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Descriptive Finding

Fertility among better-off women in sub-Saharan Africa: Nearing late transition levels across the region

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Fertility among better-off women in sub-Saharan Africa: Nearing late transition levels across the region

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Abstract

BACKGROUND
While overall fertility across Sub-Saharan Africa (SSA) is still high, fertility rates have been declining among educated and wealthier women in many countries since the 1970s. It is not clear whether, five decades later, consistently lower fertility among better-off women represents a distinct fertility regime among this subpopulation.

OBJECTIVE
To determine whether advantaged women (the best educated or wealthiest) in contemporary SSA have fertility characteristic of late (total fertility rate [TFR] 2.0–2.9) or mid-to-late (TFR 3.0–3.9) fertility transition levels.

METHODS
We use data from the Demographic and Health Surveys (DHS) to calculate TFR for better-off women using six educational and wealth categories in 27 countries in SSA.

RESULTS
Women with completed secondary education (11% of the full sample) across SSA have late (2.0–2.9) or mid-to-late (3.0–3.9) TFR in 25 out of 27 sample countries (with an average TFR of 3.2). While better-educated women in higher-fertility countries (TFR>5) have somewhat higher fertility than their counterparts in lower-fertility settings (TFR<5), there is convergence towards similarly low fertility among highly educated women within countries with TFR <5.

CONCLUSIONS
Better-educated women across SSA today have fertility rates nearing late transition levels. Their fertility is only partly associated with the overall country fertility.

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CONTRIBUTIONS

The finding that women in the upper social group in most countries in SSA are nearing the end of the fertility transition shows a more complex picture of fertility decline across the region than is commonly assumed. It shifts attention to understanding the intragroup differentials and diffusion processes that will impact the future path of fertility declines in the region.

1. Introduction

In 2015–2019, by global standards women across SSA had relatively high total fertility rates (TFR): 4.3 children in East Africa, 5.2 in West Africa, and 5.5 in Central Africa (United Nations 2019). However, these aggregates hide large intra-national disparities that have implications for how we understand fertility levels in the region. Socioeconomic inequalities in fertility rates, most notably by education level, emerged in SSA in the 1970s and 1980s (Garenne and Joseph 2002; Shapiro 2012) and increased substantially from the early 1990s to about 2010 because fertility declines continued to progress among better-educated women even when fertility stalled or declined at the national level (Shapiro 2012). As fertility among better-off women has continued to decline in recent decades (Eloundou-Enyegue, Giroux, and Tenikue 2017), the fertility transition could today be well advanced or nearing completion in this group. In this paper, we investigate whether, despite the overall slow pace of fertility transitions in SSA, the fertility transition is near completion among the most advantaged women across the region.

At first glance, recent analysis with data from the Demographic and Health Surveys (DHS) for SSA does not indicate end-of-transition TFR for better-off women. For example, Lutz and Samir (2011) compared the TFR across SSA countries in the second half of the 2000s for women who had reached the DHS's highest educational category (some secondary schooling) and found that in 9 out of 14 countries, these better-educated women still had TFRs around 4 or 5. Shapiro (2012), however, showed substantial fertility variation among women in SSA who had attained lower-level secondary, upper-level secondary, and post-secondary schooling and called for using more precise educational indicators in fertility analysis. In recent decades, an increasing share of the population has reached but not completed secondary schooling (in 2016, 61% of girls in SSA attended lower secondary school but only 39% attended upper secondary [UNESCO 2018]), suggesting that use of the broader secondary school educational categories in fertility analysis could mask the advent of end-of-transition fertility levels in the upper socioeconomic groups.

Demographers have extensively examined the relationship between the fertility level of the better-off group and the rest (the majority) of the population over the course of the demographic transitions. The World Fertility Surveys and the DHS helped establish a strong negative link between female education and fertility outcomes in most developing countries, starting with the onset of the demographic transition, widening during the transition, and tapering off afterwards (Bongaarts 2010; Castro-Martin 1995; Cleland 2002; Cleland and Rodriguez 1988; Caldwell 1980; Cochrane 1979; Jejeebhoy 1995; Kravdal 2002; Maralani 2008; Bledsoe et al. 1999). Men's/partner's education and household wealth are similarly linked to women's fertility behaviours, but more weakly because they activate only part of the hypothesized causal mechanisms (Axinn and Barber 2001; Kravdal 2002). In addition, not all wealthy or educated men marry educated women, which explains the focus on women's education (Basu 2002). However, given that the quality–quantity trade-off may be pronounced even among wealthy couples who are less educated and that small family ideals can be influenced through the levels of media exposure linked to wealth, household wealth is also an important additional indicator of socioeconomic status to be considered in relation to fertility decline.

For SSA, Shapiro and Tambashe (2002) used DHS data from the early 1990s to propose a model of the unfolding of socioeconomic differentials in fertility rates during the transition in three stages. In a first phase, fertility starts declining in the most advantaged group but remains high among the rest of the population. In a second stage, the decline accelerates among the better off and begins in the rest of the population. In a third stage, the rate of fertility decline tapers off among the better off but falls more rapidly among women in the rest of the population. This scheme suggests a bell-shaped curve in fertility inequalities across socioeconomic groups: nonexistent before the transition, growing during the first part of the transition, and declining thereafter. Eloundou-Enyegue, Giroux, and Tenikue (2017) put this theory to test with data from SSA countries up to about 2010 and found the expected rise in fertility inequalities across socioeconomic groups early in the transition. But the authors also uncovered a persistence in these inequalities because fertility stalled or declined only slowly among the majority of the population in many countries. These stalls, identified in the mid-2000s (Bongaarts 2006; Schoumaker 2019), could be due to setbacks in educational progress that resulted from more limited governmental funds for social spending at the end of the century (Kebede, Goujon, and Lutz 2019) and/or a weakening of investments in family planning programmes (Cleland et al. 2006; Günther and Harttgen 2016). These obstacles to family planning use, however, could have less influence on the fertility stalls among the better off, given their ability to resort to other means of fertility regulation, including better access to abortion (Chae et al. 2017) and higher rates of use of traditional methods of contraception in some parts of the region (Rossier and Corker 2017), to better meet their (lower) fertility desires.

Here we investigate whether the fertility level in the most advantaged groups across SSA countries today is approaching replacement level consistently across the region. Using more fine-grained indicators of higher social status based on education and wealth levels in DHS surveys in 27 countries in West, Central, and East Africa, we describe the extent to which the most educated and wealthy women in SSA today have lower fertility rates of around two or three children, regardless of the country-level fertility context.

2. Data and methods

We use recent DHS data from countries in West, East, and Central Africa that carried out a standard or continuous DHS starting in 2010, producing a sample of 27 surveys. In this analysis, we use only the subsample of women aged 20–49 because including 15–19-year-olds would inaccurately categorize as less educated many young women who will go on to finish their secondary education. We limit our analysis to surveys since 2010 to measure fertility outcomes within the same decade across all countries in the analysis. All analysis accounts for survey-specific weights at the individual level, with the pooled sample weighted by country population. The descriptive analyses performed, using the *svy* commands in Stata, account for the DHS's stratified, clustered sample design.

For our analysis, we create six distinct categories of upper socioeconomic status for women in our sample based either on educational level or household wealth: (1) some secondary education; (2) living in an upper wealth quintile household; (3) completed secondary education; (4) living in an upper wealth decile household; (5) some higher education; and (6) living in an upper wealth twentile household. For each category, those who meet the criteria are considered better-off women and are compared to women who do not meet the criteria. (For example, women living in an upper wealth decile are compared to all those in the lower nine deciles.) We look at these six categories of women to assess to what extent stricter definitions of educational attainment and wealth level show more differentiated fertility outcomes and thus whether use of these categories is more informative for understanding the unfolding fertility transition in SSA. For education, we use the DHS variable *v149*, which specifies whether a respondent has attended or completed different schooling levels (such as primary or secondary), although we note some variation in the number of years of schooling across countries in the broad secondary schooling category. Wealth is designated using the within-country relative wealth quintile variable, *v190*, and the deciles and twentiles are created using scores of *v191*.

We first describe the proportion of our sample labelled as better-off using six categories, by country and for the pooled sample. Next we calculate the TFR for the better-off and the rest of the population by each category, within each country, and across

the pooled sample. We compare the TFR across different categories of the better-off using Bongaarts' (2003) labelling of different fertility levels: > 7 = pretransition, 6.0–6.9 = early, 5.0–5.9 = early–mid; 4.0–4.9 = mid, 3.0–3.9 = mid–late; 2.0–2.9 = late; 0.0–2.0 = post-transition. We then focus on the third category (women who have completed secondary education) and describe fertility in the 27 countries of these highly educated women and examine to what extent their fertility levels vary across countries according to their stages in the fertility transition.

3. Results

In the 27 countries taken together, one-third (33.6%) of women aged 20 to 49 had some secondary education, just over 1 in 10 (11.0%) finished secondary school, and 1 in 20 (4.7%) reached tertiary education. The proportions of women aged 20–49 in the different wealth categories (upper quintile, decile, twentile) are mostly as expected.

Table 2 shows TFR according to six different definitions of upper socioeconomic status. The TFR is higher in categories defined more strictly – that is, corresponding to fewer women in the population. Across the pooled sample, the most restrictive definition is for tertiary education (4.7% of women age 20–49), and this group has a TFR of 2.7 children per woman. The second strictest definition is for the upper wealth twentile (5.3% of the population), and TFR in that group is 2.9. Women in the upper wealth decile (10.5%) have a TFR of 3.1. Women who have completed secondary school (11.0%) have 3.2 children on average. Women in the upper wealth quintile (23.7 %) have 3.7 children on average, and women with some secondary schooling (33.3%) have on average 4.0. Across countries, there is some variation in which category contains the smallest proportion of women and has the lowest TFR, but it is generally the most discerning educational category (tertiary education).

Table 1: Share of better-off women according to six categories of upper socioeconomic status definitions, ages 20–49, by country, 2010–2019, in West, Central, and East Africa, DHS

	Some secondary school (1)	Upper wealth quintile (2)	Completed secondary school (3)	Upper wealth decile (4)	Some tertiary education (5)	Upper wealth twentile (6)
Pooled sample	33.3	23.7	11.0	10.5	4.7	5.3
Benin 2017–2018	25.1	22.5	2.6	9.0	1.9	4.5
Burkina Faso 2010	11.8	23.7	1.4	10.0	0.9	5.5
Burundi 2016–2017	23.9	20.3	1.9	6.1	1.2	3.3
Cameroon 2018–2019	53.1	23.3	11.8	10.6	7.6	5.2
DR Congo 2014	45.4	22.2	11.3	11.6	3.4	5.8
Côte d'Ivoire 2012	20.4	23.6	5.2	10.5	2.5	4.7
Ethiopia 2017	21.2	34.0	9.1	10.0	7.3	5.1
Gabon 2012	76.8	24.9	14.4	21.4	11.0	11.5
Gambia 2013	40.8	26.2	14.1	12.4	5.8	5.7
Ghana 2014	59.2	19.1	15.7	11.1	5.6	5.6
Guinea 2018	19.6	22.8	5.9	11.3	3.9	6.1
Kenya 2014	39.7	21.3	23.9	11.6	9.6	6.1
Liberia 2013	35.7	24.1	10.6	21.2	4.5	11.3
Mali 2018	21.5	24.0	2.1	10.4	2.1	5.4
Malawi 2015–2016	24.8	22.0	8.8	8.0	2.7	4.1
Mozambique 2011	19.3	28.0	4.0	8.3	1.4	4.2
Niger 2012	9.5	25.5	1.0	6.7	0.7	2.9
Nigeria 2018	49.9	19.7	33.0	10.3	10.4	5.1
Rep. of Congo 2012	71.4	23.1	10.4	21.3	5.4	11.3
Rwanda 2014–2015	23.3	22.4	7.5	8.0	2.6	4.0
Senegal 2017	29.8	23.6	7.5	11.2	2.9	5.1
Sierra Leone 2013	29.1	20.6	4.5	14.9	3.6	7.5
Tanzania 2015–2016	34.9	25.6	4.9	12.0	3.4	6.1
Togo 2014	24.1	25.1	13.3	9.7	1.1	4.7
Uganda 2016	30.7	22.7	8.7	10.3	7.3	5.0
Zambia 2018–2019	46.8	23.8	15.4	11.1	5.4	5.3
Zimbabwe 2015	72.9	25.6	9.1	8.6	7.5	4.4

Table 2: TFR by country and for better-off and 'non-better-off' women according to six definitions of upper socioeconomic status, ages 20–49, by country, 2010–2019, in West, Central, and East Africa, 27 DHS

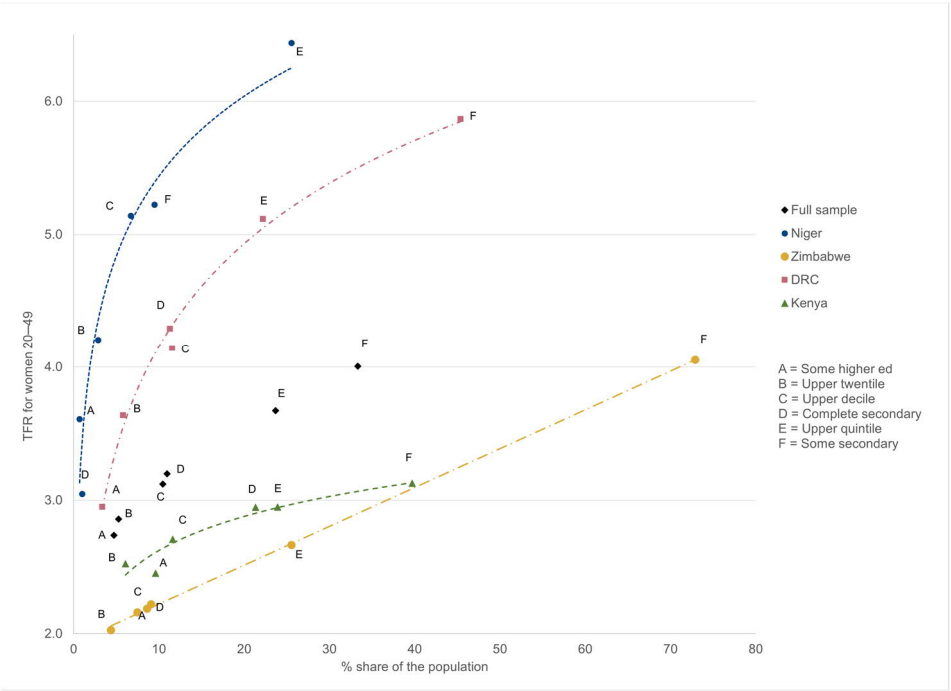
Country	All	All	Some secondary school (1)		Upper wealth quintile (2)		Completed secondary school (3)		Upper wealth decile (4)		Some tertiary education (5)		Upper wealth quintile (6)	
	15–49	20–49	*Better-off*	*Other*	*Better-off*	*Other*	*Better-off*	*Other*	*Better-off*	*Other*	*Better-off*	*Other*	*Better-off*	*Other*
Pooled sample	5.1	5.5	4.0	6.3	3.7	6.0	3.2	5.8	3.1	5.8	2.7	5.7	2.9	5.6
Benin 2017–2018	5.7	6.1	4.6	6.6	4.6	6.5	3.3	6.2	3.8	6.3	3.2	6.2	3.3	6.2
Burkina Faso 2010	6.0	6.4	3.3	6.8	4.0	7.2	3.1	6.5	3.0	6.8	3.3	6.5	2.7	6.6
Burundi 2016– 2017	5.5	5.9	4.2	6.6	4.6	6.2	3.6	5.9	3.4	6.1	3.0	5.9	2.9	6.0
Cameroon 2018–2019	4.8	5.1	4.1	6.3	3.2	5.7	3.1	5.5	3.1	5.4	3.0	5.4	3.0	5.2
DR Congo 2014	6.6	6.9	5.9	7.9	5.1	7.5	4.3	7.4	4.1	7.3	2.9	7.1	3.6	7.1
Côte d'Ivoire 2012	5.0	5.2	2.8	5.8	3.3	5.8	2.3	5.5	2.9	5.5	2.2	5.3	3.1	5.3
Ethiopia 2017	4.6	4.9	2.2	5.5	2.8	5.7	1.8	5.2	2.0	5.1	1.9	5.1	1.9	5.0
Gabon 2012	4.1	4.3	3.8	6.1	2.9	4.7	2.6	4.6	2.9	4.6	2.6	4.6	2.8	4.5
Gambia 2013	5.6	5.9	4.3	6.9	4.0	6.5	3.3	6.4	3.4	6.2	2.7	6.1	2.8	6.1
Ghana 2014	4.2	4.4	3.6	5.9	3.0	4.8	2.6	5.1	2.8	4.6	2.5	4.6	2.6	4.5
Guinea 2018	4.8	5.1	3.7	5.4	3.6	5.5	3.0	5.3	3.1	5.3	2.6	5.2	2.7	5.2
Kenya 2014	3.9	4.2	3.1	5.1	2.9	4.7	2.9	4.8	2.7	4.5	2.5	4.4	2.5	4.3
Liberia 2013	4.7	5.1	3.6	6.0	3.0	5.6	2.7	5.4	3.0	5.5	3.2	5.2	3.2	5.3
Mali 2018	6.3	6.6	4.8	7.0	4.8	7.1	3.7	6.7	4.5	6.8	3.7	6.7	4.4	6.7
Malawi 2015–2016	4.4	4.8	3.4	5.3	3.1	5.3	2.8	5.1	2.5	5.0	2.4	4.9	2.0	4.9
Mozambique 2011	5.9	6.2	3.6	6.7	3.9	6.9	2.7	6.4	2.9	6.4	2.1	6.3	2.7	6.3

Table 2: (Continued)

Country	All	All		Some secondary school (1)		Upper wealth quintile (2)		Completed secondary school (3)		Upper wealth decile (4)		Some tertiary education (5)		Upper wealth quintile (6)	
	15–49	20–49		*Better off*	*Other*	*Better off*	*Other*	*Better off*	*Other*	*Better off*	*Other*	*Better off*	*Other*	*Better off*	*Other*
Niger 2012	7.6	8.0		5.2	8.2	6.4	8.4	3.0	8.0	5.1	8.1	3.6	8.0	4.2	8.0
Nigeria 2018	5.3	5.7		4.5	6.8	4.0	6.1	4.1	6.6	3.8	5.9	3.4	6.0	3.5	5.8
Rep. of Congo 2012	5.1	5.3		4.7	6.8	4.1	5.6	3.4	5.6	4.1	5.6	3.5	5.5	3.8	5.5
Rwanda 2014–2015	4.2	4.4		3.1	4.9	3.4	4.7	2.7	4.6	2.6	4.6	2.4	4.5	2.1	4.5
Senegal 2017	4.6	4.9		3.3	5.6	3.1	5.5	2.3	5.1	2.9	5.3	2.1	5.0	2.7	5.1
Sierra Leone 2013	4.9	5.2		3.2	5.8	3.2	5.8	1.8	5.6	2.5	5.5	1.2	5.4	2.4	5.4
Tanzania 2015–2016	5.2	5.5		3.9	6.2	3.3	6.4	3.6	6.0	2.8	5.9	3.0	5.6	2.8	5.7
Togo 2014	4.8	5.0		3.7	5.8	3.5	5.6	2.8	5.2	3.3	5.3	2.6	5.2	2.9	5.2
Uganda 2016	5.4	5.8		4.5	6.5	4.1	6.4	3.6	6.1	3.6	6.1	3.6	6.0	3.3	5.9
Zambia 2018–2019	4.7	4.9		3.8	6.1	3.2	5.5	2.7	5.5	2.8	5.2	2.4	5.1	2.7	5.1
Zimbabwe 2015	4.0	4.4		4.1	5.5	2.7	5.1	2.2	4.7	2.2	4.6	2.2	4.6	2.0	4.5

Further analysis (Figure 1 and Table 2) confirms that among the better-off, the share of women in a given category is more predictive of the TFR than the type of the indicator (wealth or education). Moreover, the association between the TFR and the proportion of women covered by the definitions is linear in low-fertility countries (such as Zimbabwe) but logarithmic in high-fertility countries (such as Niger). In other words, in high-fertility countries, the women at the very top of the social hierarchy (however this is measured, by education or wealth) have markedly lower TFRs compared to the rest of the country; these small groups are relatively aligned on the TFRs of (larger) groups of better-off women in other countries in the region.

Figure 1: TFR of better-off women, ages 20–49 (y-axis), according to six education and wealth categories, and share of the category in the total population, ages 20–49 (x-axis), in four countries and full sample



In the final stages of our analysis, among our six categories of socioeconomic status we focus on the category of completed secondary education to distinguish socially

advantaged women in SSA. Like the previous literature, our data show that the relationship between wealth and fertility is more variable across countries (depending on educational expansion), warranting the choice of education over wealth. The wider educational category is arguably not discriminating enough, especially in countries where low-quality secondary schooling is common. The completed secondary education category describes a group that is clearly socioeconomically advantaged without being so small as to be considered the more extreme elite.

Figure 2: TFR for women with completed secondary education, some secondary education, and the rest of the population (women aged 20–49), by country, 2010–2019, DHS, in 27 countries in West, Central, and East Africa

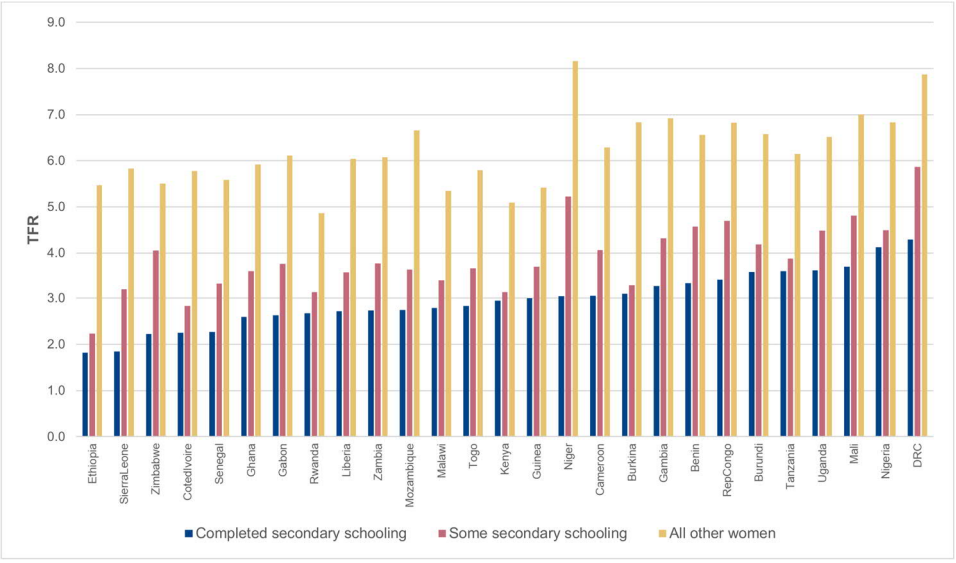
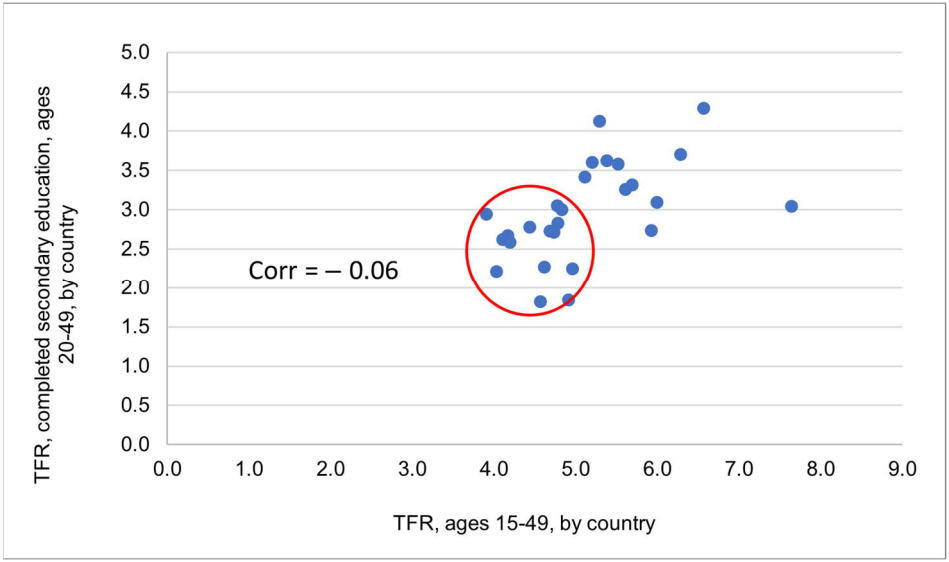


Figure 2 shows that women who have a secondary schooling degree have a TFR of less than 2 in two countries (Ethiopia and Sierra Leone), between 2 and 3 (2.0–2.9) in 12 countries, and between 3 and 4 (3.0 to 3.9) in 11 countries. The TFR of women who have completed secondary schooling is above 4.0 only in two countries (DRC and Nigeria). Taken as a whole, then, the fertility of this better-off group (average TFR 3.2) can broadly be characterized as late transition or mid-to-late transition.

Figure 3: TFR among women with completed secondary schooling (aged 20–49) versus TFR at the country level, by country, 2010–2019, DHS, in 27 countries in West, Central, and East Africa



Finally, Figure 3 shows that the TFR of women who have completed secondary education hovers around 2.5 in countries with a TFR below 5 and converges, but to a lesser extent, around 3.5 in countries with a TFR higher than 5. While there is a relationship between the level of fertility of better-of women and fertility at the country-level overall, past a certain point in the transition (for countries with overall TFR below 5) there is no longer a relationship (coefficient of correlation = –0.06) between the two trends.

4. Discussion and conclusion

We show that women with a completed secondary education in SSA in 2010–2019 are nearing low fertility rates in 25 out of 27 countries, with a TFR typical of late transition (2.0–2.9) in 12 countries, mid-to-late transition (3.0–3.9) in 11 countries, and post-transition (below 2.0) in 2 countries. The fertility transition is thus nearing the latest stage for the 11.0% of women in SSA with completed secondary education (3.2. children on average), despite the fact that half of the study countries still have national TFRs above

5. While the fertility of women who have completed secondary school is still higher (TFR between 3 and 4) in countries less advanced in the fertility transition (TFR above 5) and lower (TFR between 2 and 3) in more advanced countries (TFR lower than 5), levels tend to be relatively similar within these two groups of countries. We interpret this result to suggest that fertility rates among the most advantaged educational group are now relatively dissociated from fertility outcomes in the rest of the population, in line with the strong fertility inequalities found across the region by Eloundou-Enyegue, Giroux, and Tenikue (2017). Our result and that of Eloundou-Enyegue, Giroux, and Tenikue (2017) lend support to the large literature postulating a rise in inequality in fertility levels at the beginning of the demographic transition (Bongaarts 2010; Caldwell 1980; Castro-Martin 1995; Cleland 2002; Cleland and Rodriguez 1988; Cochrane 1979; Jejeebhoy 1995; Kravdal 2002; Maralani 2008; Bledsoe et al. 1999), as the most educated women distinguish themselves, via their 'innovative' fertility behaviour, from the rest of the population. It remains to be seen whether this initial fertility decline will be limited to the better-off subset of the population across SSA, resulting in widespread fertility stalls and persisting inequality, or if it signals an early stage in the unfolding of the fertility transition across socioeconomic groups.

Using a more discerning indicator of educational advantage (completed secondary school), we find a substantial difference in fertility between the 11.0% of women in our pooled sample who completed secondary education (TFR 3.2) and the 33.3% who attained only some secondary education (TFR 4.0). This result confirms that more discriminating educational categories yield a strikingly different picture of fertility levels at the upper end of the socioeconomic continuum, supporting Shapiro's position (2012).

These descriptive findings have some limitations. First, higher education and wealth are two markers of social status. While education categories yielded more stable results than wealth in our analysis, as expected from the literature, both are only proxies and their pertinence may be context-specific. For example, high school completion does not seem to be a good marker of upper-class status in Nigeria, which has the highest proportion of women in our sample with completed secondary education (49.5%) but also one of the highest TFRs (4.5) for that group. This paradoxical finding may be related to the proliferation of secondary diplomas in the Nigerian setting, meaning they do not signal as clearly upper-class affiliation compared to other SSA countries. This may be an exception to our finding, albeit an important one given that Nigeria is the region's most populous country, or it may indicate that markers of social status evolve during the schooling transition. While we can speculate, our cross-sectional approach and two dimensions of status do not allow us to capture such changes. Second, although we aim to situate the low fertility of the better-off in SSA within the framework of the fertility decline, the cross-sectional nature of our analysis cannot assess change over time. Rather, we seek to determine whether today the subset of better-off women in SSA has reached

lower fertility levels, and we use our findings to argue that the presence of what appears to be two different fertility regimes within countries requires a reconsideration of where the region is in the fertility transition. Third, occupation, including occupation of parents, is often considered a primary marker of socioeconomic status (Rose and Harrison 2007). While the DHS does collect data on occupation category, this variable includes information only on current and recent (over the past 12 months) employment status, potentially misidentifying socially advantaged women (and men), particularly in countries where unemployment is high. Additionally, though more detailed occupation data are collected in DHS, they are not released and are aggregated differently across countries into the larger categories. Improving data on occupation seems to be the next logical step in advancing the measurement of socioeconomic indicators in SSA, which could greatly improve future analysis of fertility transitions.

Better-educated women throughout SSA are nearing completion of the fertility decline, generally independently from country-level fertility rates (at least when we distinguish countries with overall TFR lower than 5). This pattern suggests the existence of (at least) two fully different fertility regimes within countries. Looking forward, this raises questions about intergroup fertility change diffusion processes – or the absence of such processes – and their implications for the future of the fertility transition in SSA.

5. Acknowledgments

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