high levels of mobility. The ratio of births registered in a given country to the number of resident men does not take account of the children born elsewhere, and thus probably under-estimates the true fertility of the men present in that country.

All in all, analysing fertility exclusively from women's viewpoint is restrictive in many contexts, be it to measure levels, timing, trends or determinants. Better analysis of existing data and the collection of new data on male fertility would broaden the opportunities for further research.

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Abstract

Across the world, the mean number of children per man ranges from less than 1 to more than 13, while for women the range is between 1 and 8. It is in sub-Saharan Africa that male fertility is highest, notably in the Sahelian countries, with 13.6 children per man on average in Niger, 13.5 in South Sudan and 12.1 in Chad. In only four countries (South Africa, Botswana, Lesotho and Namibia) is male fertility below 6 children per man. In most western countries, on the other hand, fertility is low, and men's fertility is slightly below that of women, often by around 0.1 children.

Keywords

Female fertility, male fertility, age difference between spouses, polygamy.