Population pressure in African countries will not be alleviated by family planning programmes alone

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Max world population will reach somewhere between 6 and 15 billion by 2100 according to the UN. The High variant 15 billion is generally recognised to place significant strain on the earth's resources. The Medium variant 10 billion will be better but will still require a significant increase in the requirement for food, fresh water, energy and minerals. World population growth over the rest of the century will be focused in Africa, responsible for 2 billion of the predicted extra 3 billion under the medium variant scenario.

With the UN population revision now predicting a further billion people on the planet, leading to a population of 11 billion by the end of the century, attention has again turned to the plight of Africa, where the majority of the extra billion are predicted to be born over the coming decades. The near ten percent projected increase in maximum global population this century largely arises from the fact that the fertility rate in Africa has declined more slowly than expected, and indeed appears to be stalling in several countries.

The above projections are all based on some reduction in Total Fertility Rates (TFR), the number of children per women of childbearing age. While TFRs across the globe are generally falling, the case of Sub Saharan Africa remains of concern. The UN medium population growth scenario predicts that sub-Saharan Africa's child bearing rate will fall to around three children per woman by 2050 and come down to replacement later this century. If this occurs then the African population will increase from currently 831 million now to two billion by 2050 and three and a half billion by 2100. However TFR still remains above four in many countries. As a consequence if TFR reduction stalls and remains at its current 5.5 for the region, then sub-Saharan Africa's population will reach just under three billion by 2050 and 14.5 billion by 2100, leading to a maximum world population of over 22 billion by the century's end. While this is unlikely, it serves to remind how vulnerable populations are to rapid increases. Even if childbearing does begin to decline again in these countries, given the large young populations living there, if the stalls last for several years or even decades they could have serious consequences for long-term population growth, especially as they are occurring at such relatively high levels childbearing. Alternatively, if sub-Saharan African women matched the replacement childbearing levels of other regions by the middle of the century, then sub-Saharan Africa's population would stand at 1.76 billion by 2050, rough 340 million fewer people than UN's current growth scenario. Maintaining replacement until the end of the century from 2050 to 2100 would result in a population size of around 3.1 billion compared with the UN's current likely scenario of almost 4 billion.

It is thus important that the drivers of fertility reduction are understood so that African women can be able to choose the family size they desire. This is not only because a population of 22 billion would place considerable burden on the planet's resources, but because African governments increasingly recognise that such high birth rates are reducing the potential for development, and African women are themselves calling for measures which will improve their own well-being and those of their existing children.

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The drivers of fertility fall have been long debated but broadly fall into three positions. Infant mortality: one theory is that fertility falls in response to a fall in infant mortality. Economists describe this as the increase in child survival rates reduces the fertility required to achieve a desired number of surviving children. In more simple terms we can say that as women realise that their babies are not dying, and if they have 8 babies they will have to raise 8 children, they respond by reducing the number of births. Un-met need: a second position is that high fertility is a response to un-met need for family planning, and it is only through the introduction of modern family planning methods that women will start to reduce the number of births they have.

Education: the third broad hypothesis is that fertility fall is driven by education. Educating girl, in particular, gives them access to the labour market, which reduces the number of births, but also and crucially, it changes the "mind set" of the women and their communities and enables them to recognise the range of alternative choices they can make. Indeed one of the greatest contemporary demographers, Jack Caldwell, identified "ideational change" as the biggest factor in falling fertility. Current research suggests that the enrolment of all African girls in secondary school education would have a significant impact in enabling them to choose the numbers and timing of their childbirths, and result in a significant fall in Total Fertility Rates in the region. Education intervenes in all three. There is overwhelming evidence that education improves health and wellbeing, and reduces levels of both mortality and fertility. Girls and women not only face the challenges of high fertility and unwanted pregnancies, it is they within the community who are primarily responsible for infant and child health, immunization and nutrition. Indeed there is evidence that a mother's education is the most important determinant of child mortality, more important than household income or wealth, with each additional year of schooling being associated with a 5-10% reduction in infant mortality and a 5 to 7% reduction in child death. The effect of education on fertility is particularly strong in countries that still have relatively high overall fertility levels and hence are in the early phases of their demographic transitions. As a recent advocacy report noted girls' secondary education is a tool for poverty alleviation and results in social benefits to the whole society, it equips women with critical thinking enabling civic participation and democratic change. Research has shown that while knowledge of modern family panning methods is now widespread throughout the region, those women with high levels of education are more likely to adopt family planning methods than those with low level or none.

The global story on family size is generally very positive. Two thirds of the world's countries are now at or below replacement level – crudely defined as 2.1 children per woman of child bearing age. However, in sub-Saharan Africa women are still bearing over five children on average, with over six or even seven in countries such Nigeria, Uganda and Niger. This rapid population growth and high fertility threaten the well-being of individuals and communities across sub-Saharan Africa.

However, some argue that Africa has different cultural and economic dynamics and that childbearing may well remain high. Sub-Saharan Africa is not only the last region to initiate fertility transition, it also has experienced a weaker pace of decline in fertility compared to other regions. In addition, there is clear evidence of stalling in the rate of decline in child bearing. The position of Kenya illustrates this clearly. The number of children per women of child bearing age dropped dramatically in the last three decades of the 20th Century, falling from over eight children to five. However since then the total fertility rate has remained at just below five. Similarly, Benin, Rwanda, and Zambia have declined little in recent years and remained constant at above five children per woman. If the regional reduction in childbearing was to stall and remains at its current level of 5.4, then sub-Saharan Africa's population will be approaching three billion by 2050 and over sixteen billion by the end of the century.

There is currently a debate as to whether these stalls in Africa are but a minor pause in the course of the fertility decline, or whether this is an indication of deeper processes. However as Sasha Frade and Clifford Odimegwu note in their paper *What is the association between IPV and Fertility in Uganda?* behind these broad general tenets, there lie complex interactions. As they point out, the only region in the world to have not experienced an expected decline in fertility, in line with the postulates of the fertility transition, is sub-Saharan Africa. One of the key tenets of the demographic transition theory, and therefore the fertility transition, is that fertility rates would decrease as a repercussion of improving development levels. In sub-Saharan Africa, however, this has not been the case. In fact, the authors have found that in sub-regions where fertility declines have occurred,

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these have not been correlated to development levels at all. Numerous researchers have attempted to investigate the reasons and relationships between fertility and other socio-economic and demographic factors that could explain the lack of decline in fertility. In Uganda, specifically, IPV, which emanates as a severe consequence of gender inequality in society, is the most pervasive form of IPV as most cases of abuse is perpetrated by intimate partners and has major health consequences for women. Women with a history of abuse are also at increased risk of reproductive health outcomes; such as high parity, inconsistent and lower levels of contraceptive use, unintended pregnancies, and adverse pregnancy outcomes. Despite concerted efforts by African governments, fertility levels in the region remain high. Africa is the region that has been least responsive to family planning programmes. This study investigates the associations between IPV and fertility in Uganda, using the Ugandan Demographic and Health Survey of 2011. Adult women of reproductive ages (15-49) that were included in the domestic violence module of the individual recode, were included in this study. Univariate, bivariate analysis, and unadjusted and adjusted Poisson Regression models were conducted for children ever born and the different forms of IPV (emotional, physical and sexual), as well as the socio-demographic and women's empowerment variables. Both bivariate and multivariate analyses show a strong association between both these pervasive health problematics; and may therefore be one of the unexplained proximate determinants of persistently high fertility in countries such as Uganda.

This is picked up in *Missing men, missing infertility: the enactment of sex/gender in surveys in low- and middle-income countries* by Jasmine Fledderjohann and Celia Roberts. They point out that although reproduction involves (at least) two sexed bodies, men are often missing from fertility research. Surveys such as the widely-used Demographic and Health Surveys (DHS) engage in often unintentional yet highly consequential practices of gendering. They thus identify two processes through which surveys have the potential to render male infertility invisible: defining the population at risk of infertility in information about survey samples and inclusion criteria in the DHS, and combining this with a qualitative examination of instrument design, we identify areas of men's invisibility across time and place. Survey results, which reflect and contribute to men's invisibility, are widely used as an evidence-base for family and population

policies. Moreover, reproductive health services are only made available to those whose reproductive health needs are recognized; men's exclusion from the reproductive discourse contributes to the stratification of reproduction. Men's underrepresentation in fertility data also reinforces the notion that reproduction is a woman's domain, and so contributes to a system that places responsibility for reproduction on women. It is vital to explore how gender is enacted or 'done' in such research.

Family planning/sexual and reproductive health programmes have made significant advances globally in helping women achieve the family size they desire. But this is one of a complex set of factors behind child bearing rates, and it is becoming increasingly clear that family planning initiative by themselves are insufficient to empower women in these choices. They must be accompanied by universal and comprehensive education programmes. Broadly speaking, there are three major drivers behind fertility fall – reducing infant mortality, increasing family planning programmes, and empowering women. And education has a positive impact on all three. Education not only empowers women, it also has a direct effect on the uptake of family planning technology and it reduces levels of infant mortality.

In terms of empowerment, the effect of education on fertility is particularly strong in countries that still have relatively high overall child bearing levels. Girls' secondary education is a tool for poverty alleviation and results in social benefits to the whole society, it equips women with critical thinking enabling civic participation and democratic change. Research has also shown that while knowledge of modern family panning methods is now widespread, those women with high levels of education are more likely to adopt family planning methods than those with low level or none.

There is also strong association between those countries with a high level of educated women and those countries with below replacement fertility levels. Similarly those countries with low female education have high levels of childbearing. A World Bank study, for example, found that for every four years of education that girls attain fertility rates drop by roughly one birth. Another study found that doubling the proportion of women with a secondary education reduced average fertility rates from over five to under four.

The evidence is clear that the enrolment of all African girls in secondary school education would

have a significant impact in enabling them to choose the numbers and timing of their childbirths, and result in a significant fall in child bearing in the region. Niger, for example, has one of the lowest educational rates in the world, with only 5% enrolment in secondary school, less than 2% of girls. Childbearing varies widely across the country, with the level of education ranging from four children per woman with secondary school education to seven for those without education. In Ethiopia, with a far higher overall education rate, women, without any formal education have on average six children, whereas those with secondary education have only two.

While there are considerable difficulties in producing accurate estimates of how much it would cost to achieve global universal primary and secondary education, broad calculations range from $34 billion to $69 billion per year, with primary education being $6 billion to $35 billion per year and secondary education from $28 billion to $34 billion per year. However, the global benefits in potentially reducing the ultimate number of global mouths to feed, to say nothing of empowering women to choose the number of children they bear, would surely outweigh such financial considerations.

Achieving replacement level fertility in Africa this century would bring huge benefits to African women, communities, and countries. Indeed a recent paper from the World Resources Institute, *Creating a Sustainable Food Future*, has called for fertility reduction as a means of tackling both the global carbon foot print and food security. Africa is already the world's hungriest continent. It is home to just under half the world's hungry people and already has an increasing dependence on imports to feed its people, around one quarter of cereals are now imported and two-thirds of its vegetable oils, its own crop yields standing at one half of the global average. Crucially, according to the World Resources Institute, a reduction in sub-Saharan Africa's population by the 340 million which would arise if child bearing fell to replacement by 2050, would reduce global food demand by approx 401 trillion cal per year, roughly 7% of the predicted global calorie gap in 2050, and would reduce the growth in sub-Saharan's Africa's food demand by roughly one third by 2050.

These reductions in food demand would also reduce agriculture's impact on the environment, reduce the need to apply more fertilizers, harvest more fish, raise more livestock, and use energy for producing, processing, transporting, and storing food. They would reduce the need to withdraw more water from aquifers and rivers and to convert more forests, woodlands and savannas into agricultural lands. Achieving the replacement fertility rate would also have economic and social benefits. In many countries, lower fertility yields a *demographic dividend* that contributes to economic growth. During and for several years after a rapid decline in fertility, a country simultaneously has fewer children to care for—freeing up resources—and a greater share of its population in the most economically productive age bracket.

The plight of Niger, a country with the highest childbearing rates in the world, illustrates this. Some 7.5 million Nigeriens, roughly half the country, are now without adequate food. Furthermore the shrinking arable land beset by frequent drought, is supporting a rapidly expanding population. Half the population, which is expected to grow from some 16 million today to 55 million in 2050, reaching 140 million by the end of the century, is under 15. Over one quarter of girls are married by this age, rising to 60% by age 19, far higher in rural communities, where the majority are married at 12 or 13. Not surprisingly, similar proportions have given birth to children by these ages. Furthermore the ongoing food crisis has led UNICEF to express concern that more parents will use child marriage as a survival strategy, marrying daughters in return for dowries of much needed animals and cash to feed their other family members. This will contribute to the high child bearing rate, which in turn is placing huge demand on the country's ability to feed itself.

Education delays marriage and childbearing, and ultimately the number of mouths to feed. Education reduces the infant and maternal mortally, education empowers women to choose the family size they will bear. Education must become an integral component of future plans to address the population of the planet.

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