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PEER REVIEWED ARTICLE

# Public Opinions about Causes of Declining Fertility in Developing Countries: Differences among Citizens in Sweden and Nigeria

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## Abstract

Research indicates multiple causes of declining total fertility rate (TFR) in developing countries, including reduced child mortality, improved education and economy, family planning programmes and female empowerment. However, public opinions about the causes have rarely been studied. Using surveys in 2022 in Sweden and Nigeria, we compare answers of educated citizens to the question of why fertility (birth rate) has fallen in developing countries (also in Nigeria). In Sweden, 72 per cent of respondents suggested improved living conditions, including economy and education, lower infant mortality and generally progressive development. In contrast, in Nigeria 66 per cent of the respondents suggested that poverty, bad socioeconomic conditions and poor health cause declining birth rates. Birth rates were thus assumed to be falling mainly because the conditions in Nigeria are generally getting worse, not better. A contributing reason for the difference of opinions between the countries may be social norms for large families in Nigeria. Few Swedish respondents suggested family planning (1.9% of answers) but this answer was more common in Nigeria (5.9%). In Sweden, women answered contraceptive use (17%) more often than did men (4.5%), while in Nigeria the contraception answer hardly

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differed between men (6.1%) and women (5.7%). Only minor differences in opinion existed between the southern and northern (Muslim-dominated) states in Nigeria, among educated respondents that participated in this survey. We recommend more, and extended surveys.

**Keywords:** demography, human population, survey, questionnaire, norms, values

## Introduction

The human population is projected to increase from the current eight billion to 10.4 billion by 2100 (UN, 2022). The large population and its strong growth impair human conditions, biological diversity, climate, food and freshwater resources (e.g. Crist et al., 2017). Population growth depends on fertility rates, which need to be reduced for long-term food security, conservation of ecosystems, biodiversity and other purposes (Ripple et al., 2017; Bongaarts and O'Neill, 2018; Cafaro et al. 2022).

The total fertility rate (TFR) is the average number of children women would bear if surviving to the end of reproductive life, with the same probability of childbearing in each age interval as now prevails. In the demographic transition, decline in mortality precedes fertility decrease, and, as long as fertility remains high and population momentum is important, the population grows (e.g. Poston and Bouvier, 2017). In most western countries, TFR started to decline from about 1870 (Roser, 2022), following changes related to industrialisation and improved health. In developing countries, TFR began to fall from about 1965, with marked variation among countries (UN, 2022; Roser, 2022). TFR depends on many factors, such as child mortality, economy, education, family planning programmes, female empowerment and schooling, social norms and religiosity (Colleran et al., 2014; Bongaarts, 2016; KC and Lutz, 2017; de Silva and Tenreyro, 2017; Lee, 2020; Götmark and Andersson 2020; Skirbekk, 2022; Bongaarts and Hodgson, 2022; Turner and Götmark 2022).

This research gives a broad picture of factors causing, or potentially causing fertility decline in developing countries. While increased education of girls and women is often emphasised as the main factor behind falling fertility (e.g. KC and Lutz, 2017; Skirbekk, 2022), other factors, such as family planning programmes, have also been important, perhaps even more than schooling per se (e.g., de Silva

and Tenreyro, 2017; Psaki et al., 2019; review in Bongaarts and Hodgson, 2022). Despite decades of research, no consensus exists on the relative importance of factors determining TFR in developing countries.

Our aim here is to investigate the opinion of the public regarding the factors reducing fertility in developing countries. For policymakers, politicians and agencies involved in implementing population policy and in deciding forms of international aid, knowledge of the opinion of the public is important, in developed as well as developing countries. Support from informed citizens is needed in democratic societies. For example, beliefs that family planning programmes or access to contraception are major causes of fertility decline might influence a government's propensity to fund such programmes in developing countries, while beliefs that education or improved living standards are the most important factors might lead to a different emphasis in foreign aid. Moreover, citizens are having or planning to have children, and may be influenced by perceived causes of fertility decline. As far as we know, no survey has investigated and compared opinions of the public in developing and developed countries about the causes of fertility decline in developing countries.

In many nations, and internationally, population growth and birth rates are discussed in popular articles, radio, television and websites. Media have long circulated research results regarding population and fertility, influencing opinions. From the mid-1970s the slogan 'development is the best contraceptive' became influential (originally from India's Karen Singh, at the UN's International conference on population and development in Bucharest, 1974). For Sweden in northern Europe, we expected that 'economic development' would be a common view held by the public to explain declining birth rates in developing countries. For instance, in response to African population growth and migration to Europe in 2016, Angela Merkel emphasised aid for 'real economic development' to Africa (France24, 2016). Due to high TFR and population momentum, the populations of many African countries are increasing rapidly, but policymakers and politicians do not often argue for family planning programmes, even though they are known to be effective (Bongaarts and Hodgson, 2022).

Recently, a survey investigated the views of citizens in Sweden (developed country), and their answers to the question, 'Which factor do you think is most

important for falling birth rates in developing countries?’ The results are available in a university thesis (Wetzler, 2022). Here we use relevant parts of the results for comparison with results of a survey in Nigeria later the same year. In that survey, the term ‘developing countries’ was exchanged with ‘Nigeria’ (used as an example of a developing country).

## **Material and methods**

### *The survey in Sweden*

The opinions of Swedish citizens were quantified through an online web survey by the company Novus (see <https://novus.se/en/>). Its web panel consists of 50,000 participants, selected to be representative of Swedish citizens aged 18–80 years. The entire survey was in Swedish, as were the answers from participants (but translated for the thesis). The pre-selected sample of 1,741 respondents comprised approximately fifty per cent male and fifty per cent females, from all age classes (18–80) and regions in the country.

Each respondent was given the following information, and a question as follows:

The population of the world is increasing and will continue to increase, according to the UN, for the next 75 years. Birth rates and family sizes in developing countries have decreased on average since the late 50s. But in many countries, e.g. large parts of Africa, birth rates are still high and are only falling slowly.

*Question: Which factor do you think is most important for falling birth rates in developing countries? State your own opinion. If you are unsure, answer as well as you can. Name only one factor, the one you think is most important. Ignore forced population measures, which a few countries have used (mostly China). Reply only to the question above. Please read it several times. Do not seek aid in answering.*

The answer to the question above was given in free text format, i.e. each person wrote an answer (in limited space). To facilitate analysis of answers, we requested only a single suggestion for why birth rates are declining. Hence, there was no presentation of alternative answers where respondent could mark one out of several, as that might lead her/him to an answer sounding most correct (e.g.,

'family planning') even when she/he was unaware of such answer. Free format answers also have disadvantages, e.g., subjective categorisation of answers, but representation of true or 'free opinion' was prioritised.

The survey was sent out on 13 April 2022 to 1,741 persons in the web panel, and 1,010 answers came back (response rate 58 per cent). For each (anonymous) participant we had information about gender, age, education level and approximate location. The age groups were sorted into Young Adults (18–38), Adults (39–59) and Seniors (60–80). We used two education levels: 'upper secondary school or lower' (467 respondents), and 'university or corresponding' (543). Thus, many respondents had university or corresponding education level and on average the opinions came from more educated people in Sweden.

#### ***Categorisation of answers in Sweden***

One author (N.W.) read and categorised all answers, after presenting a plan to F.G. (discussed and decided together). All answers were interpreted individually and sorted into categories. To preserve the nuance of answers, some categories had to be further divided into subcategories in the classification, also described below.

***Increased education*** – subcategories *Education in general* and *Education for women*.

***Reduced child mortality*** – mortality below age 5, approximately.

***Increased living standard*** – subcategories *Better economy* and *Better socioeconomic factors*.

These were separated, due to many respondents answering specifically that increase in countries' GDP or personal wealth was the reason for reduced fertility rates. The broader socioeconomic factors also include mention of healthcare, safety, employment and social security.

***Family planning*** – family planning in general, family planning programme, and similar initiatives.

**Progressivism** – subcategories *Female rights, Individualism, Secularisation, Democracy and Cultural Shifts*. Individualism refers to the notion of people focusing more on themselves rather than community, and delaying or foregoing children in favour of personal fulfilment through work and own choices. Cultural shift refers to societies' move away from traditional norms of large family and expectations of women to bear and rear them (it could also mean other things that did not fit in any other category).

**Contraceptives** – access to these, and knowledge of how to use them.

**Sterilisation** – past or current measures in countries with voluntary or forced sterilisations

**Reduced sexual activity** – for instance, wars keeping men from home, or people having reduced sexual activity.

**High mortality** – the subcategories *War, Starvation, and Disease*. People in developing countries die for various reasons, and fertility rates drop.

**Uncertain future prospect** – an uncertain future, caused by, for instance, climate change.

**Bad living standards** – subcategories *Corruption/Oppression and Bad socio-economic factors*.

**Don't know** – no answer, apparently judged themselves to be uninformed.

**Misunderstood the question** – respondents who did not understand the question or gave an unrelated answer.

When there were multiple answers (suggestions), only the first answer was used in the analysis. If the answer described a theme, we placed it in a corresponding category after interpretation. There was no discrimination as to quality of answer, as we wished to compile all suggestions, regardless of how plausible they appeared to be.

### *The survey in Nigeria*

We followed as much as possible the same procedure as in the Swedish survey, with exceptions necessary due to differences between countries, as explained below. Nigeria has a much larger population (about 218 million) than Sweden (10.5 million). Our budget allowed an increase from 1,000 to 1,500 answers for the survey, conducted by the company Kantar (see <https://www.kantar.com/>). Their Nigerian web panel is non-representative and consists of recruited English-speaking citizens. English is the official language in Nigeria, and according to the Oxford English Dictionary, 53 per cent of the population speaks English, or a form of English. The respondents, about equal numbers of males and females, were at least eighteen years old, and well-educated (see below). The northern Nigerian states are dominated by Islam, the southern ones by Christianity. Kantar sought to obtain one half of respondents from northern states, and one half from southern, which was almost achieved: 707 respondents from the northern states Sokoto, Kebbi, Niger, Zamfara, Katsina, Kano, Kaduna, Jagawa, Bauchi, Gombe, Yobe, Borno, Adamawa, Kwara, FCT-Abuja, Nasarawa and Tarab; and 793 respondents from southern remaining states.

The survey was sent out on 12 July and ended on 20 July 2022. It consisted of a brief background, a question and instruction as follows:

The average number of children per woman is decreasing in the world, though slowly. In Nigeria, the average number of children per woman was 6.7 in 1985, and it had decreased to 5.4 in 2020.

*Question: For Nigeria, which factor do you think is most important for decline in birth rates (decrease in number of children per woman)? Please write the factor that you personally believe is most important for fewer children per woman. Please write only one factor. Do not seek help from others to obtain more information.*

As in the Swedish survey, free format answering was used (with limited writing space).

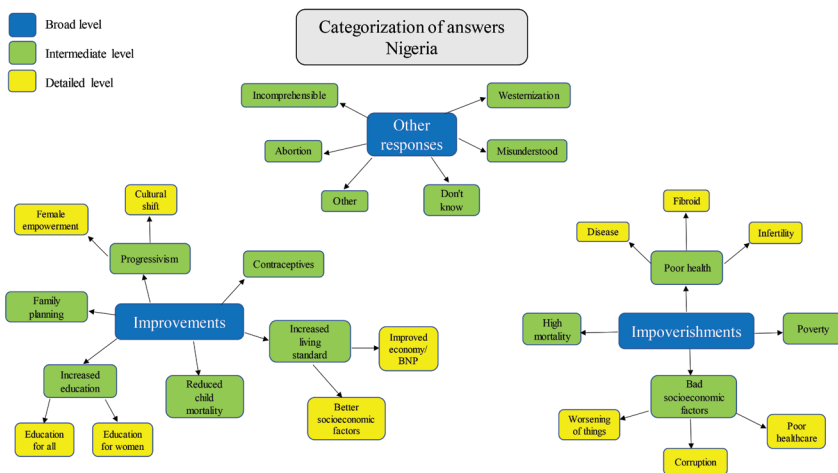
The response rate was twenty per cent (survey sent to 7,509 persons; web panel was successively increased until 1,500 had responded). Among the 1,500

respondents, 750 were women and 750 men. Only four respondents had no, or only primary, education; eighty had secondary school only; 181 high school or college as highest level; and a majority had university degree or higher (1,225 respondents; ten preferred to not state education). Overall, by Nigerian standards the respondents therefore were highly educated. This was true also for Sweden, though in Nigeria such highly educated respondents represent a much smaller proportion of the population.

**Categorisation of answers in Nigeria**

To make the two countries comparable in the final analysis, we sought to use similar response categories as in Sweden. This was largely possible, but the sample from Nigeria was larger, with a higher diversity of answers compared to Sweden. In addition, new patterns in the responses emerged, and we had to create new categories which however still allowed for broad comparisons between the countries. Figure 1 shows how we formed three major broad categories from categories and subcategories, as explained below.

**Figure 1. Categories of answers to survey question, ‘For Nigeria, which factor do you think is most important for decline in birth rates (decrease in number of children per woman)?’**





**Improvements** – the interpretations of respondents’ answers suggested improved conditions were responsible for declining birth rates. Under this heading were six categories also used in Sweden, and for three of these, answers had first been grouped into the subcategories shown in Figure 1.

**Impoverishments** – respondents’ answers suggested that impaired conditions were responsible for declining birth rates. Under this heading were four categories, partly or mainly corresponding to two categories in the Swedish survey (High mortality, Bad living standards). The new category Poverty was an addition (Figure 1).

**Other responses** – responses that did not fit in other categories or were too few to warrant their own category; answers that were difficult to understand, often short and not explained; and answers from respondents who stated they had no answer. Abortion and ‘westernisation’ could be seen as neither negative nor positive, and so were regarded as unclear and added here (see Figure 1).

### **Statistical analyses**

We use graphical analysis, showing the proportions of respondents giving answers in particular categories. Comparisons of categories (e.g., men/women, Sweden/Nigeria) with a clear difference in proportions would be statistically significant, due large samples. We did not test comparisons (by chi-square test, for instance) due to non-random selection of respondents in the surveys (statistical inference requires random sampling), non-independence (repeated test using the same respondents) and ‘significance by chance’ (one test in twenty would on average automatically be statistically significant with  $P < 0.05$ ). Instead, we give n-value and percentages in the graphs, making it possible to use our data for a test of a certain comparison for anyone interested in doing so (keeping in mind the problems above).

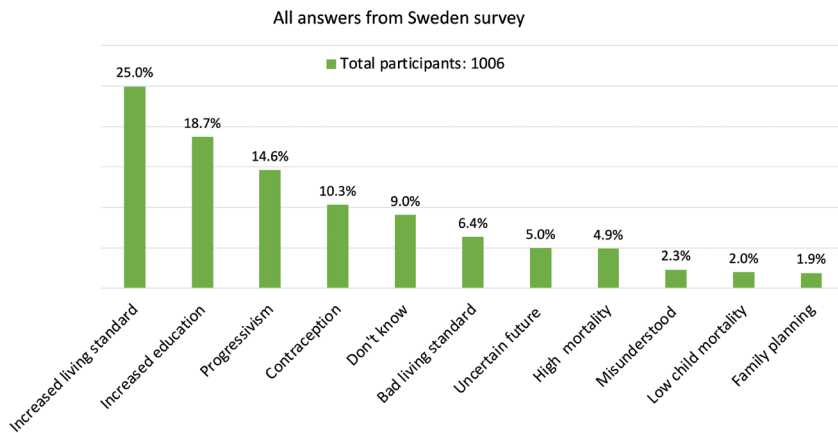
We present results for Sweden first, then Nigeria, and finally direct comparison of countries.

## Results

### Sweden

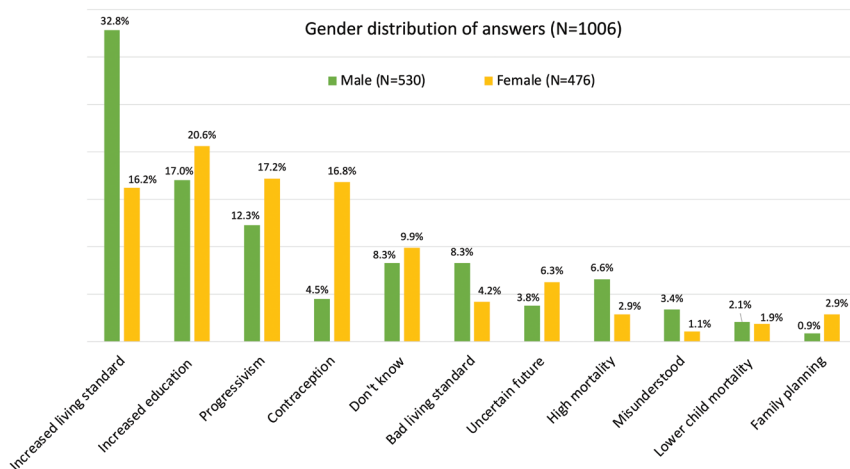
Figure 2 shows categories of answers to the question, ‘Which factor do you think is most important for falling birth rates in developing countries?’ Six categories of answers, comprising 72 per cent of the respondents, suggest improved conditions as the reason: better living standards, increased education, progressivism, contraception, low child mortality and family planning. Four categories, comprising sixteen per cent of respondents, suggested worse conditions for people: bad living standards, uncertain future, high mortality. Eleven per cent of respondents were categorised under don’t know or misunderstood (Figure 2).

**Figure 2. Categories of answers to survey question ‘Which factor do you think is most important for falling birth rates in developing countries?’ by Swedish respondents.**



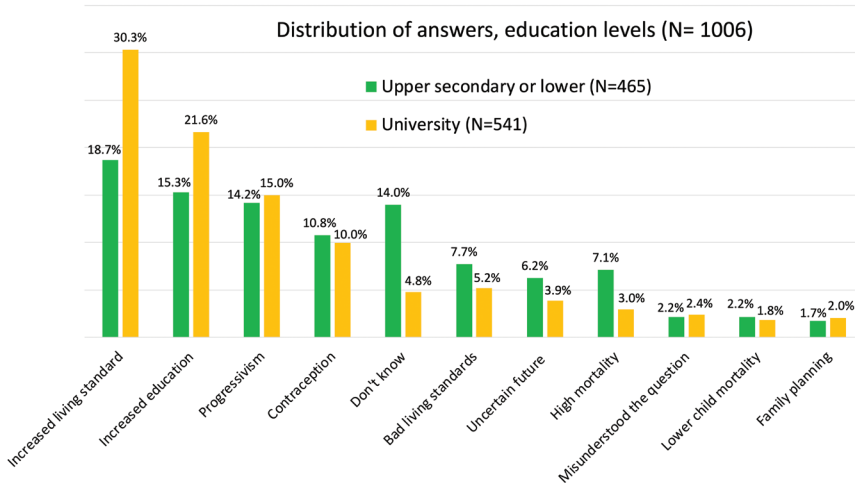
Male and female respondents differed more clearly in six categories of answers (Figure 3): men emphasised increased living standards, bad living standards and high mortality, while women emphasised contraception, uncertain future and family planning more than men did. The strongest difference existed for the answer contraception (Figure 3). Men and women differed least in the categories don't know and reduced child mortality (Figure 3).

**Figure 3. Categories of answers to survey question ‘Which factor do you think is most important for falling birth rates in developing countries?’ by Swedish respondents.**



Well educated respondents (university and higher) differed from those with only secondary and lower education in some categories of answers (Figure 4). The well-educated emphasised increased living standards and increased education, whereas respondents with lower education were ‘less positive’, emphasising high mortality, don’t know and some minor categories (Figure 4).

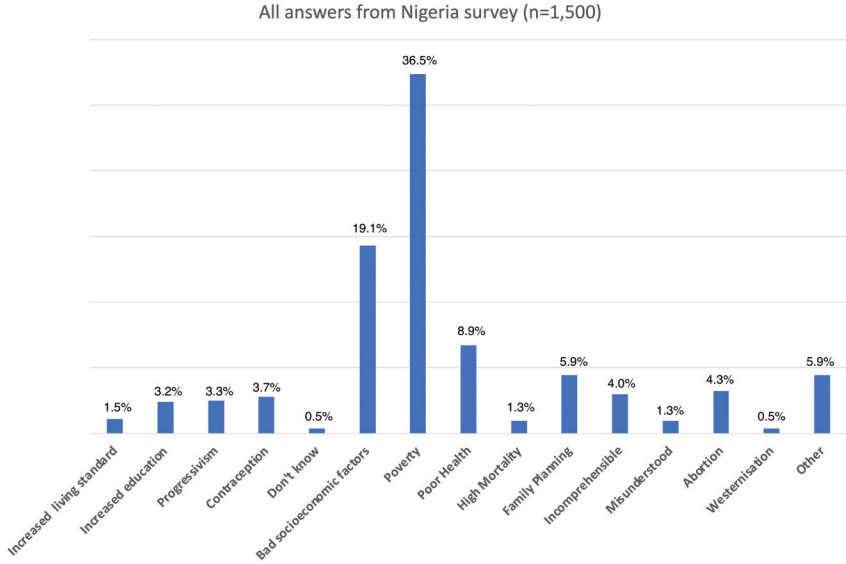
**Figure 4. Categories of answers to survey question, ‘Which factor do you think is most important for falling birth rates in developing countries?’ by Swedish respondents.**



### Nigeria

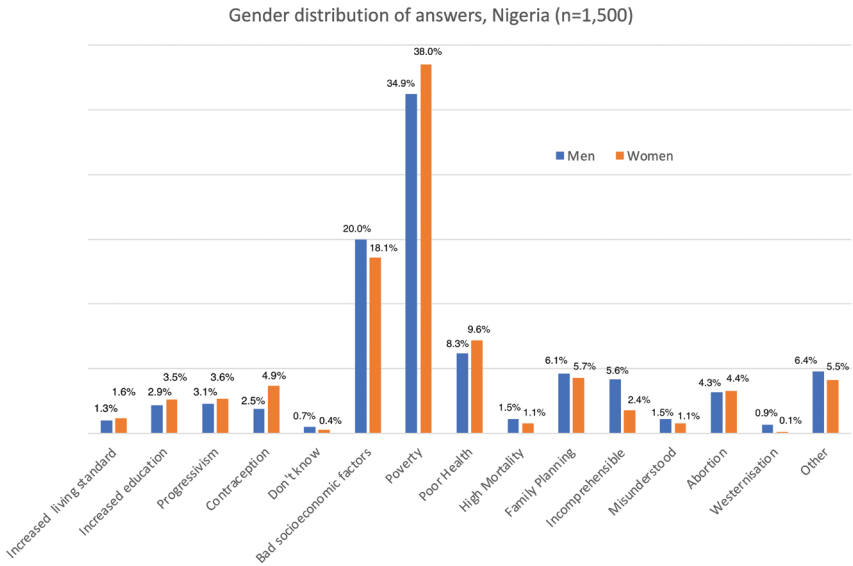
Figure 5 shows categories of answers to the question, ‘For Nigeria, which factor do you think is most important for decline in birth rates (decrease in number of children per woman)?’ The first five categories given on the x-axis in Figure 5 are the same as for the Swedish survey. Few respondents in Nigeria, compared to Sweden, emphasised improved living conditions as the reason for declining birth rates. Instead, bad conditions, poverty and poor health were the three most frequent categories of answers (Figure 5). A majority (66 per cent) suggested these conditions as the reason for fewer children per woman (including high mortality). Family planning was a more frequent answer in Nigeria (5.9 per cent) than in Sweden (1.9 per cent). Abortion (4.3 per cent) was also suggested but could not be classified as either ‘bad’ or ‘good’.

**Figure 5. Categories of answers to survey question, 'For Nigeria, which factor do you think is most important for decline in birth rates (decrease in number of children per woman)?' by Nigerian respondents.**



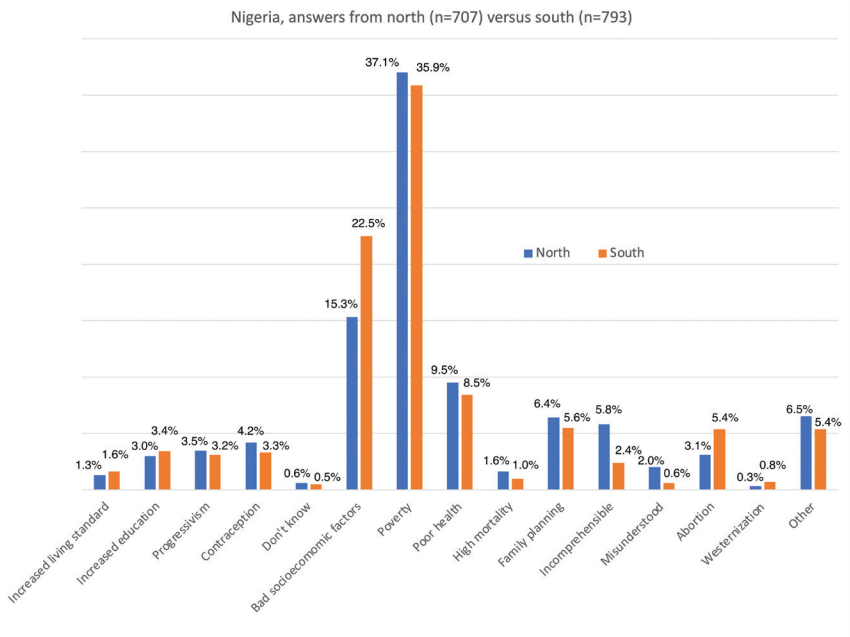
In contrast to Sweden, men and women in Nigeria tended to answer similarly (Figure 6). Slightly more women than men answered poverty and poor health, and slightly more men answered bad socioeconomic factors. As in Sweden, women were more likely than men to suggest contraceptives, though men suggested family planning approximately as frequently as did women. Men gave incomprehensible answers more often than did women (Figure 6).

**Figure 6. Categories of answers by women and men to survey question, ‘For Nigeria, which factor do you think is most important for decline in birth rates (decrease in number of children per woman)?’ from Nigerian respondents**



Among the answers from states in northern compared to southern Nigeria, bad socioeconomic conditions and abortion were factors emphasised more in the south, while in the north we found slightly more misunderstandings and incomprehensible answers (Figure 7).

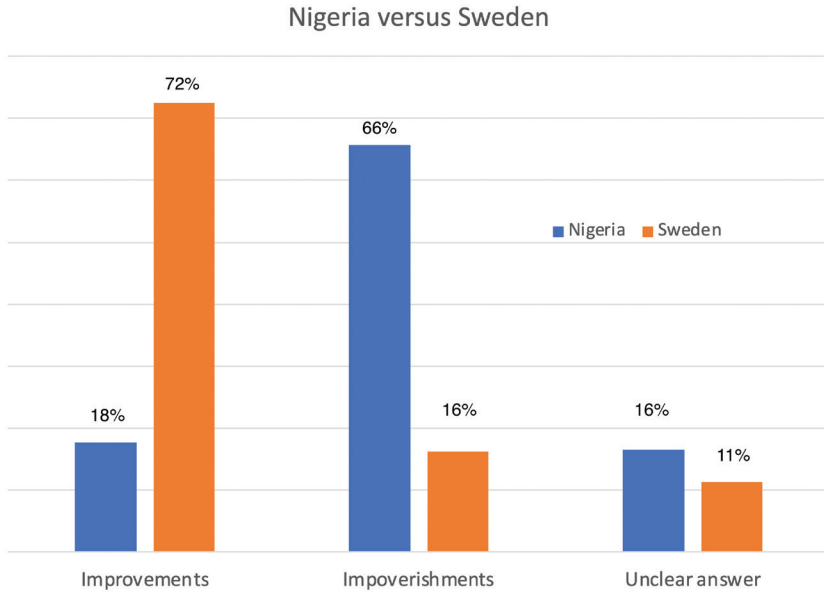
**Figure 7. Categories of answers from North and South Nigeria to survey question, 'For Nigeria, which factor do you think is most important for decline in birth rates (decrease in number of children per woman)?'**



**Broad comparison, Sweden – Nigeria**

Here we sorted the answers into three broad groups, improvements, impoverishments and unclear answers with respect to the survey question (Figure 8). The question in the Swedish survey related to developing countries in general, while the one in Nigeria related to citizens in their own country. Swedish respondents most likely would have regarded Nigeria as developing country. In Sweden, the respondents generally thought that improved conditions lead to declining fertility, whereas in Nigeria the respondents generally thought that impoverished conditions reduce fertility (Figure 8).

**Figure 8. Categories of answers from respondents in Sweden and Nigeria to survey question 'Which factor do you think is most important for decline in birth rates (in developing countries / in Nigeria)?' Categorisation follows classification of answers in Figure 1.**



## Discussion

We were surprised at the difference between the respondents in Sweden and Nigeria in perceived reason behind fertility decline in developing countries. The scientific literature on the determinants of fertility decline in developing countries emphasises progress (more education, family planning programmes, female empowerment, economic improvements). Our results from Sweden, where improved conditions generally were assumed to explain declining fertility, was therefore rather expected (but see below). However, educated respondents in Southern and Northern Nigeria, men as well as women, had the opinion that impaired conditions explain fertility decline in Nigeria. It is unclear whether a survey mainly or only including respondents with low education would give the same result, but one could argue that educated respondents in Nigeria should have relatively good knowledge of the situation in the country with respect to the survey question.



One interpretation of our results, if the respondents are correct, is that improved conditions in Nigeria might lead to increasing fertility or a stable high fertility level. This would have important implications for international aid. Sweden has one of the highest aid budgets per capita in the world, aiming to transfer the equivalent of one percent of its GDP annually to developing countries (including support to the UN and its agencies, aid during catastrophic conditions and more). Essentially all adult Swedes are probably aware of this goal, as it is often mentioned and discussed – it costs 5.2 billion US dollars annually at present (in 2023, 15 million US dollars was allocated to Nigeria). The answers given by Swedish respondents are probably largely based on information from education and reports in the media. Nigeria, on the other hand, is a developing country where GDP has grown strongly, mainly due to oil revenues, and with strong population growth (1970, 56 million; and 2021, 211 million, compared to Sweden 1970, 8 million; and 2021, 10.4 million). Yet Nigeria can be considered a poor country on a per capita basis (Ogunbiyi, 2023), with forty per cent of the population living below the national poverty line (World Bank 2022, corresponding figure for Sweden is sixteen per cent). The respondents in Nigeria, mainly from universities, were probably also influenced by education and media. They represented a smaller minority, compared to Swedish respondents.

The results of the survey in Nigeria might have been different if other respondents had been used. But the results are nevertheless interesting as well-educated people influence societies in many ways. Moreover, our results are consistent with a recent study of Demographic and Health Survey (DHS) in Nigeria (Odusina et al., 2020), where the mean ideal number of children in 2018 for men and women was 7.2 and 6.1, respectively. This is higher than the present TFR for Nigeria (5.4 in 2020), and the DHS data apparently reflects an average strong desire for large families in both sexes, though it may depend more on social and religious norms than on individuals' wishes (see Odusina et al., 2020; Dasgupta and Dasgupta, 2017; Turner and Götmark; 2022).

Perhaps the respondents in Nigeria were unaware of the fertility decline in Nigeria from 1985–2020. Yet we informed respondents about this decline before posing the survey question. They might also be unaware of the literature dealing with declining birth rates, if not discussed in schools and at universities. Their response could relate mainly to 'what has become worse in Nigeria for childbearing', rather than other factors influencing birth rates, studied in Nigeria and elsewhere.

A strong impression from the answers is that many people cannot afford more children at present.

In the Swedish survey, few respondents suggested Family Planning (FP), despite the strong role of FP and FP programmes in reducing high fertility in developing countries (reviewed by Bongaarts and Hodgson, 2022). One reason is the change in policy, from FP programmes to SRHR (Sexual and Reproductive Health and Rights) in the mid 1990s, after the UN's International conference on population and development in Cairo 1994 (see Bongaarts and Hodgson, 2022). It is interesting that three times as many respondents in Nigeria (5.9 per cent) compared to Sweden (1.9 per cent) answered Family Planning. According to the Nigerian Implementation Assessment Report (2015) regarding population policy, the Nigerian government in 2011 committed to provide contraceptive commodities at no cost to states. In 2014 it approved the national Family Planning Blueprint and the Task-Shifting and Task-Sharing Policy for Essential Health Care Services. FP is discussed in the media in the country (e.g. Alagboso, 2022), apparently more than in Sweden, but the contraceptive prevalence rate remains low, at about 22 per cent of couples (Oduşina et al., 2020).

Many respondents in Sweden suggested that economic development favours fertility decline in developing countries, apparently because they see declining fertility rates in the West as linked to increasing economic growth and/or its consequences. However, many demographers instead point to reverse causation; a decline in fertility favours the economy (e.g. O'Sullivan, 2013; Bongaarts and Hodgson, 2022; Götmark and Andersson, 2022). A 'demographic dividend', of increased working age proportion in the population and smaller dependent young age classes, may favour the economy. Yet, politicians and media (e.g. France24, 2016) often emphasise economic development in demographic contexts, as did respondents in Sweden. To test empirically whether TFR declines with increased GDP and consumption rate, we recently analysed longitudinal changes in many developing countries 1970–2014. The results show that changes in economic growth or household consumption were not associated with TFR declines, which, however, closely followed modern contraceptive prevalence rates (Götmark and Andersson, 2022). Modern contraception is an essential part of FP programmes, and these can lower fertility rates and contribute to UN's Sustainable Development Goals (see, for instance, Starbird et al., 2016).

## Conclusions

The public is an important part in population policies. We find opposing views in the educated public in two countries about reasons for fertility decline in developing countries. In Sweden in 2022, respondents suggested the reason is mainly improved conditions for people, which agrees with research results, but the role of family planning programmes was almost unknown. In Nigeria in 2022, respondents suggested that fertility decline is due to worse socioeconomic conditions, not better conditions. In view of the role of Sweden as a committed donor country, the low public agreement between donor and receiver as regards answers to the survey question is challenging. We suggest more detailed surveys in both developed and developing countries, to inform politicians and policymakers about views and reasoning with regard to fertility decline.

## Acknowledgements

We thank The GAIA Earth-Balance Foundation and Dan Carrigan, and the University of Gothenburg (Dept of Biological and Environmental Sciences), for funding parts of the study. Three anonymous reviewers, and Malte Andersson, provided helpful comments on the manuscript.

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