

Population Growth in the Nile Basin

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Future of the Nile Water Workshop

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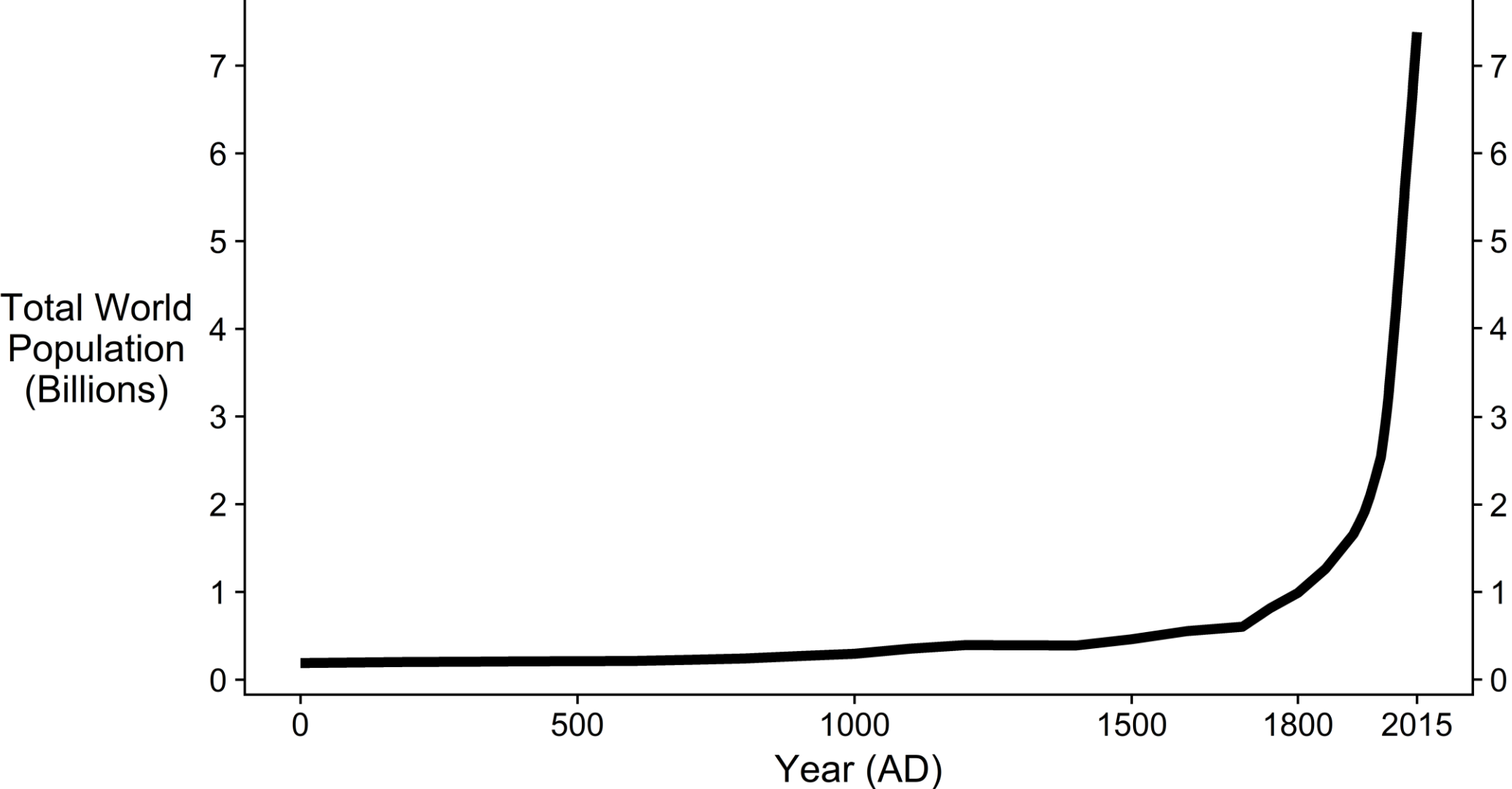


Cairo



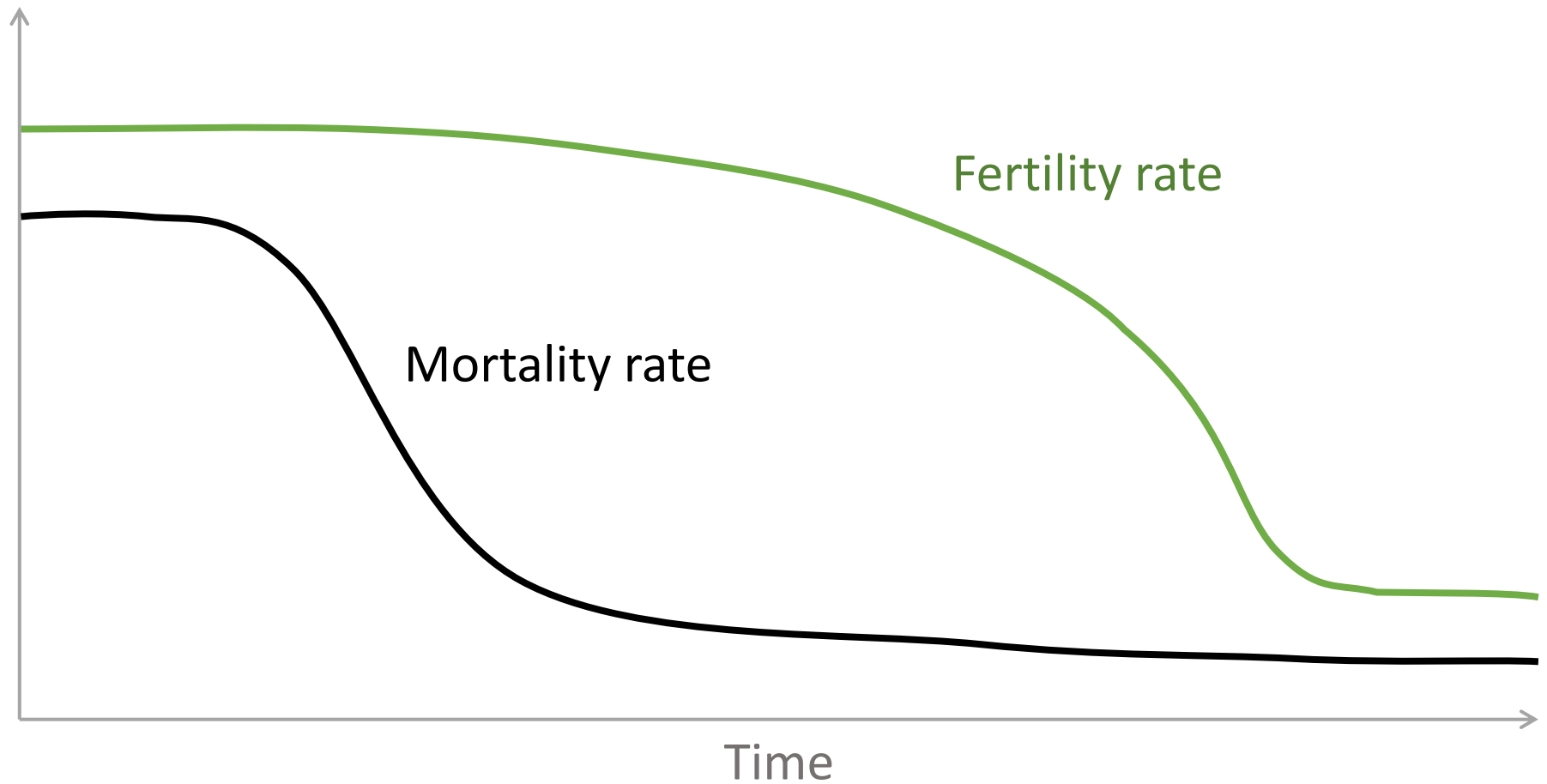
Addis Ababa

World Population For The Past 2000 Years

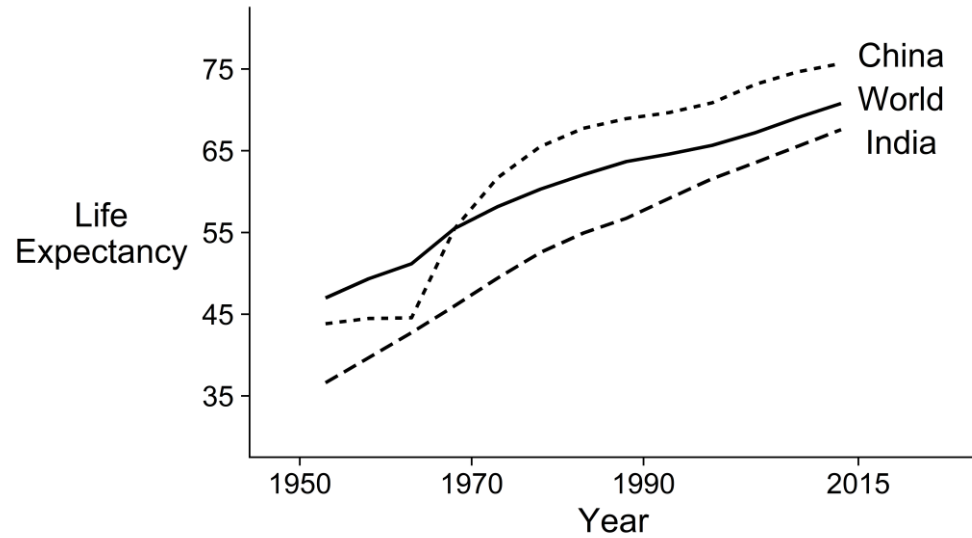


Pre-1950 estimates from HYDE database, 1950-2015 data from UN Population Prospects

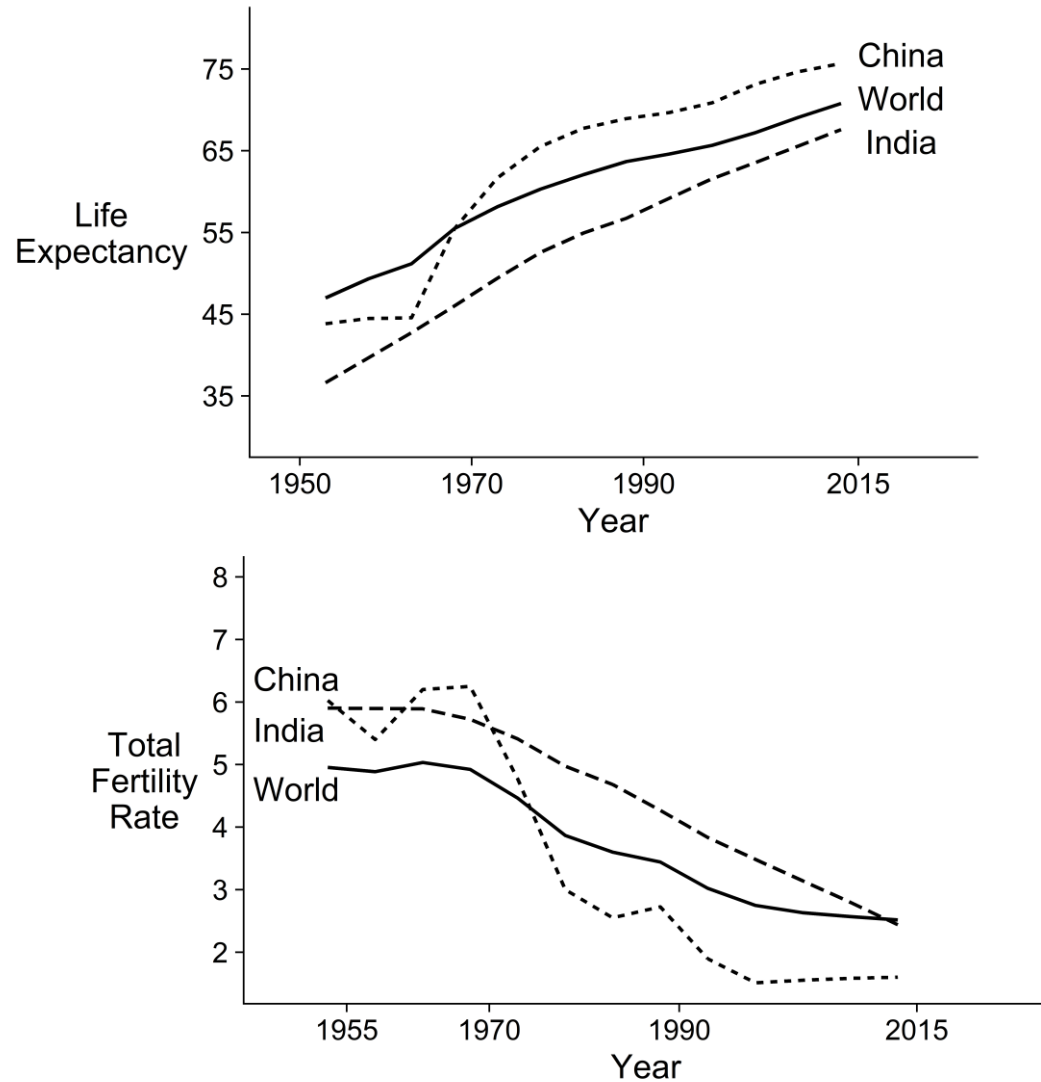
Low mortality and high fertility result in rapid population growth



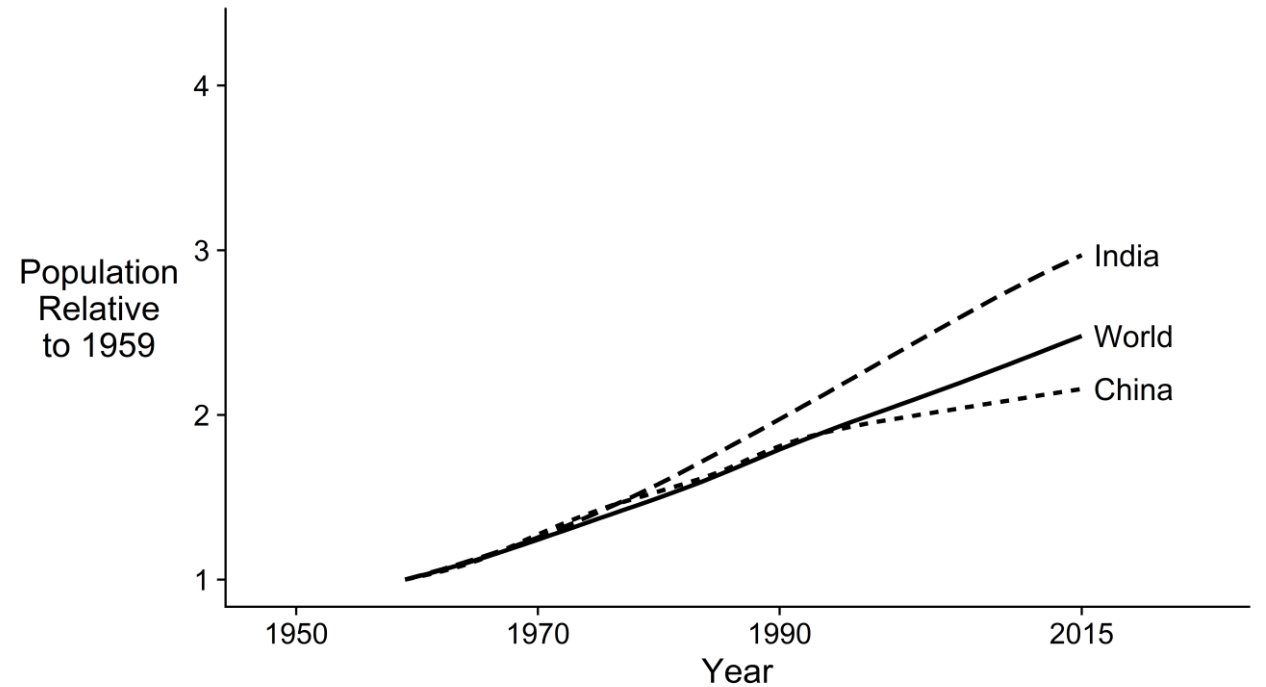
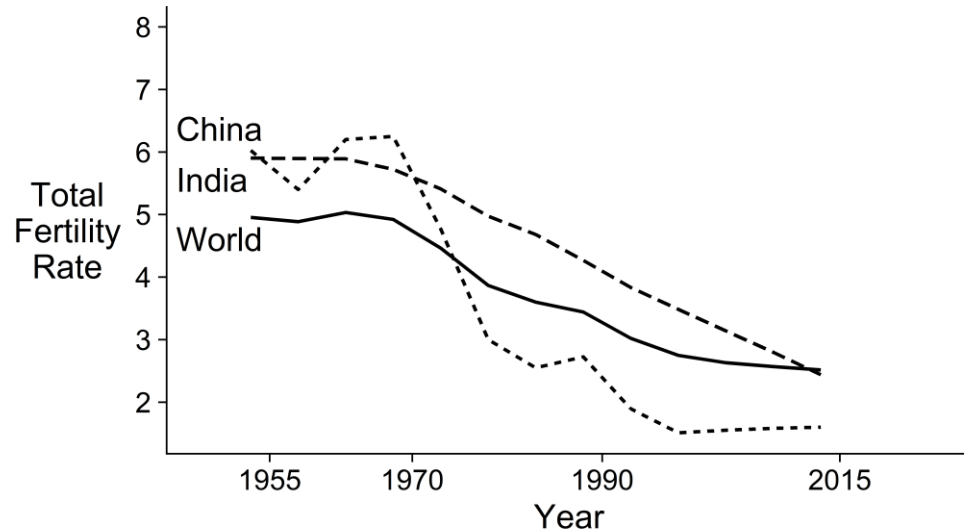
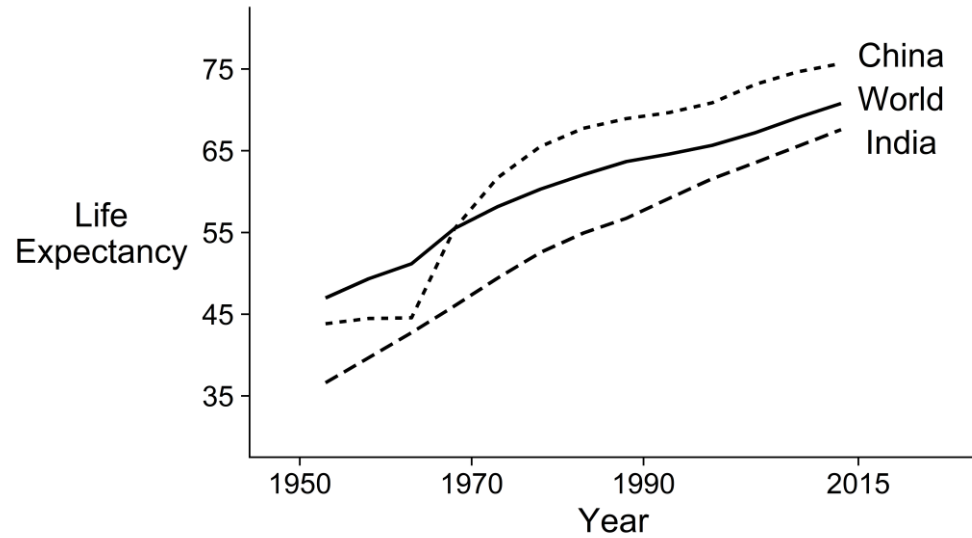
The rate of reduction in fertility is key to reducing population



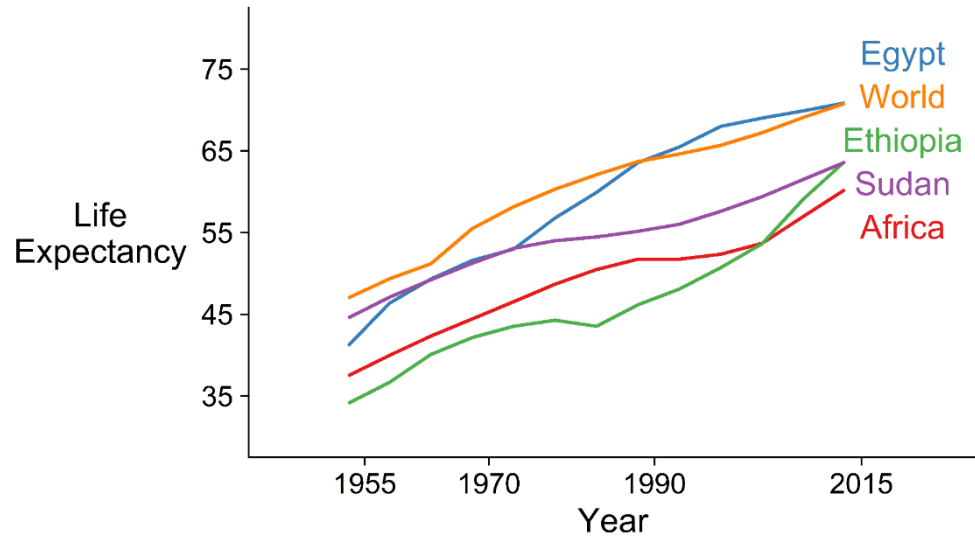
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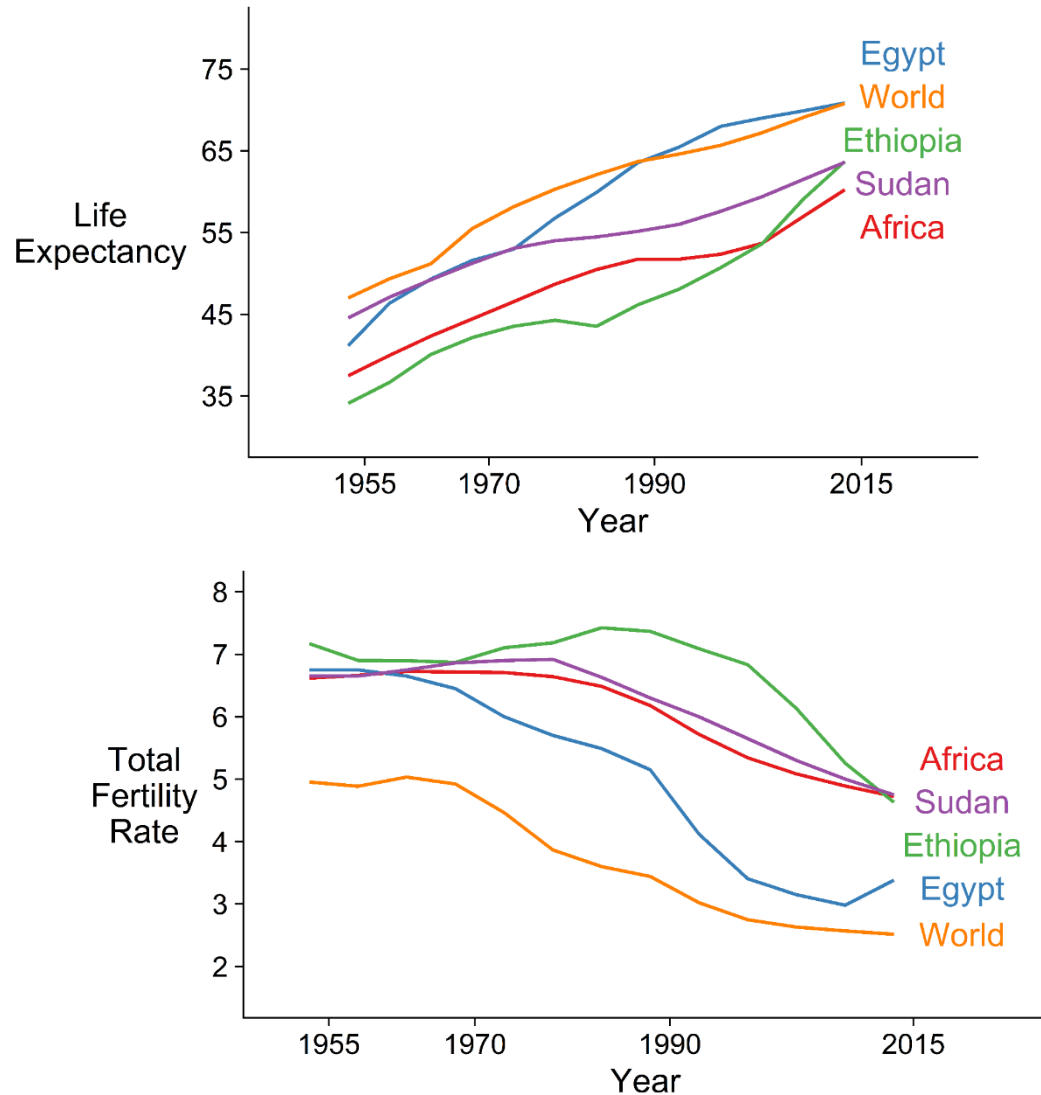
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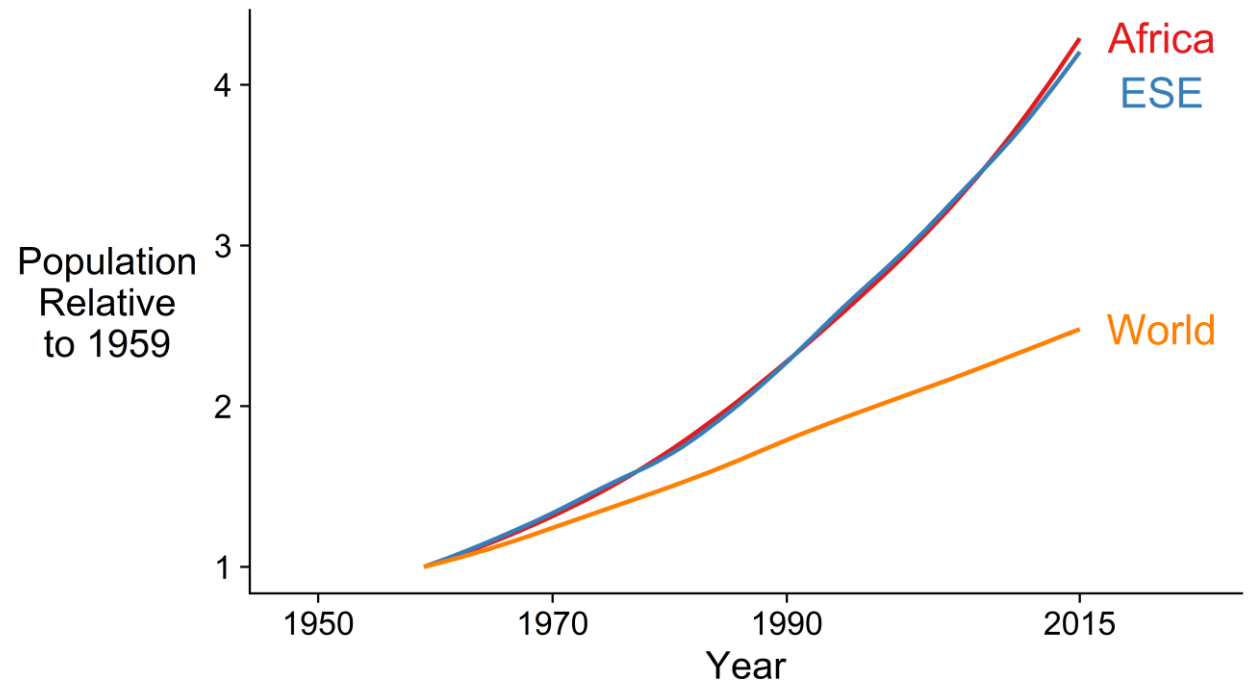
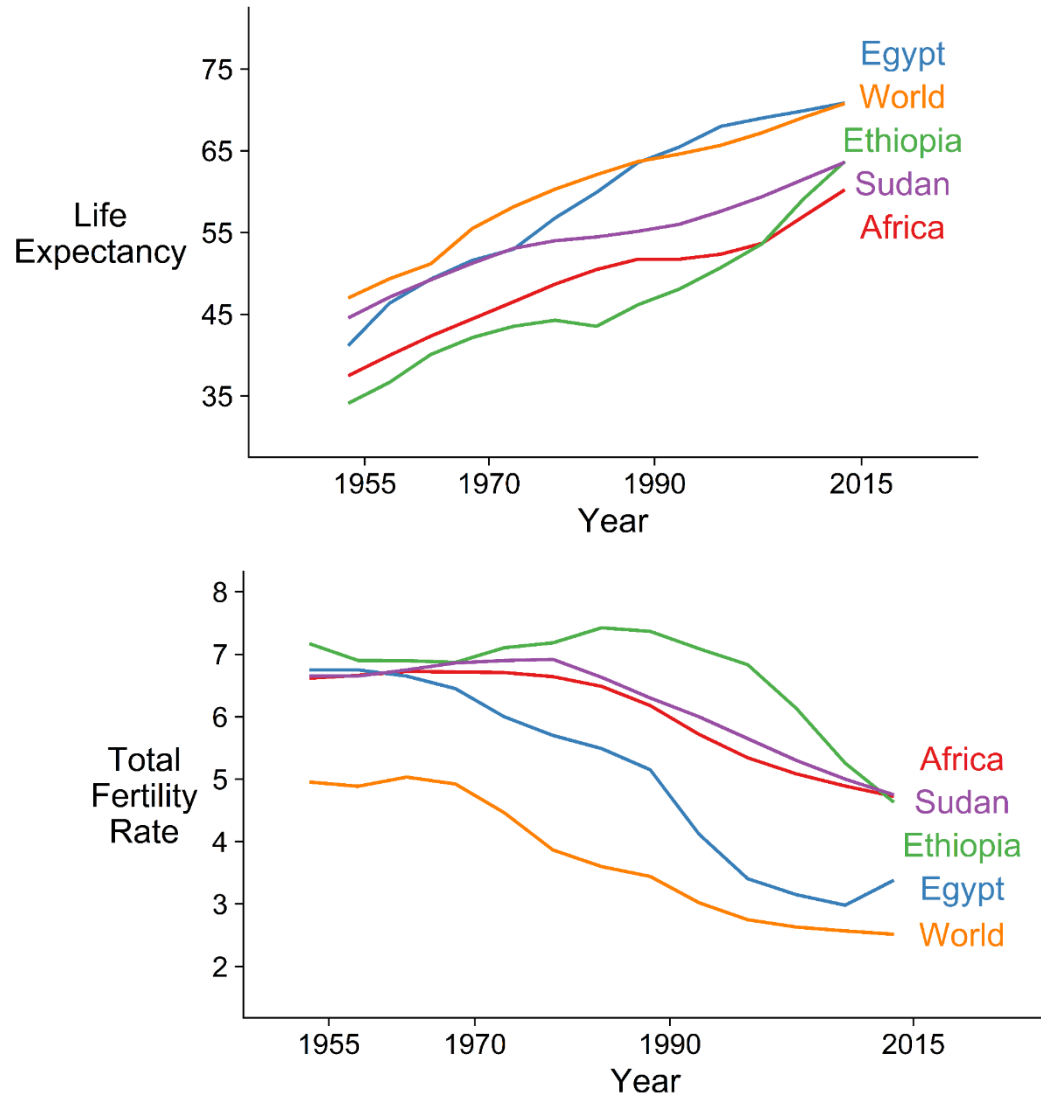
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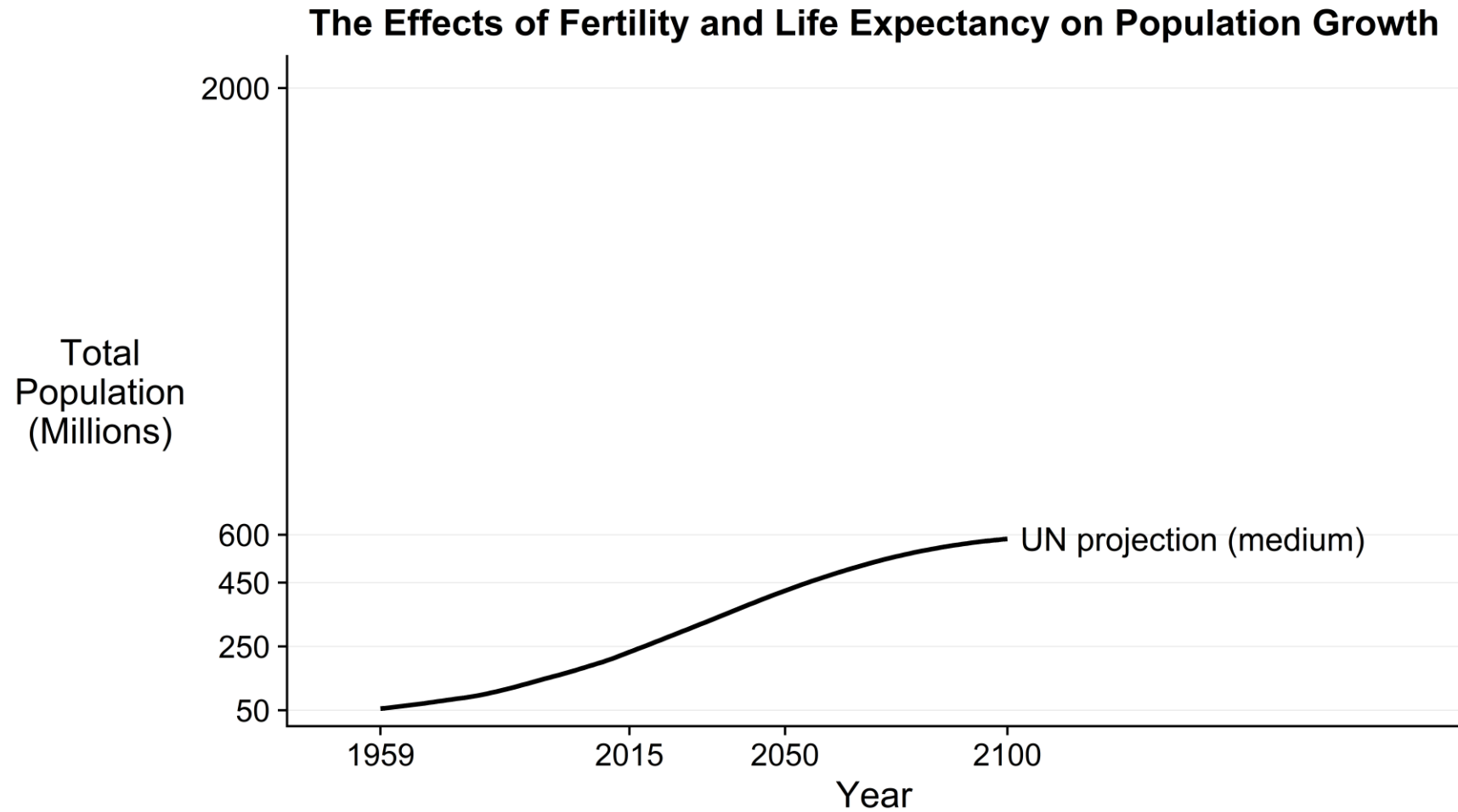
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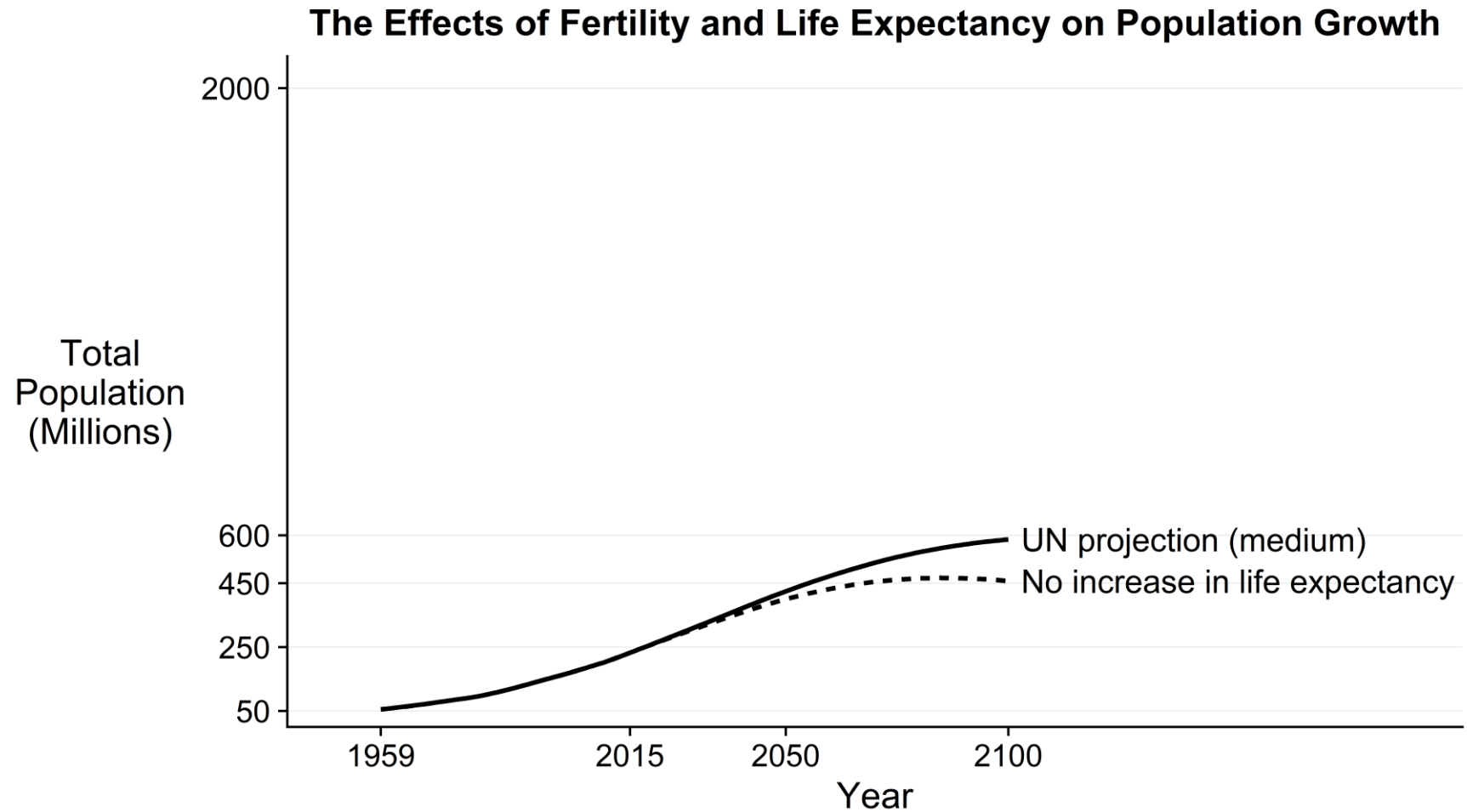
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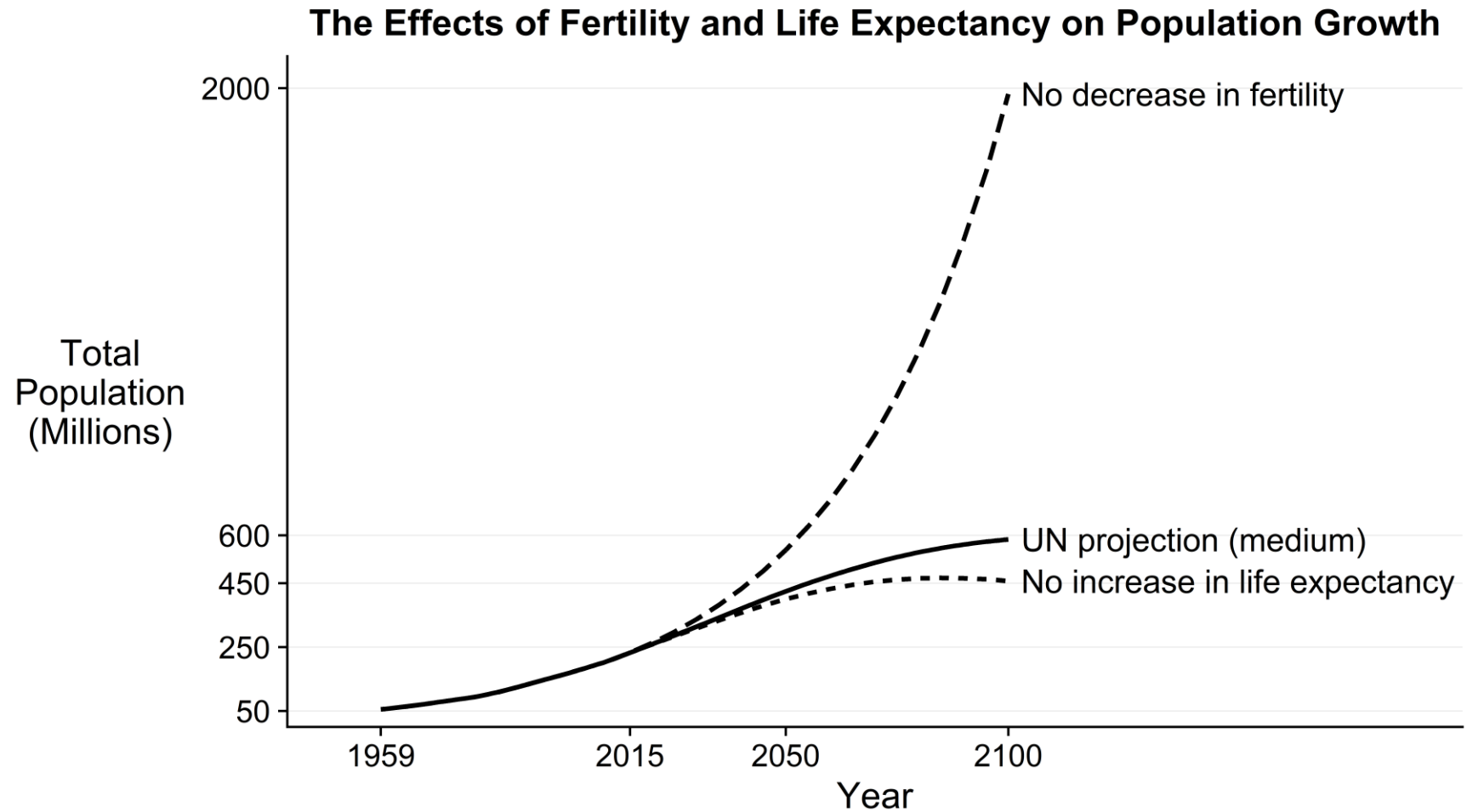
Fertility is the critical factor in population growth



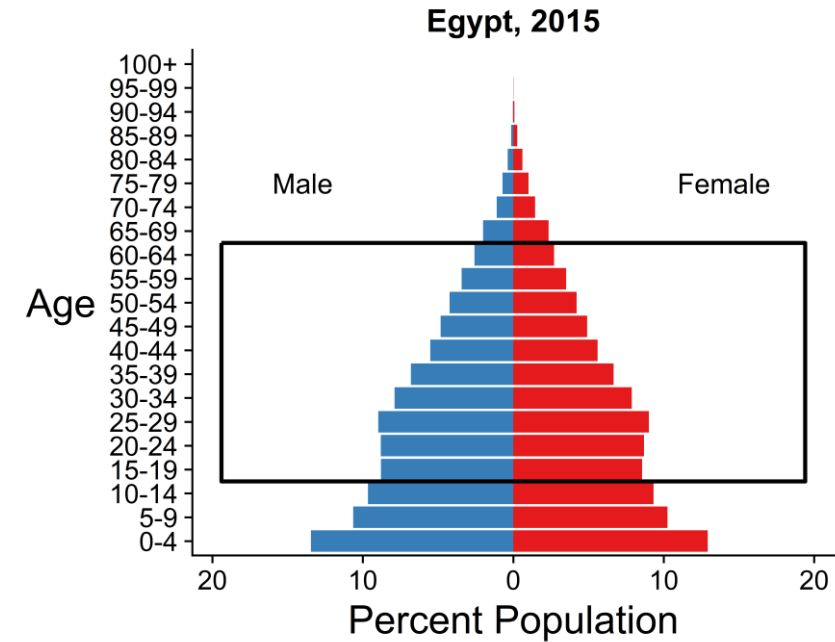
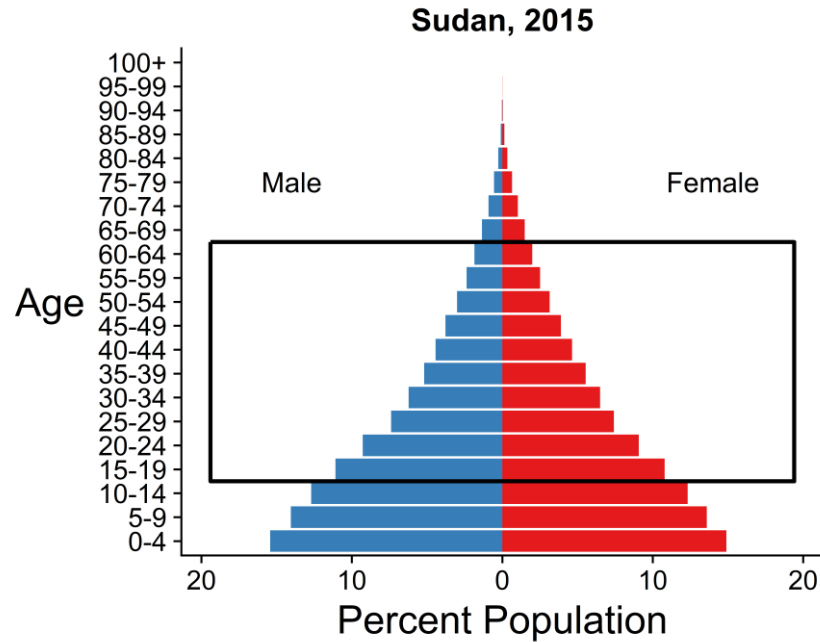
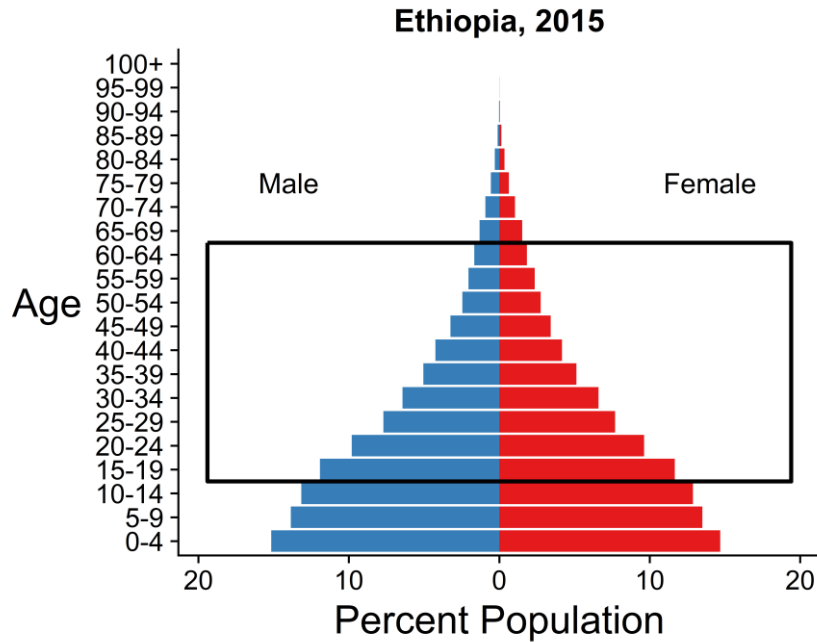
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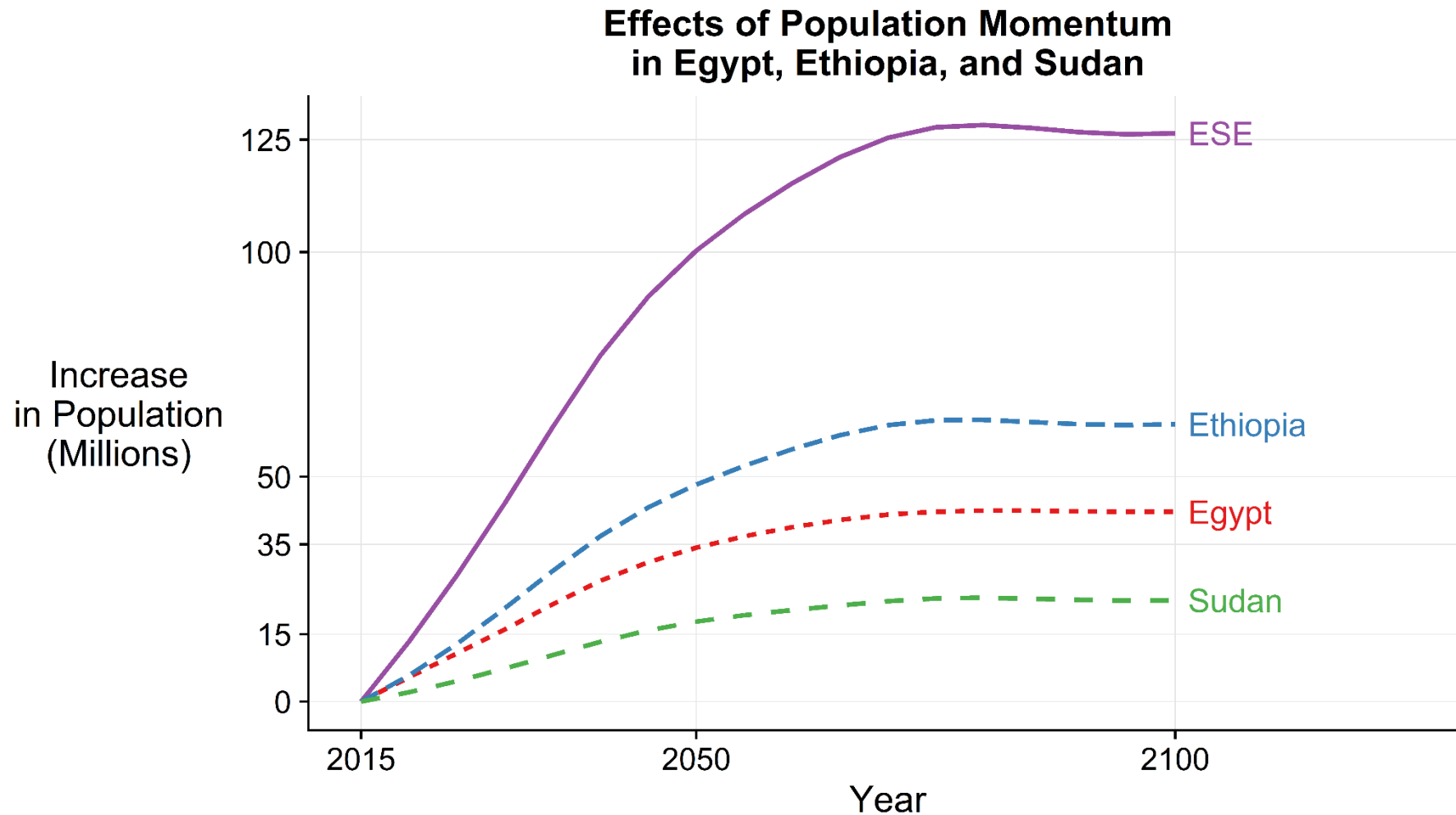
Fertility is the critical factor in population growth



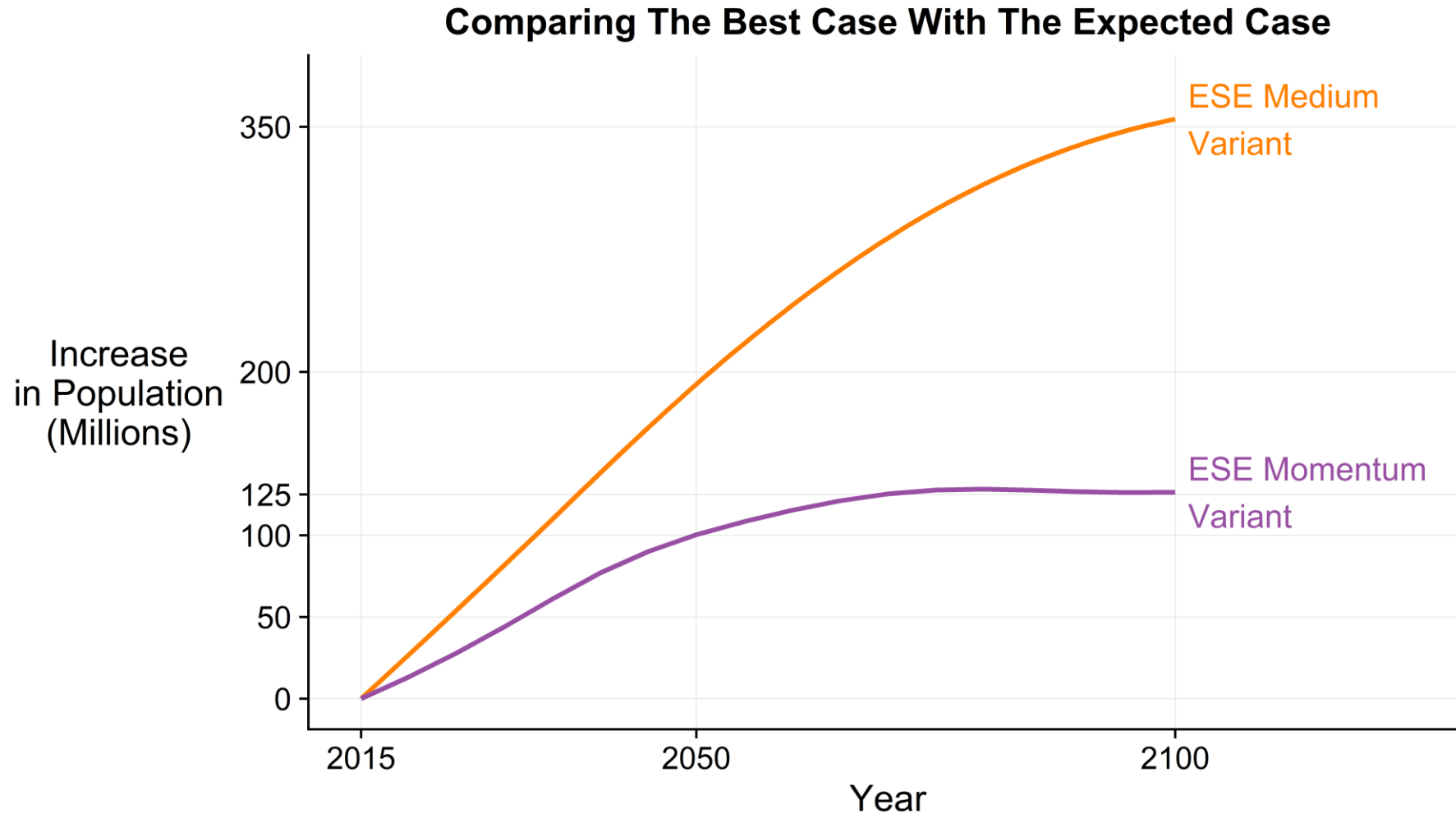
Age structure determines built-in population momentum



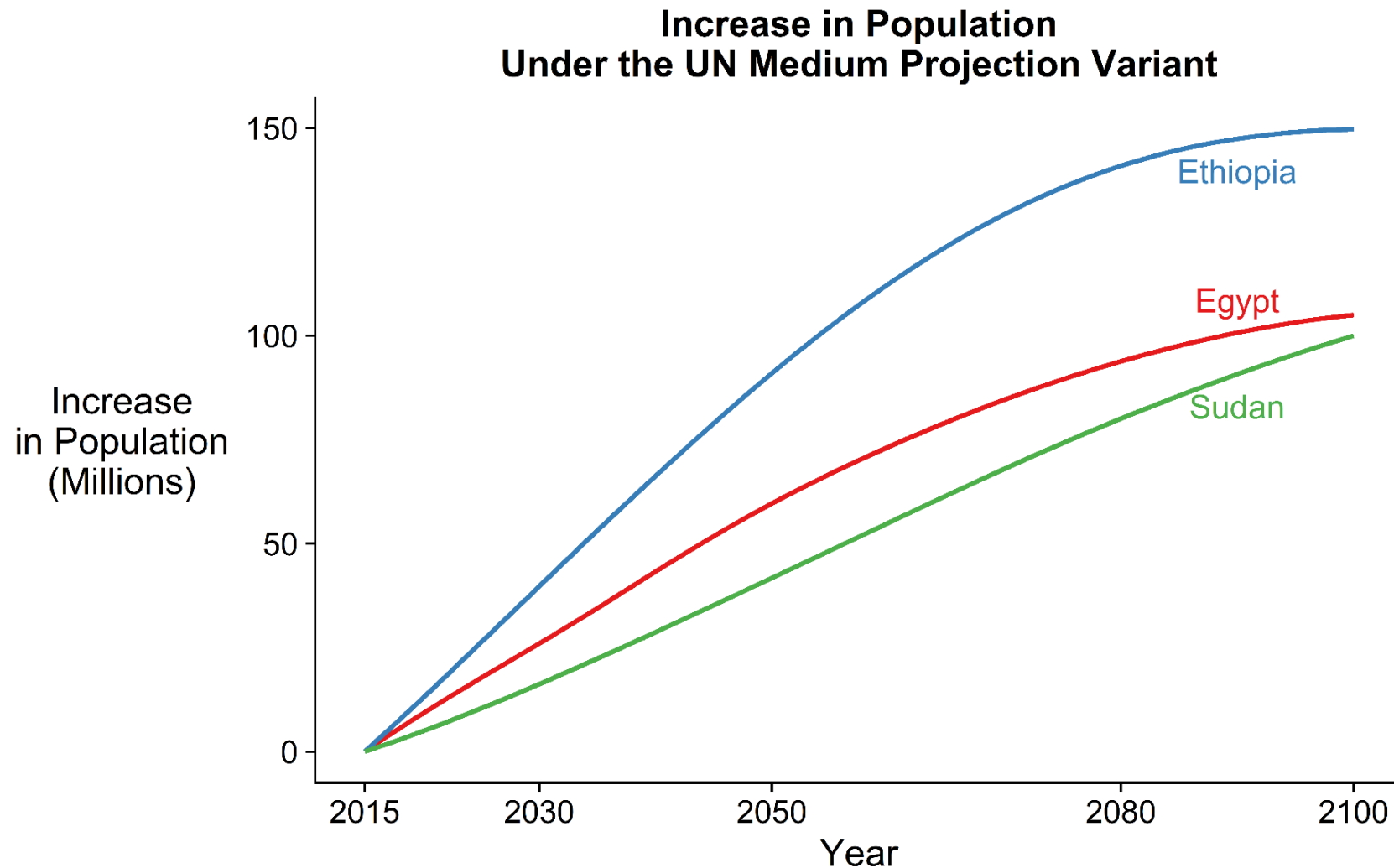
Population momentum will add 100 million people to the region by 2050



Not 100 million, but 200 million more people are expected by 2050

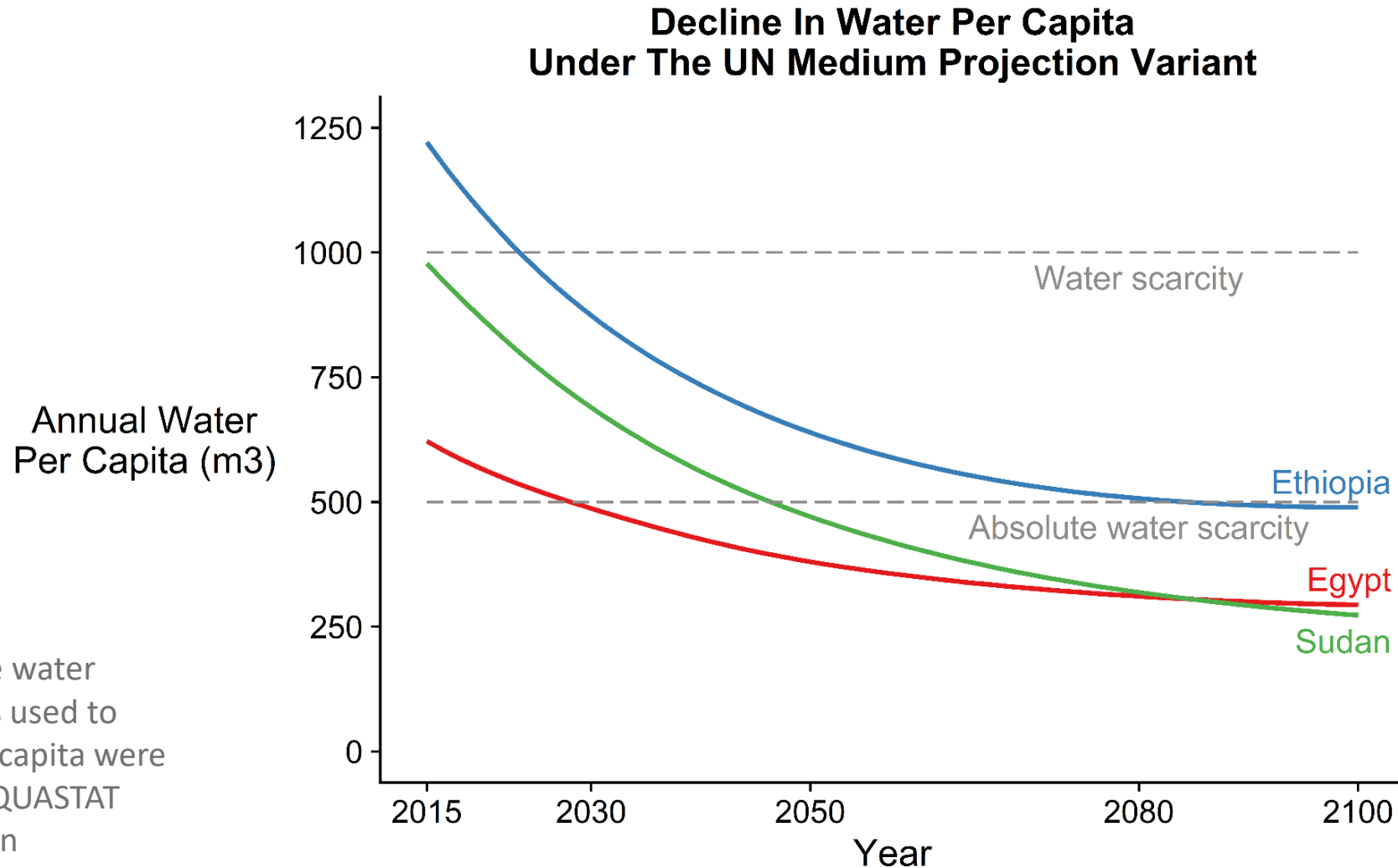


Ethiopia receives the largest fraction of the increase, but all three countries grow substantially



Population projections from the UN.

An addition of 200 million people results in all countries in a state of absolute water scarcity



The total renewable water resources estimates used to calculate water per capita were taken from FAO's AQUASTAT database. Population projections from the UN.

Girls education and access to family planning are recognized ways to reduce fertility

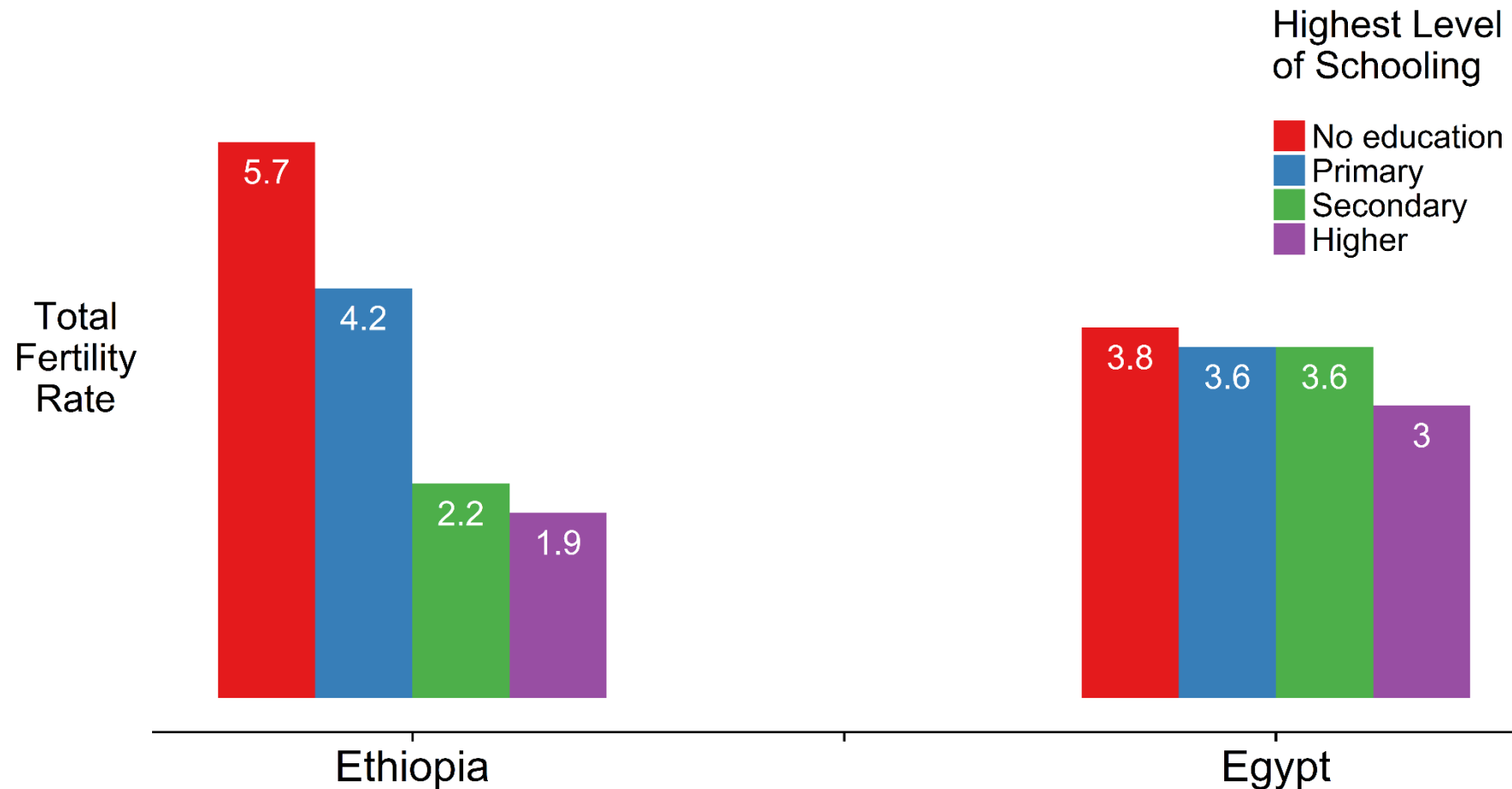


Photo Credit: Kate McIntosh

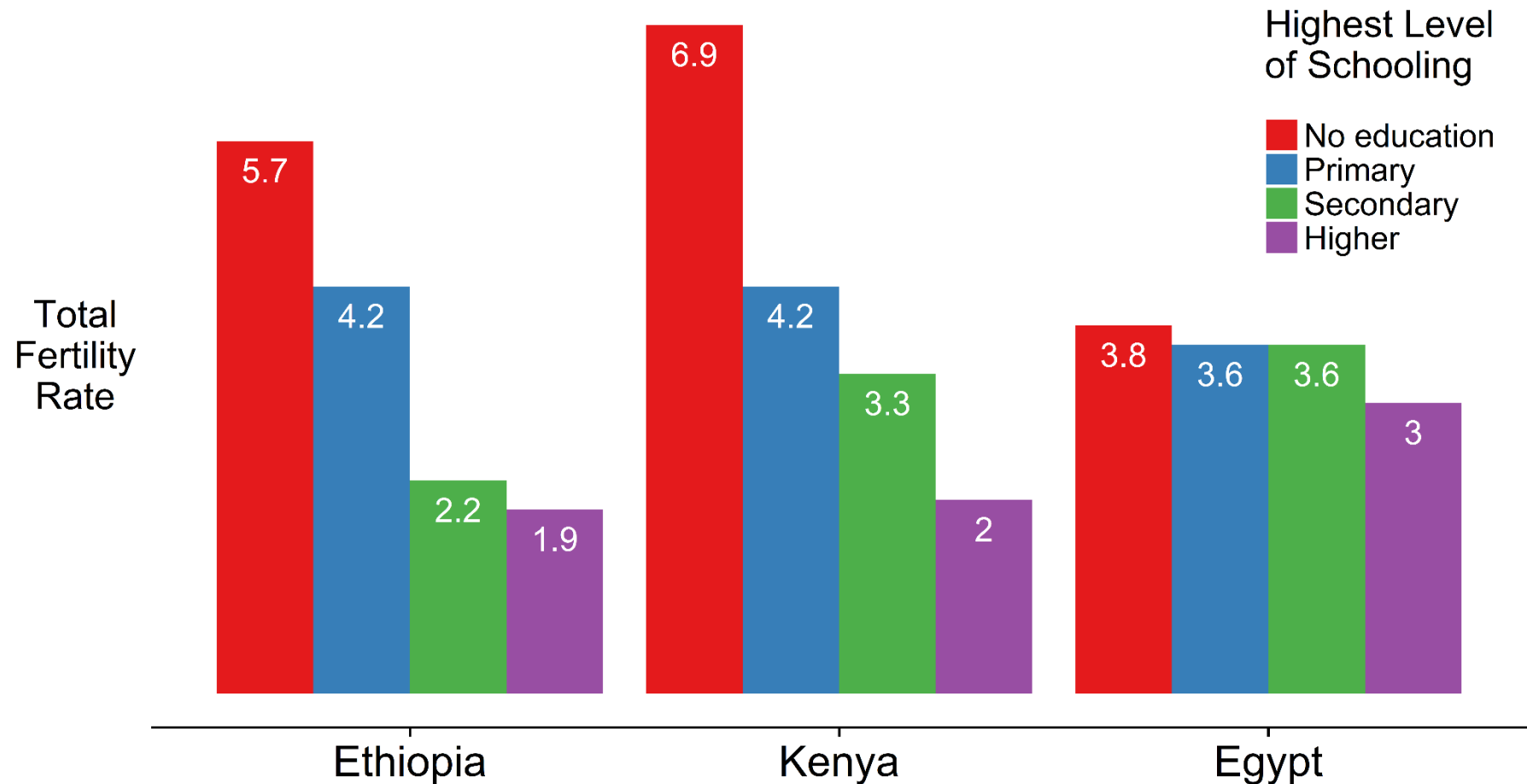


Photo Credit: Ed Scholl, AIDSTAR-One

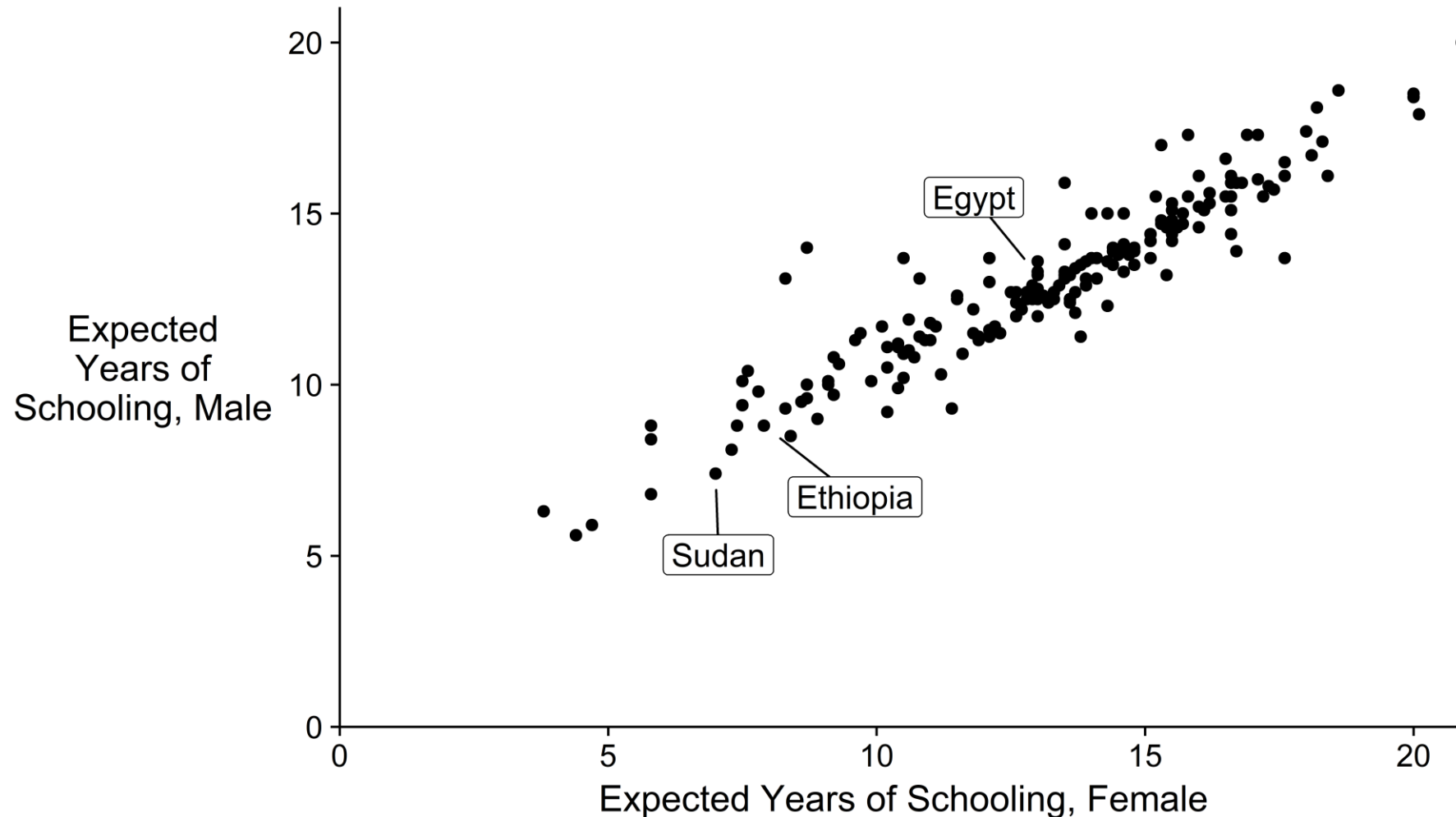
Ethiopia's fertility rates decline sharply with education



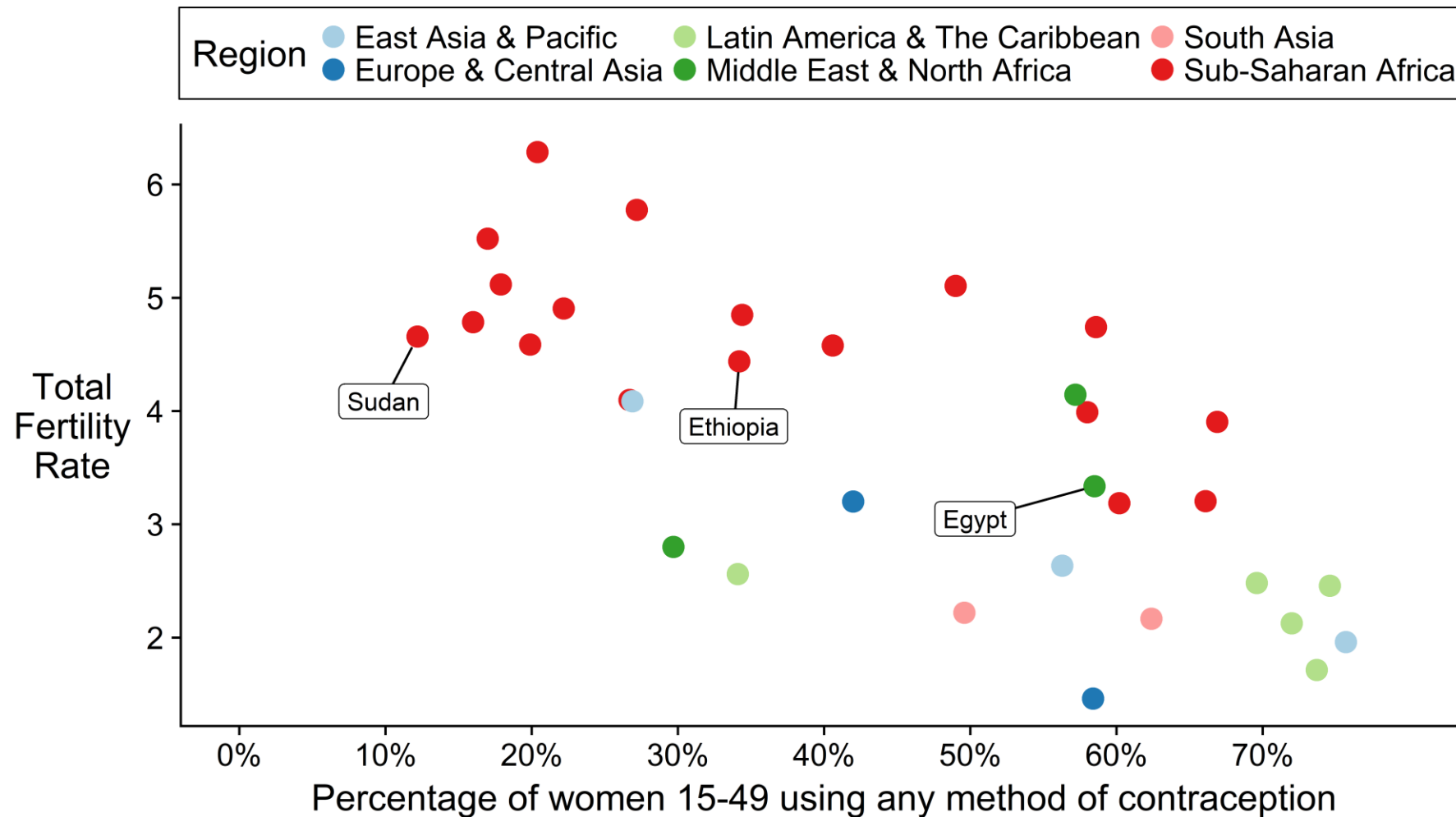
Sudan's relationship between fertility and education is likely more like Ethiopia's than Egypt's



Sudan and Ethiopia could experience meaningful reductions in fertility by increasing access to schooling



Increased contraception prevalence could reduce fertility in all countries, though ease of increase will vary



Values are from 2014. World Development Indicators 2017

In summary...

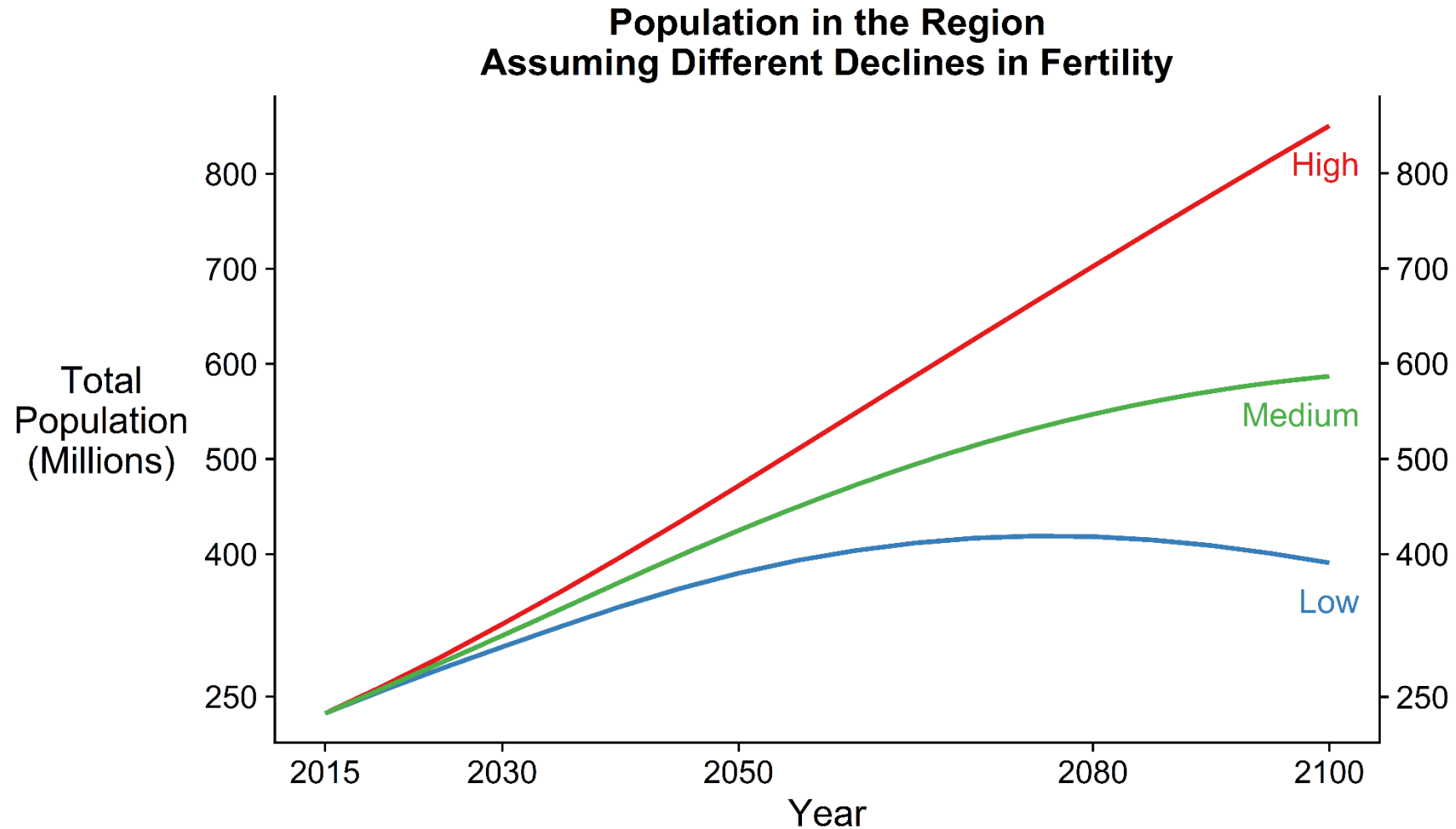
1. The UN estimates a likely increase in population of 200 million in the region by 2050 (from 250 million to 450 million)
2. Due to population momentum, the best-case scenario of instantly reducing fertility to replacement level will still add 100 million people to the region by 2050
3. These additions in population will result in significant additional strain on water resources in the region
4. The rate of decline in fertility is the key determining factor in future population growth
5. Increased access to education for girls and family planning/contraception are linked to decreases in fertility
 - Ethiopia and Sudan have much to gain by focusing on education
 - Egypt has made progress in recent decades—remaining reductions in fertility are limited primarily by cultural factors.

References and additional
slides for questions

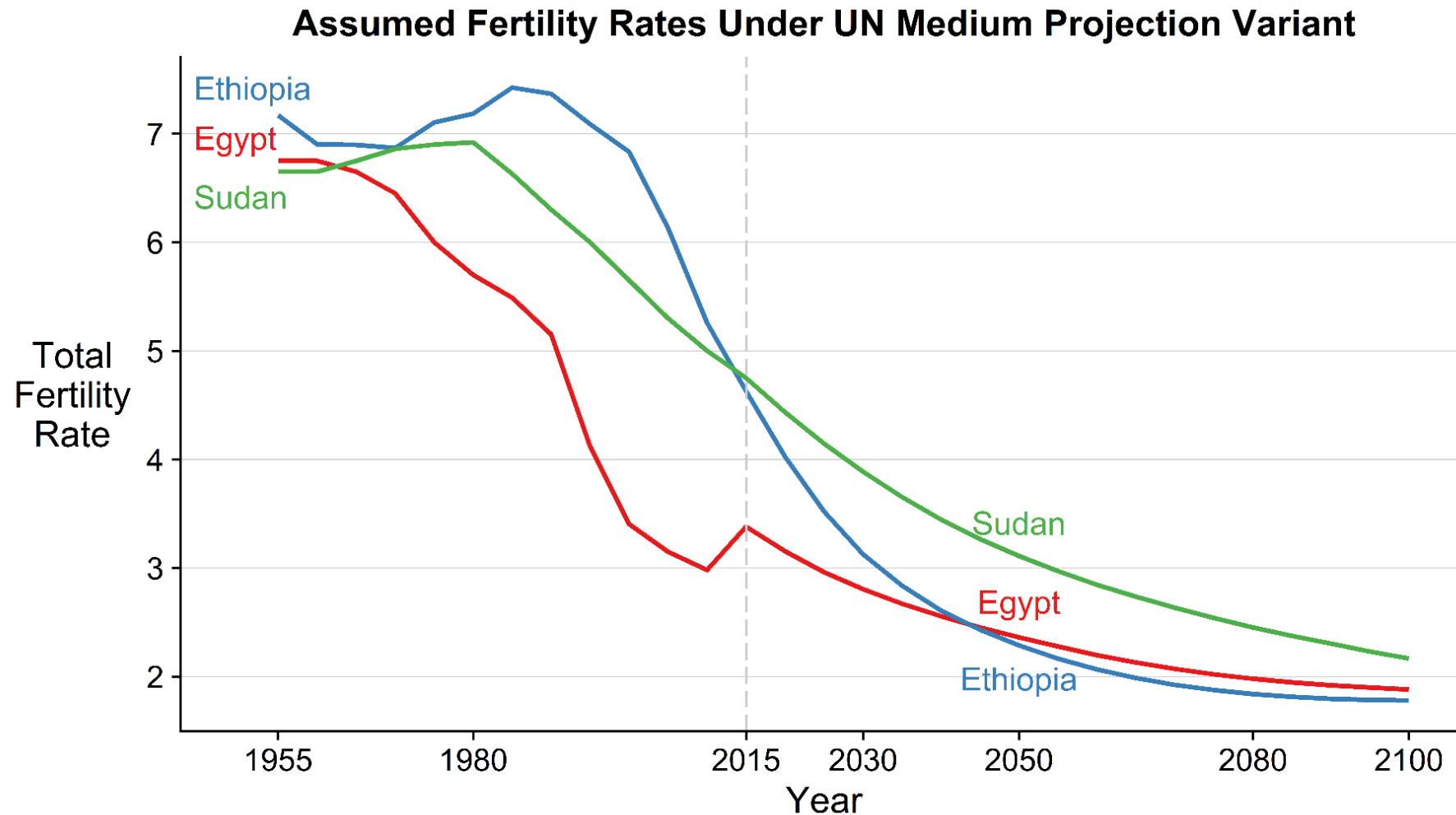
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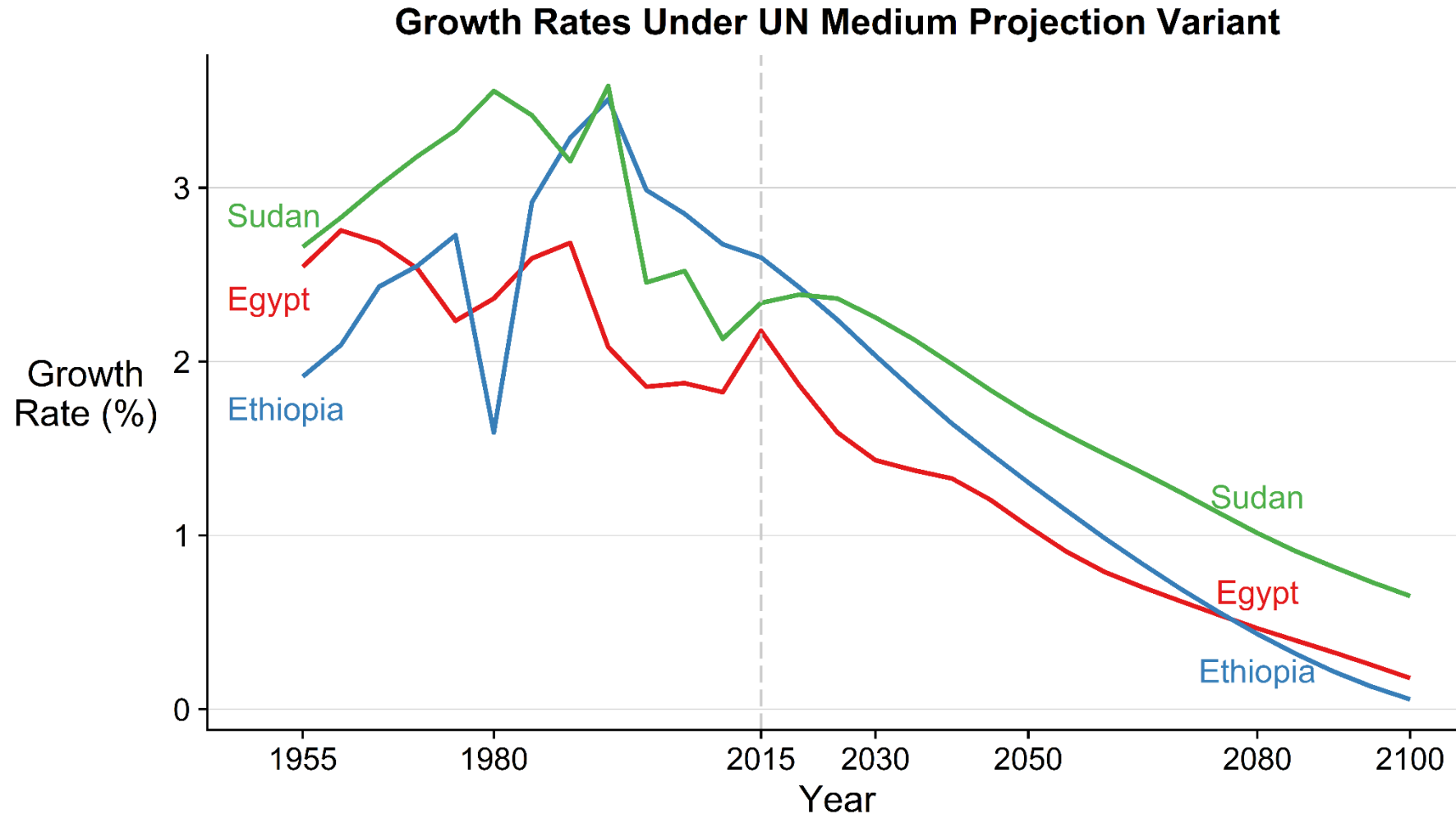
Impacts of rate of decline in fertility



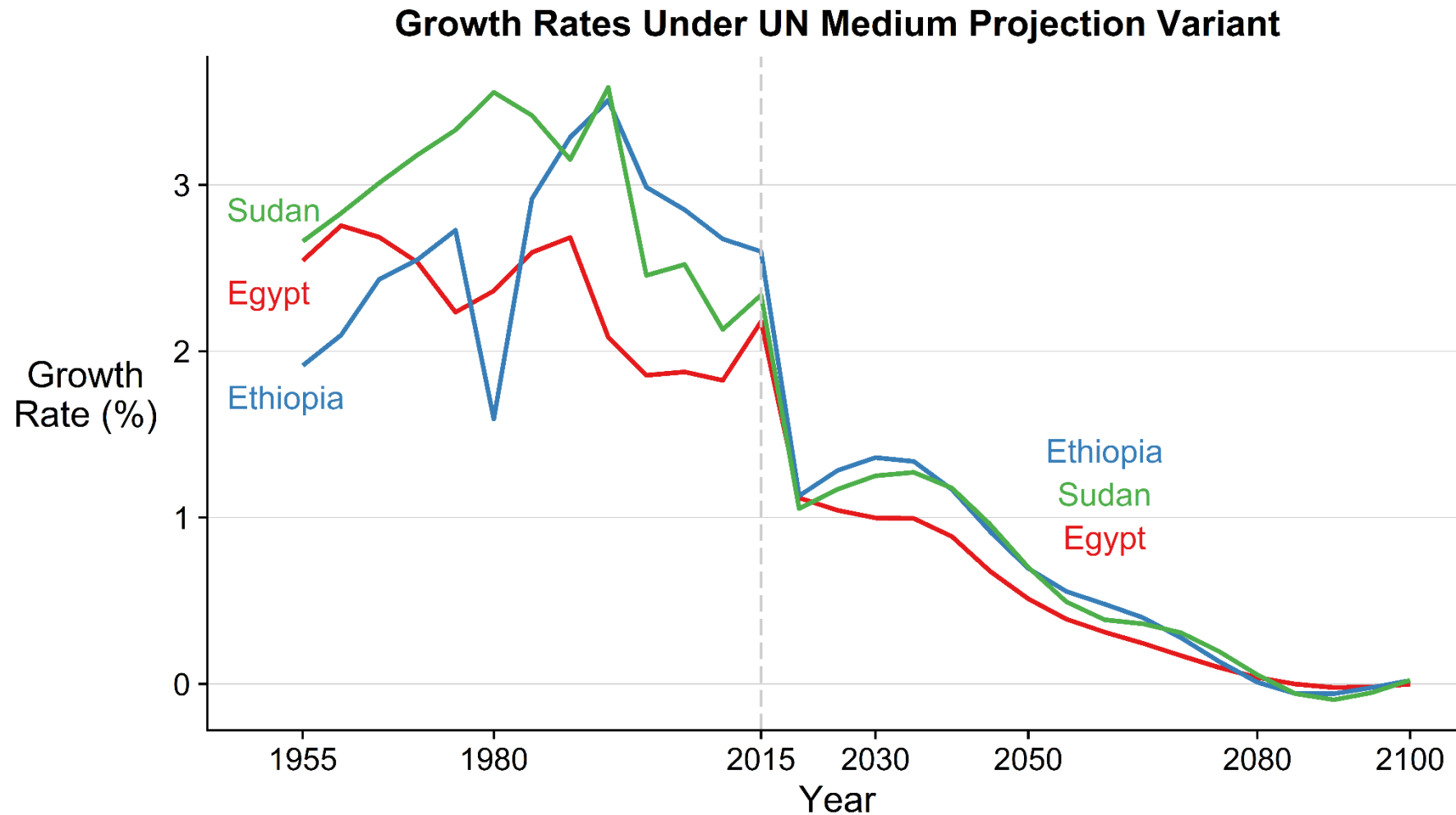
Fertility declines necessary for population increase to not exceed 200 million by 2050



Medium projection growth rates



Momentum projection growth rates



The effects of education on fertility

- Delays maternal age (Ali and Gurmu, 2016)
- Provides economic and employment opportunities, increasing the “opportunity cost of childbearing” (Osili and Long, 2007)
- Provides knowledge of family planning and modern methods of contraception (Osili and Long, 2007)
- Increases child health and reduces child mortality, so fewer children are necessary to obtain a desired family size (Osili and Long, 2007)

China's economic rise was preceded by a reduction in fertility

