

# The Demographic Dividend and Gender Equality in Tanzania

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# Health and Wealth of Nations

- Effects of child health on physical and cognitive development
- Effects of life span on life cycle behavior
- Effect of child mortality reductions on fertility
- WHO Commission on Macroeconomics and Health 2001

## The Health and Wealth of Nations

David E. Bloom\* and David Canning

**T**he positive correlation between health and income per capita is one of the best-known relations in international development (see figure). This correlation is commonly thought to reflect a causal link running from income to health. Higher income gives greater command over many of the goods and services that promote health, such as better nutrition and access to safe water, sanitation, and good quality health services.

Recently, however, another intriguing possibility has emerged: that the health-income correlation is partly explained by a causal link running the other way—from health to income. Several mechanisms, falling into four main categories, could account for this relation:

**Productivity.** Healthier populations tend to have higher labor productivity, because their workers are physically more energetic and mentally more robust. They suffer fewer lost workdays from illness or the need to care for other family members who have fallen ill.

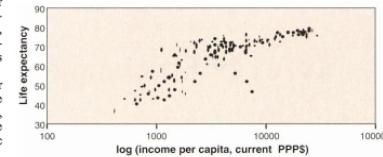
**Education.** Healthier people who live longer have stronger incentives to invest in developing their skills, because they expect to reap the benefits of such investments over longer periods. Increased schooling promotes greater productivity and, in turn, higher income. Good health also promotes school attendance and enhances cognitive function.

**Investment in physical capital.** Improvements in longevity create a greater need for people to save for their retirement. Insofar as increased savings lead to increased investment, workers will have access to more capital and their incomes will rise. In addition, a healthy and educated workforce acts as a strong magnet for foreign investment.

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**"Demographic dividend."** The transition from high to low rates of mortality and fertility has been dramatic and rapid in many developing countries in recent decades. Mortality declines concentrated among infants and children typically initiate the transition and trigger subsequent declines in fertility. An initial surge in the numbers of young dependents gradually gives way to an increase in the proportion of the population that is of working age (1). As this happens, income per capita can rise dramatically, provided the broader policy environment permits the new



Life expectancy and income in purchasing power parity (PPP) dollars, 1997. [Source: World Bank (14)]

workers to be absorbed into productive employment (2).

All these mechanisms offer plausible ways in which health improvements can lead to income growth. However, examining the data allows evaluation of how important these mechanisms are. Recent economic analysis indicates that health status (as measured by life expectancy) is a significant predictor of subsequent economic growth (3). This effect is above and beyond other influences on economic growth, emerges consistently across studies, and is strikingly large (4).

Suppose we compare two countries that are identical in all respects, except one has a 5-year advantage in life expectancy. On the basis of studies in several countries, real income per capita in the healthier country will grow 0.3 to 0.5% per year faster than in its less healthy counterpart. This represents a sizable boost to growth, given that, from 1965 to 1990, countries experienced an average per capita income growth of only 2% per year. Moreover, a

gain of 5 years in life expectancy is well within the reach of most developing countries—since 1950, for example, life expectancy worldwide has increased by about 20 years.

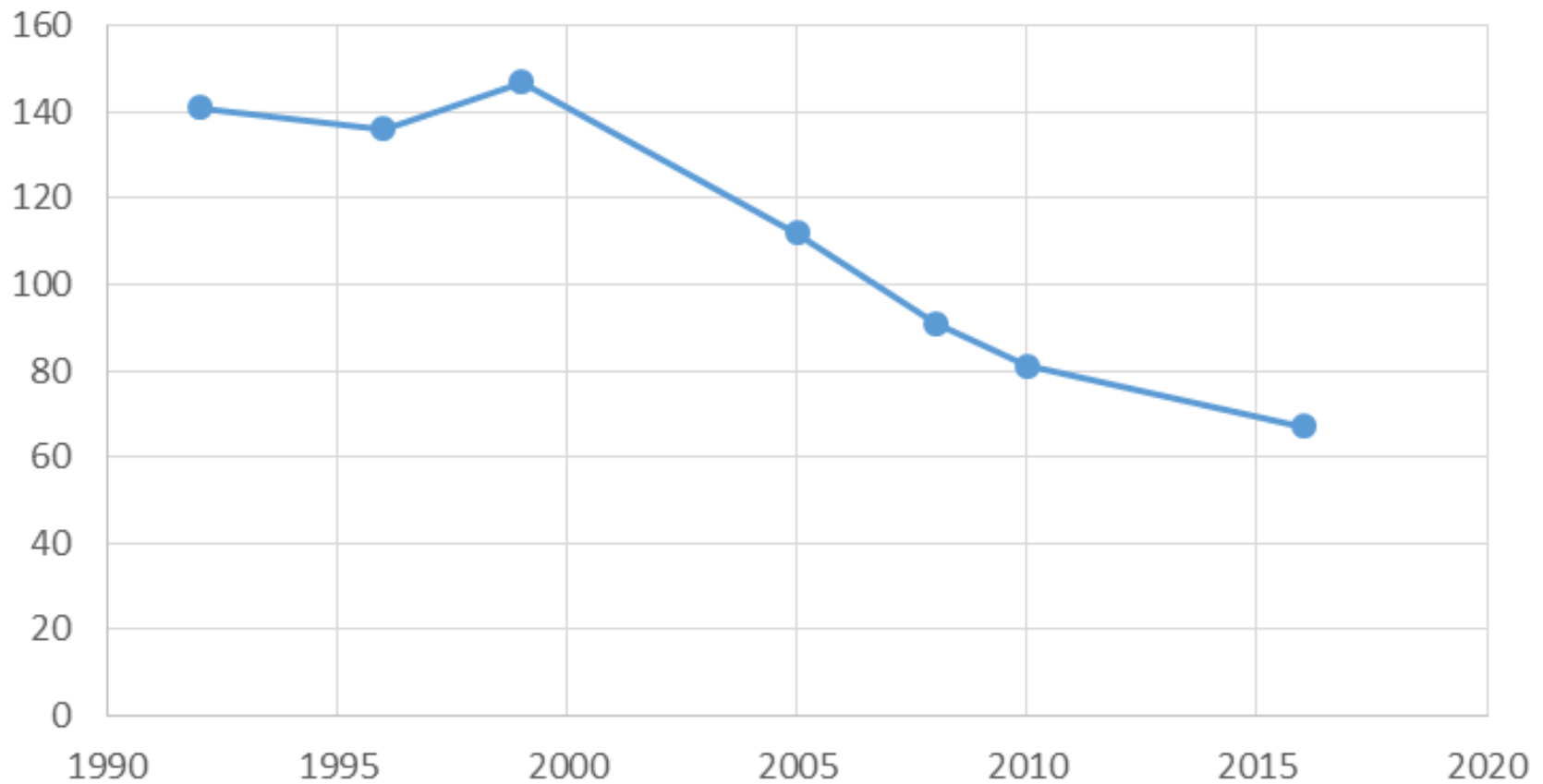
As these health improvements fortify the economy, they also alleviate poverty. Economic growth is an exceedingly powerful way to reduce poverty among the 1.3 billion people living on less than US\$1 per day. Available evidence indicates that increases in average income translate—percentage point for percentage point—into increases in the income of the poor. In addition, health improvements are disproportionately beneficial for the poor, as they depend on their labor power more than any other segment of the population.

Just as the direct effects of life expectancy on economic growth are important, so too are the indirect effects of improvements in health status that operate via demographic change. In East Asia, for example, the working-age population grew several times faster than the dependent population between 1965 and 1990. The whole process seems to have been triggered by declining child and infant mortality, itself prompted by the development of antibiotics and antimicrobials (such as penicillin, sulfa drugs, streptomycin, bacitracin, chloroquine, and tetracycline, all of which were discovered and introduced in the 1920s, 1930s, and 1940s), the use of DDT (which became available in 1943), and classic public health improvements related to safe water and sanitation (5, 6). Health improvements can therefore be seen to be one of the major pillars upon which East Asia's phenomenal economic achievements were based, with the demographic dividend accounting for perhaps one-third of its "economic miracle" (5, 7).

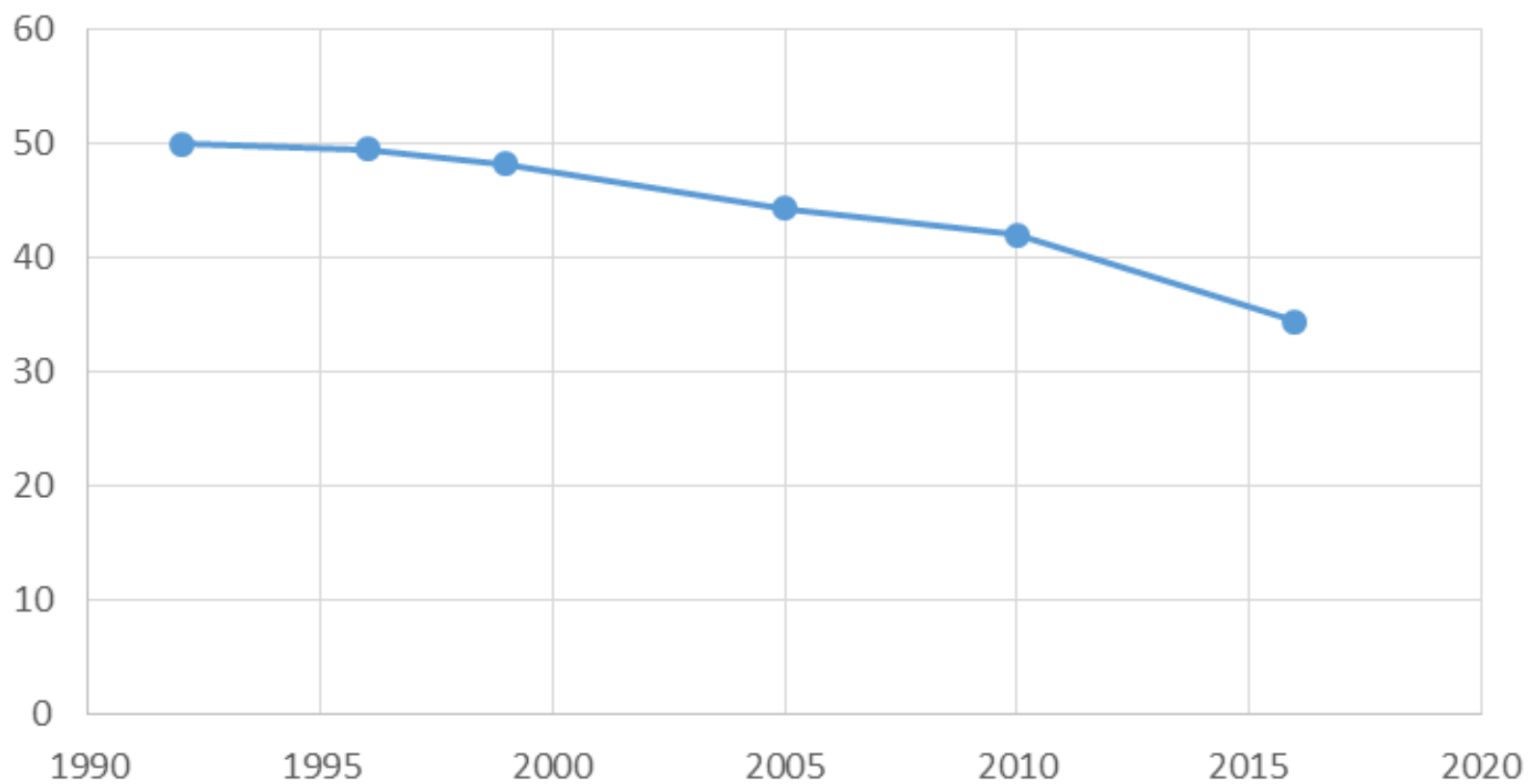
By contrast, poor health can slow the demographic transition and inhibit growth. In Sub-Saharan Africa, for example, a seemingly intractable disease burden induces many families to dissipate their resources among large numbers of children, creating a high-fertility, high-mortality poverty trap that impedes economic growth (8).

Patterns of energy use also mediate the interactions between health, demography, and income. The rural poor rely heavily on wood, dung, and other biomass. The resulting smoke and particulates are detrimental to human health and can diminish people's productivity. Across countries,

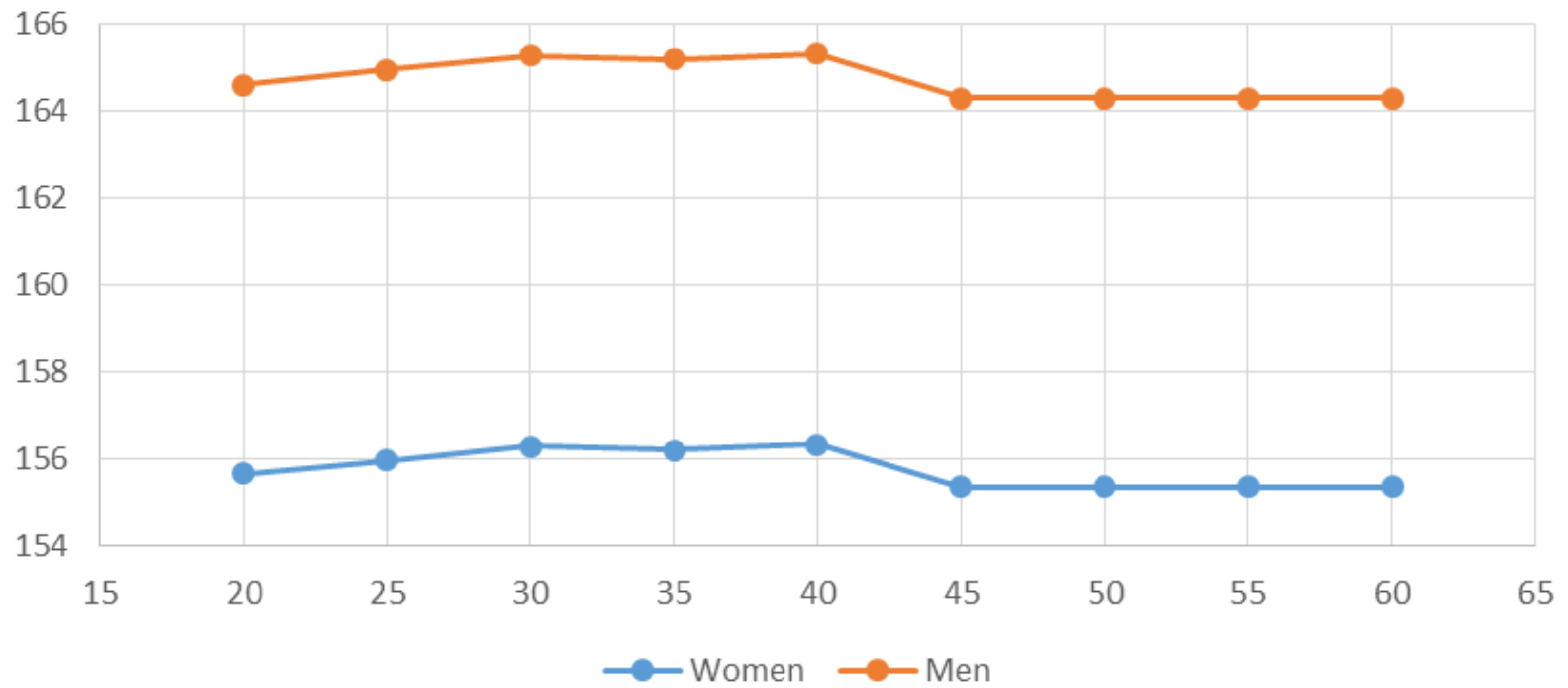
## Tanzania Under 5 Mortality Rate



### Tanzania: Percentage of children under 5 stunted



### Tanzania: Height by Age



# The Demographic Dividend

- Pure age structure effects
- Behavioral effects
  - Female labor supply
  - Investments in child health and education
  - Longevity and saving
- Dividend not automatic
  - extra resources must be productively employed
  - Dividend must be earned by investments – increased policy effects

RAND

## The Demographic Dividend

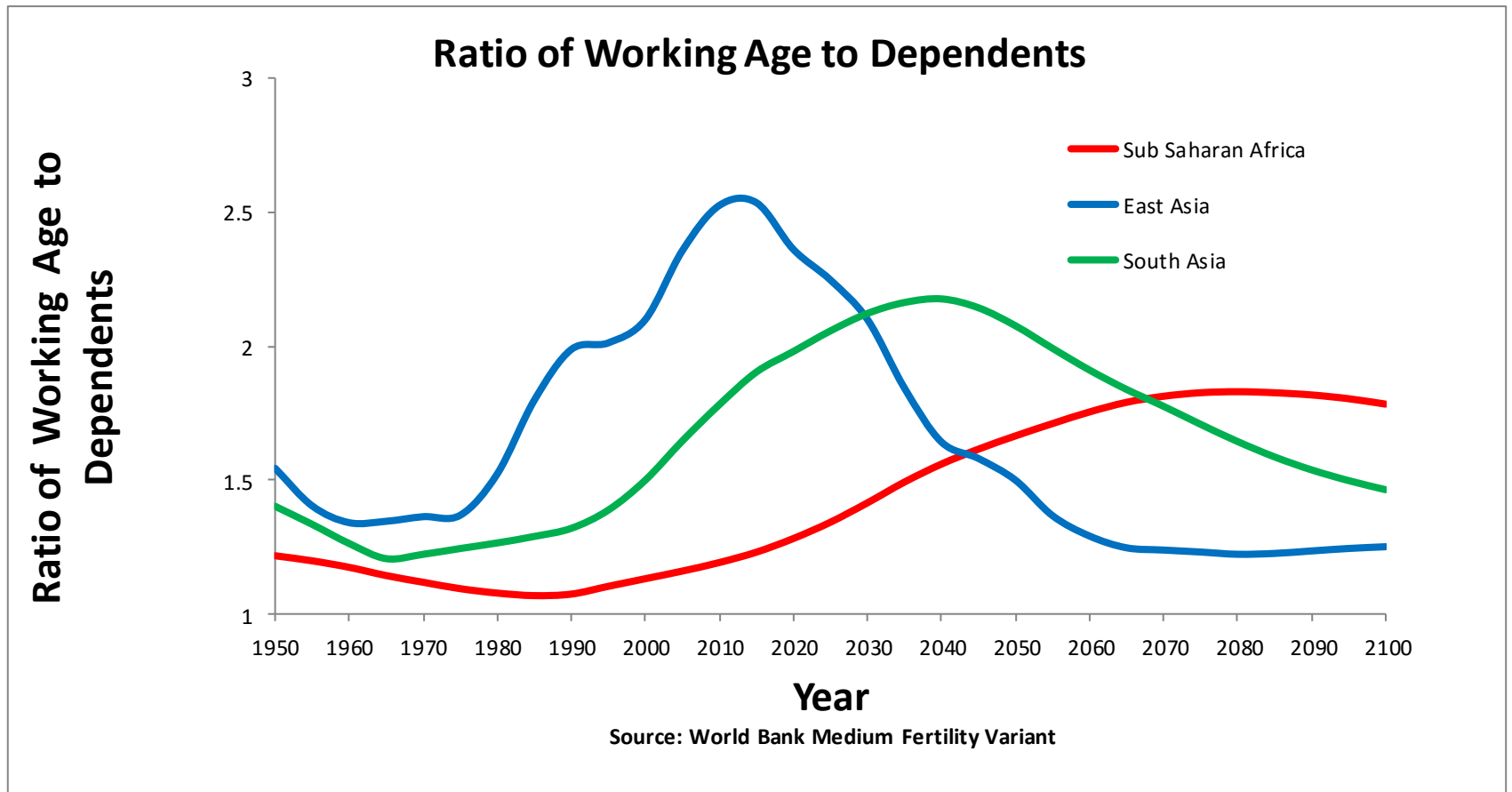
A New Perspective on the Economic Consequences of Population Change

David E. Bloom  
David Canning  
Jyotsna Ravindra

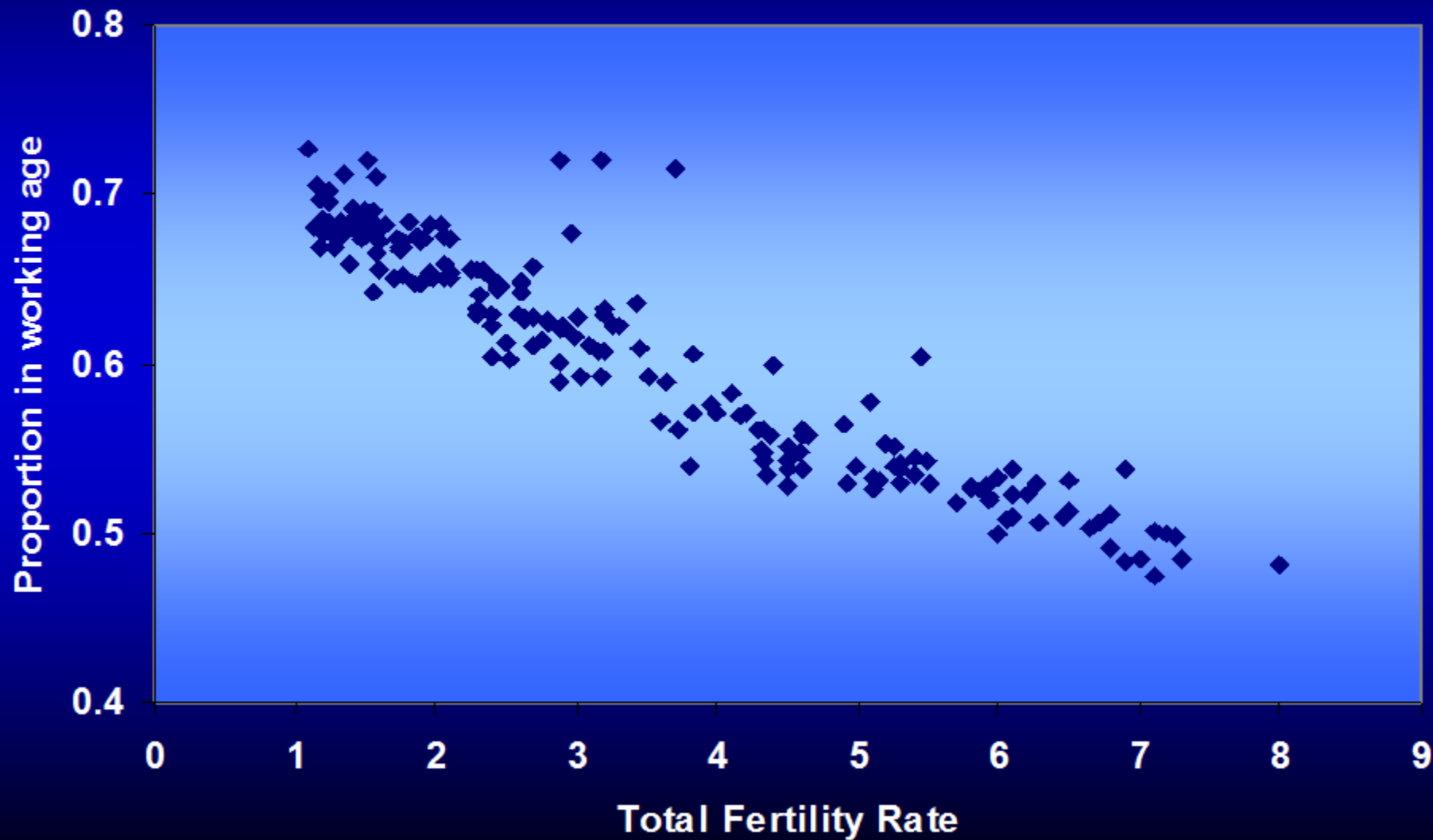


A RAND Program of Policy Research Beyond Geography

# Working Age Share is Linked to Economic Takeoff



# Fertility and Age Structure Across Countries, 2000





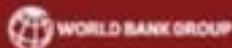
AFRICA DEVELOPMENT FORUM



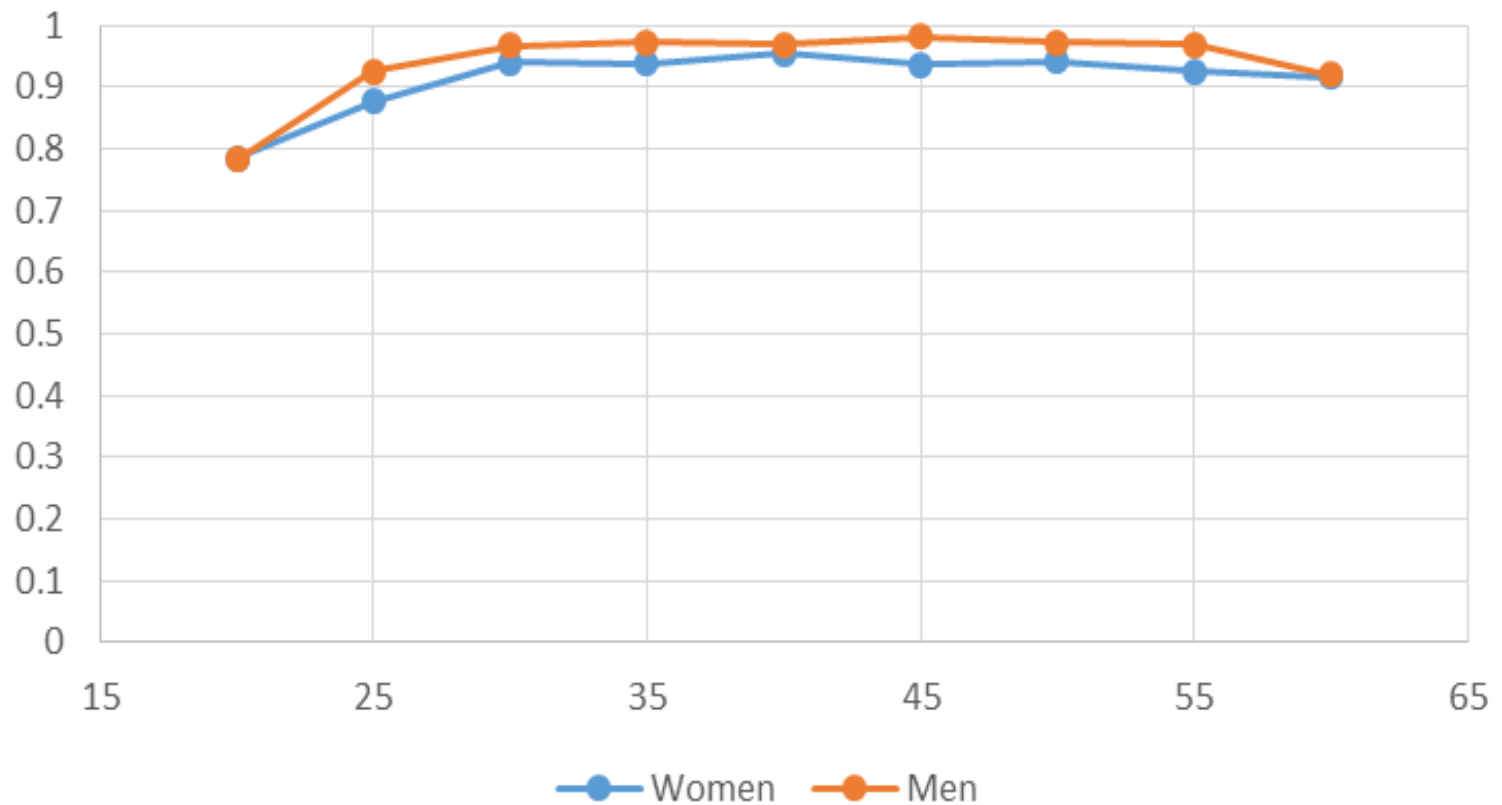
# Africa's Demographic Transition

Dividend or Disaster?

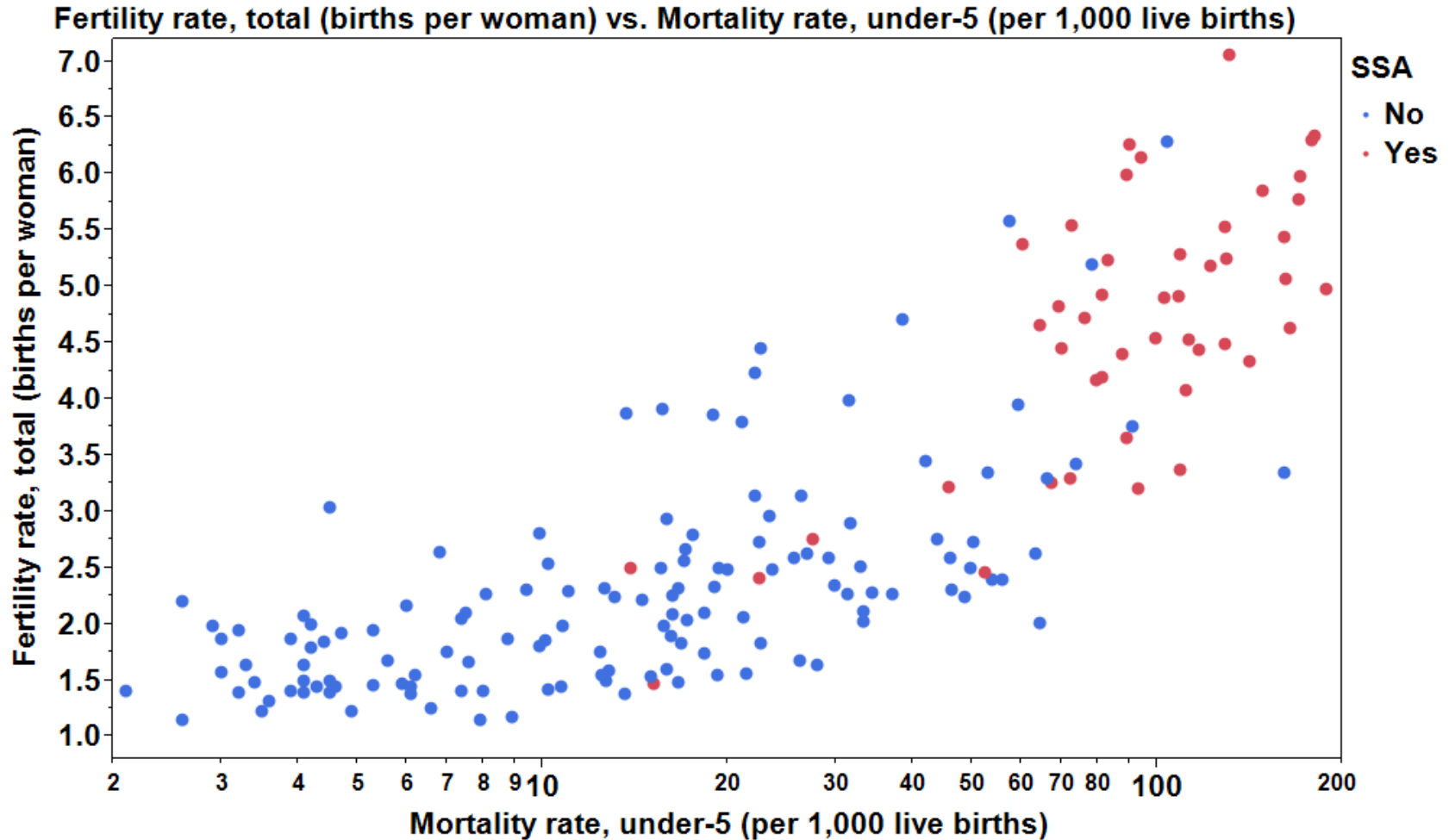
David Canning, Sangeeta Raja, and Abdo S. Yazbeck,  
Editors



### Tanzania: Labor Force Participation Rate by Age

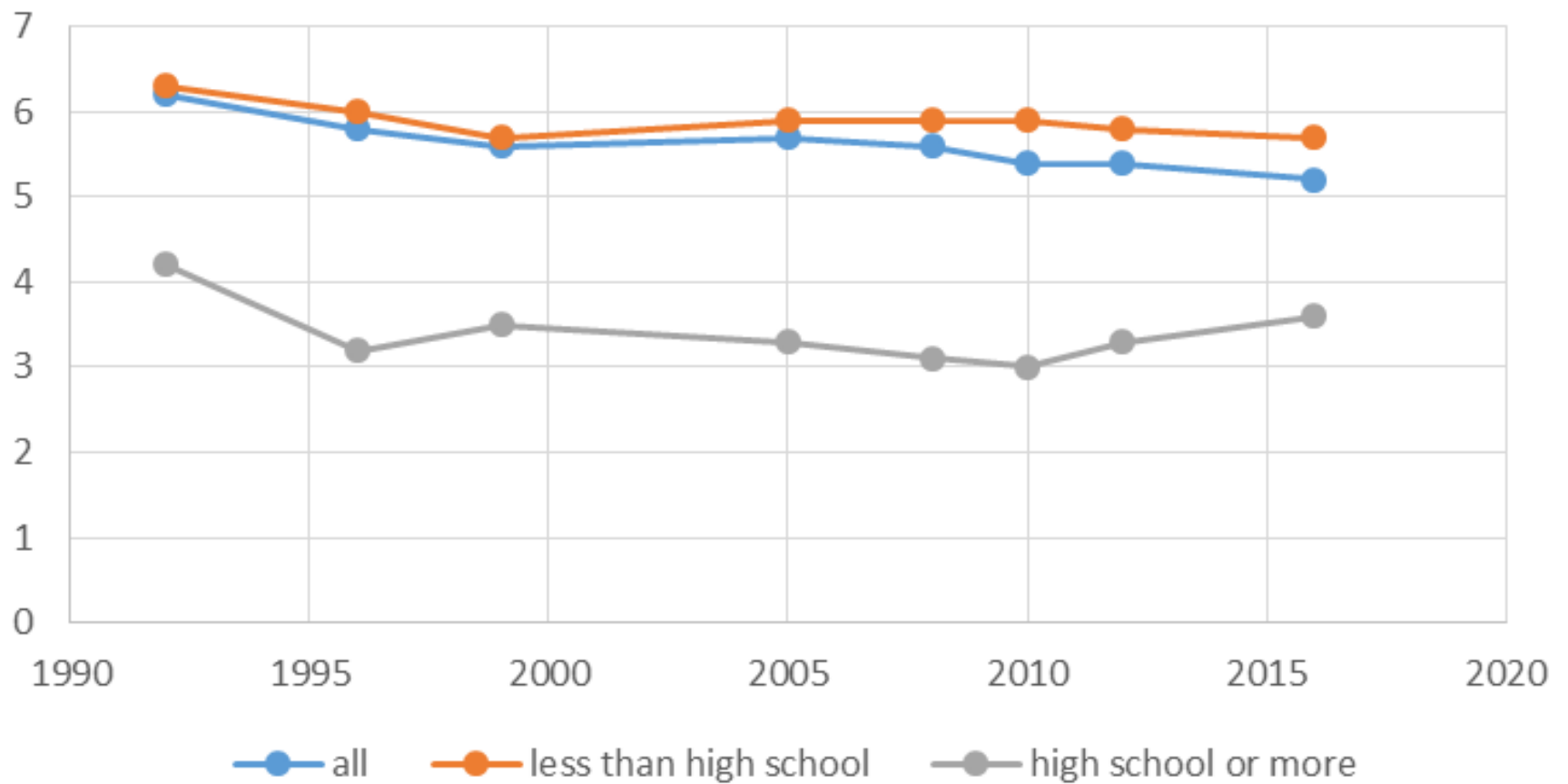


# Policies to Promote Fertility Decline Decrease Child Mortality

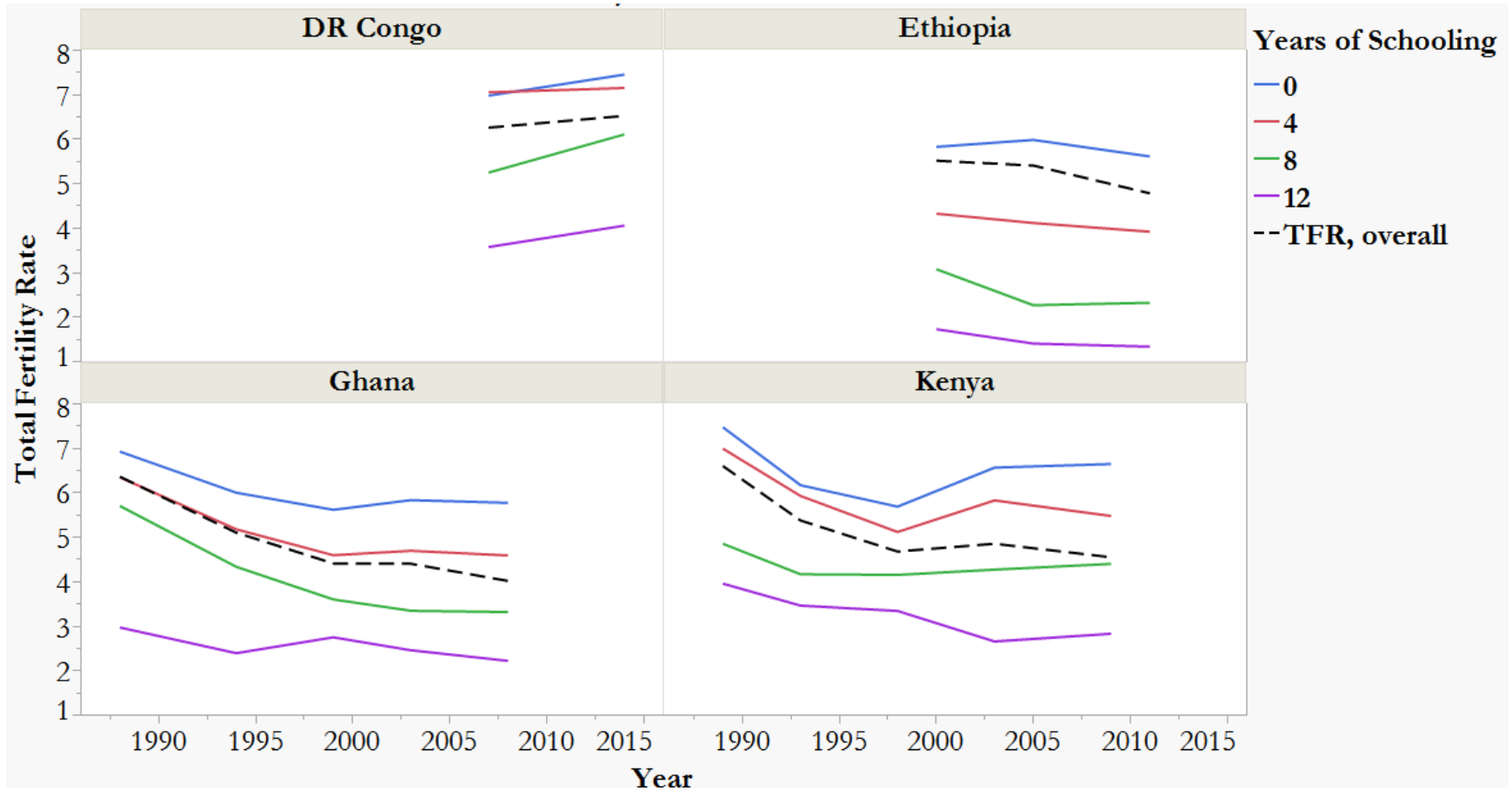


\*World Development Indicator Data. 2010

### Tanzania: Total Fertility Rate by Education

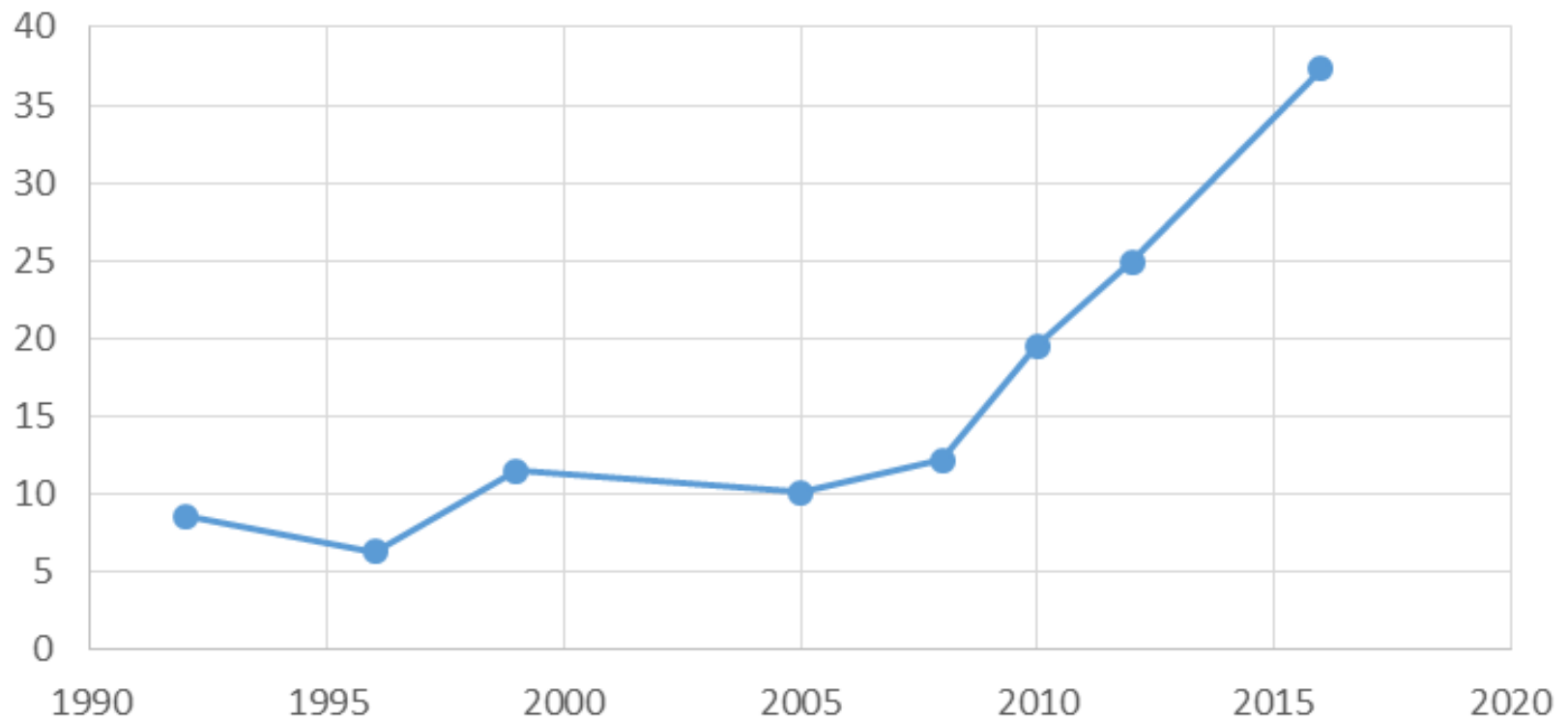


# Fertility Rates by Women's Education

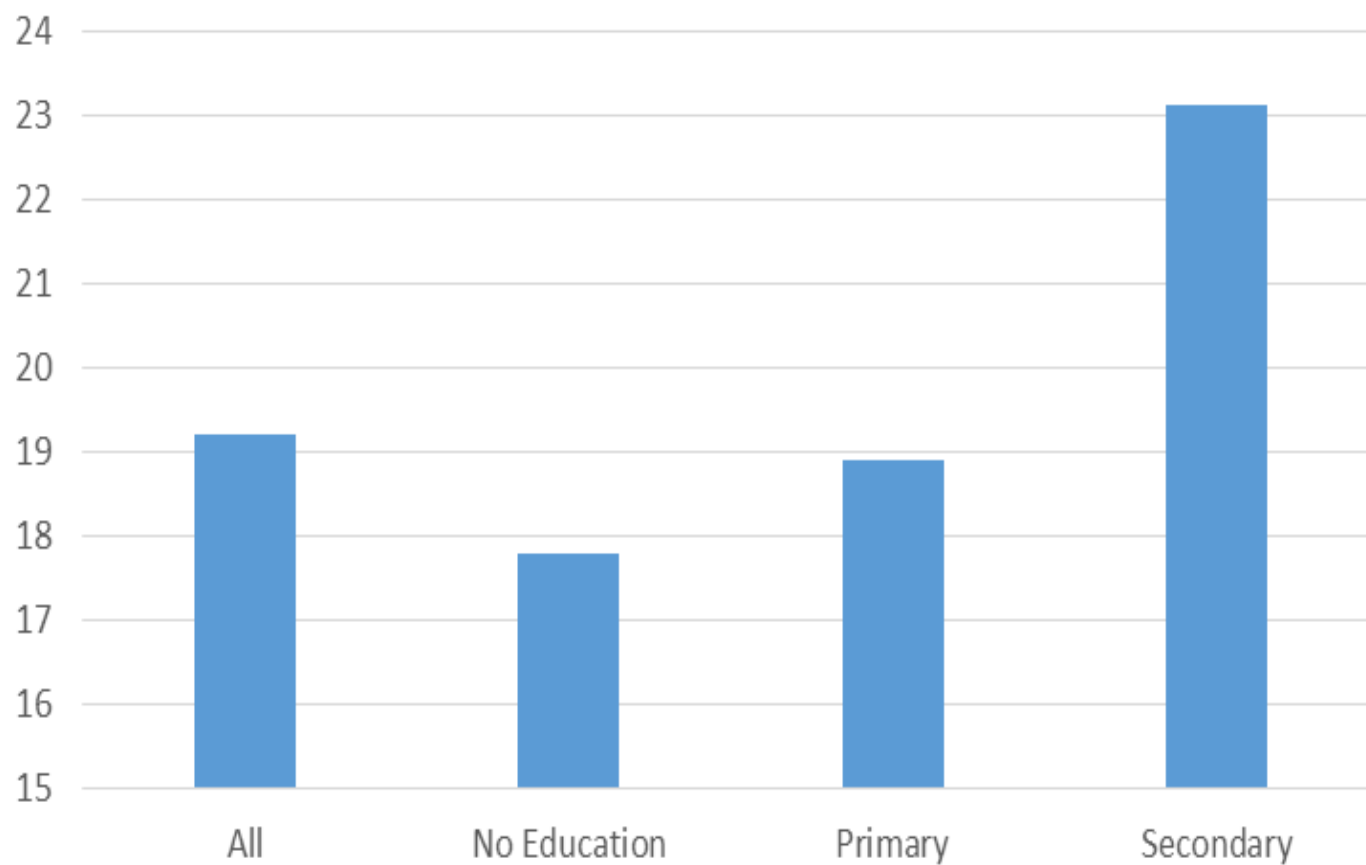


Data from various Demographic and Health Surveys.

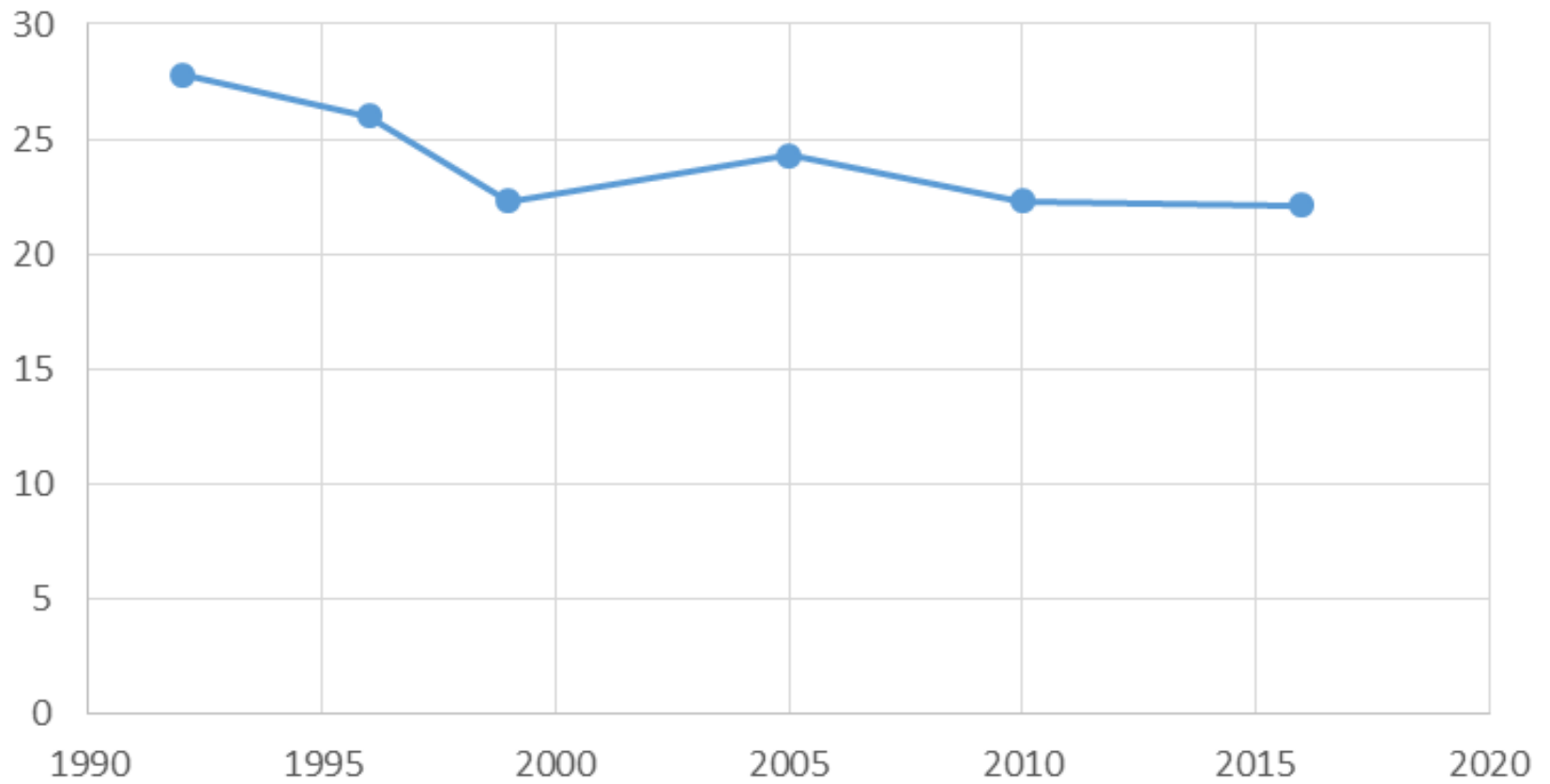
## Tanzania: Percentage of women aged 20-25 with at least High School Education



## Tanzania: Average Age of Marriage by Education



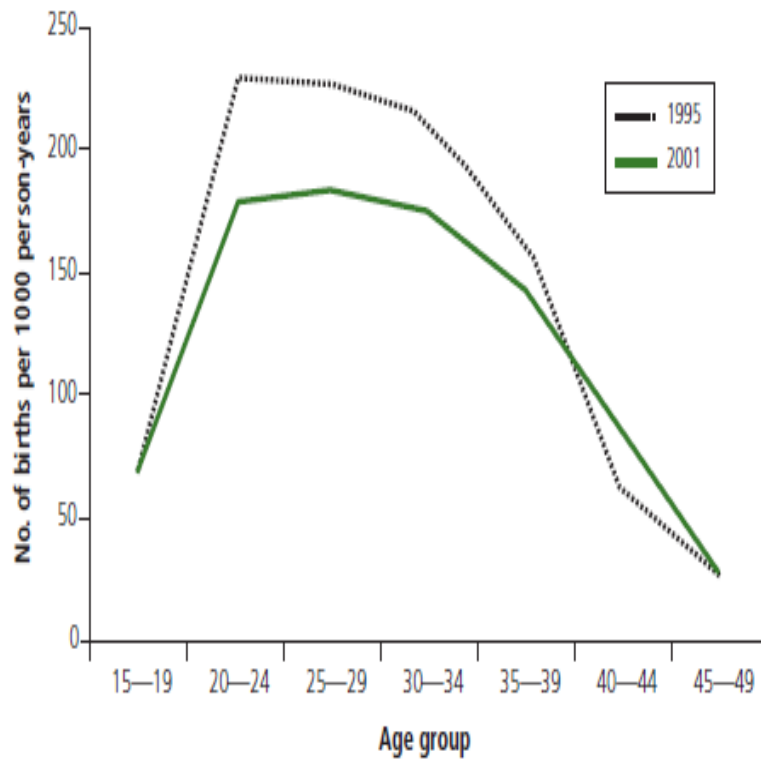
## Tanzania: Unmet Need for Family Planning



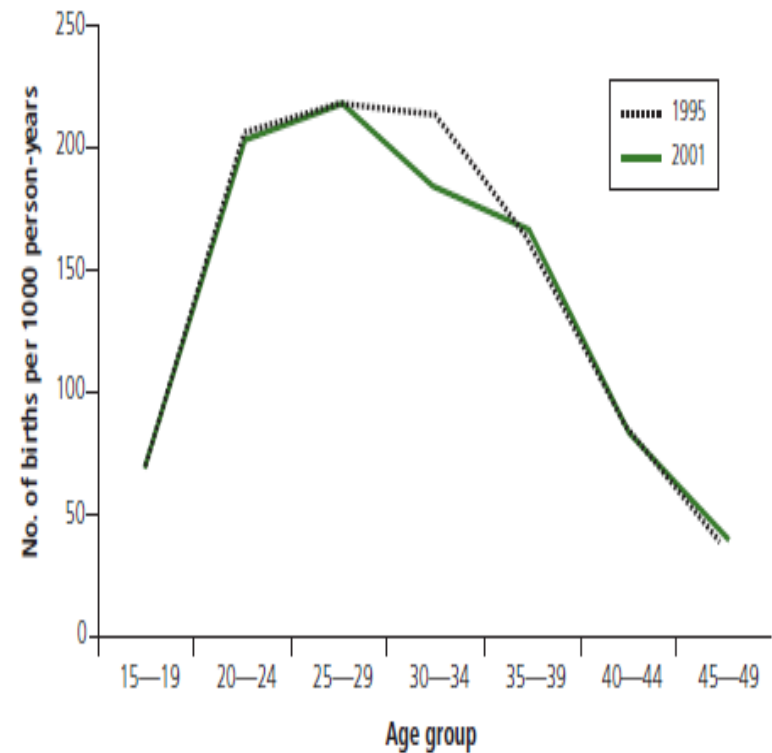


# A Family Planning Intervention Reduced Fertility in Navrongo, Ghana

## Treatment Area:

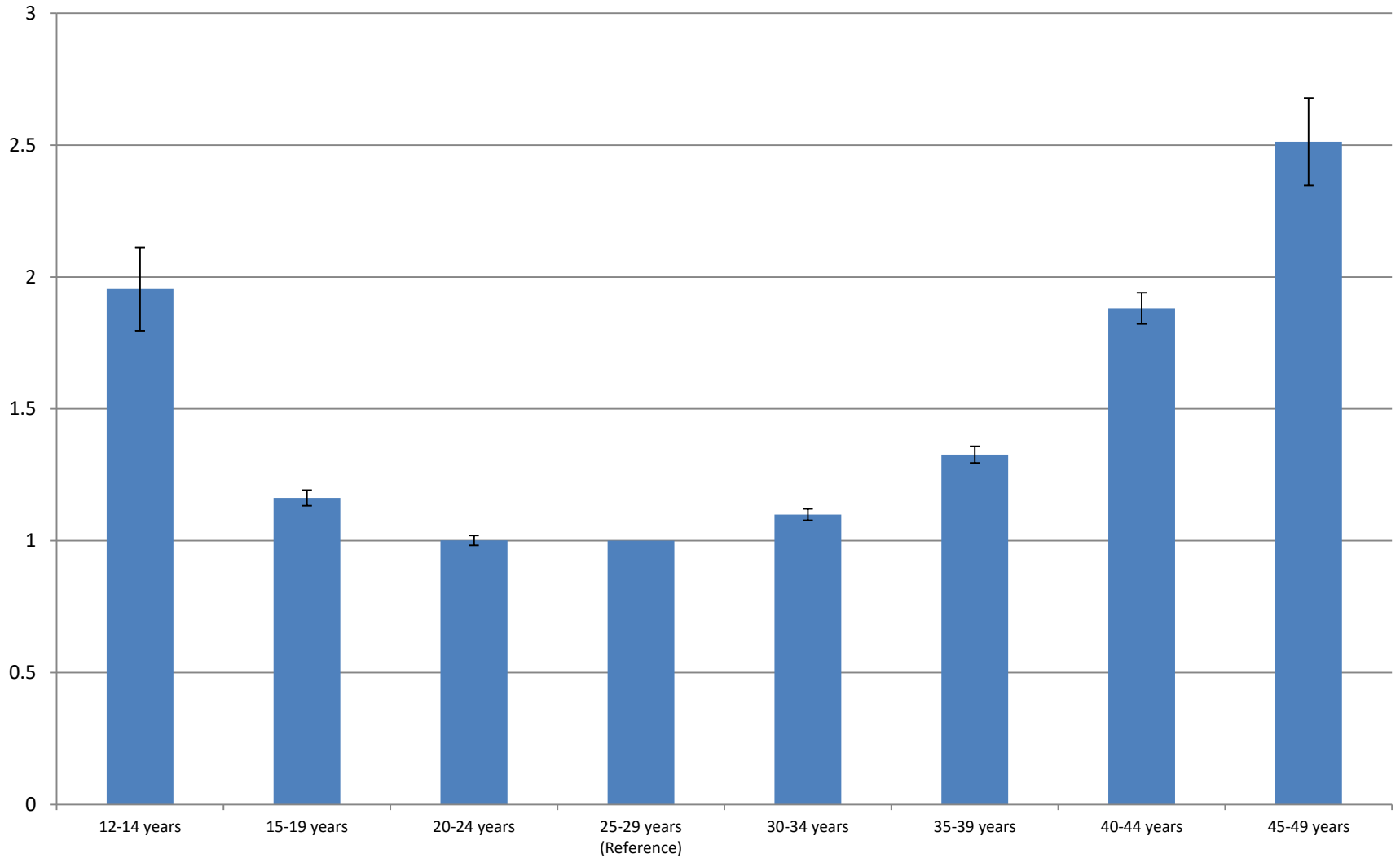


## Comparison Area

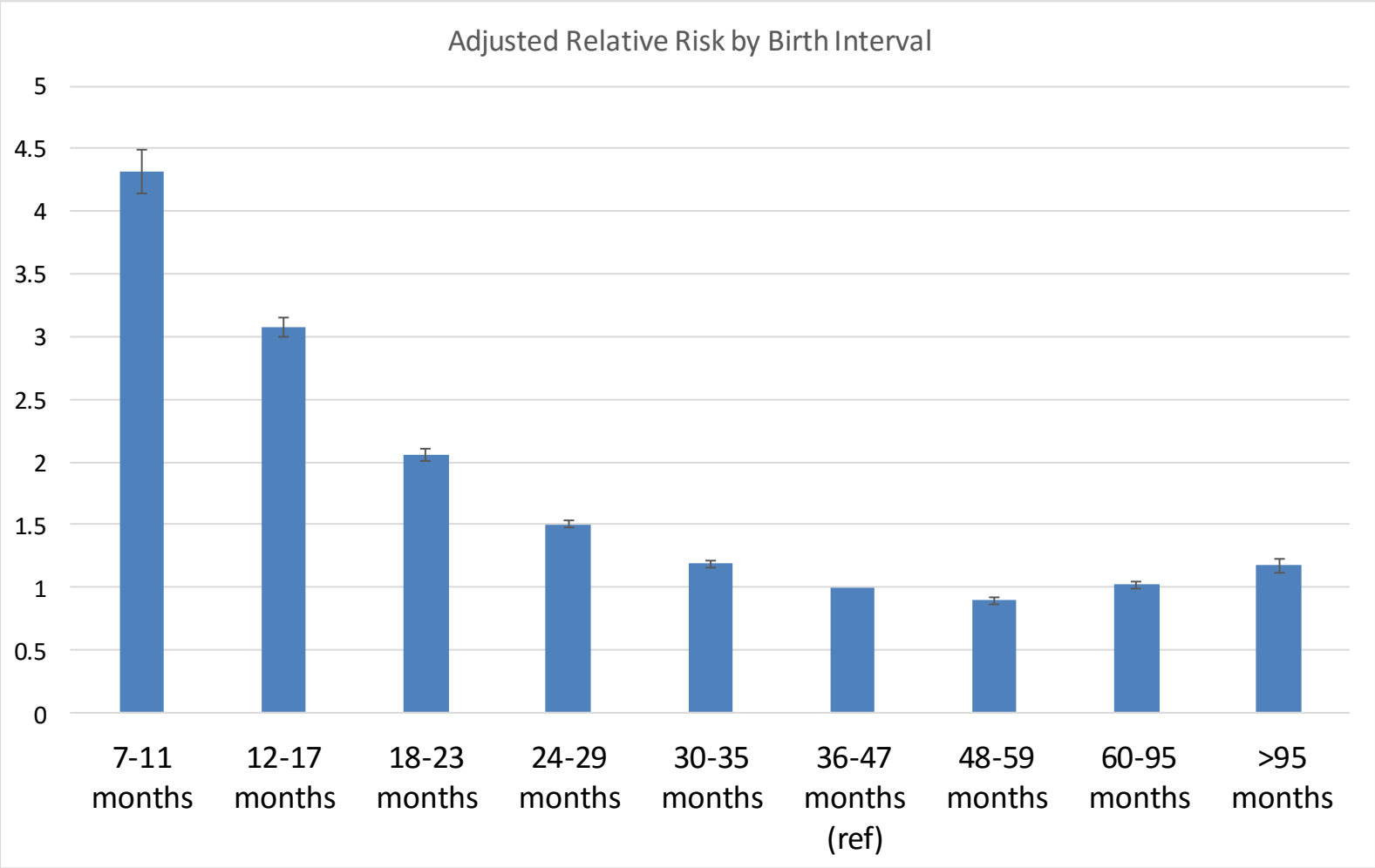


# Infant Mortality

## Adjusted RRR: Age of Mother at Birth



# Short Birth Spacing Increases Infant Mortality



## Goals

## Policies

### Speed the Demographic Transition

To empower women and allow fertility choices

Child mortality, female education, social norms, access to family planning

### Realizing the Labor Force Dividend

To absorb Youth Bulge

FDI, domestic saving, natural resource revenues education, infrastructure, Industrialization (Agriculture and natural resources not sufficient)

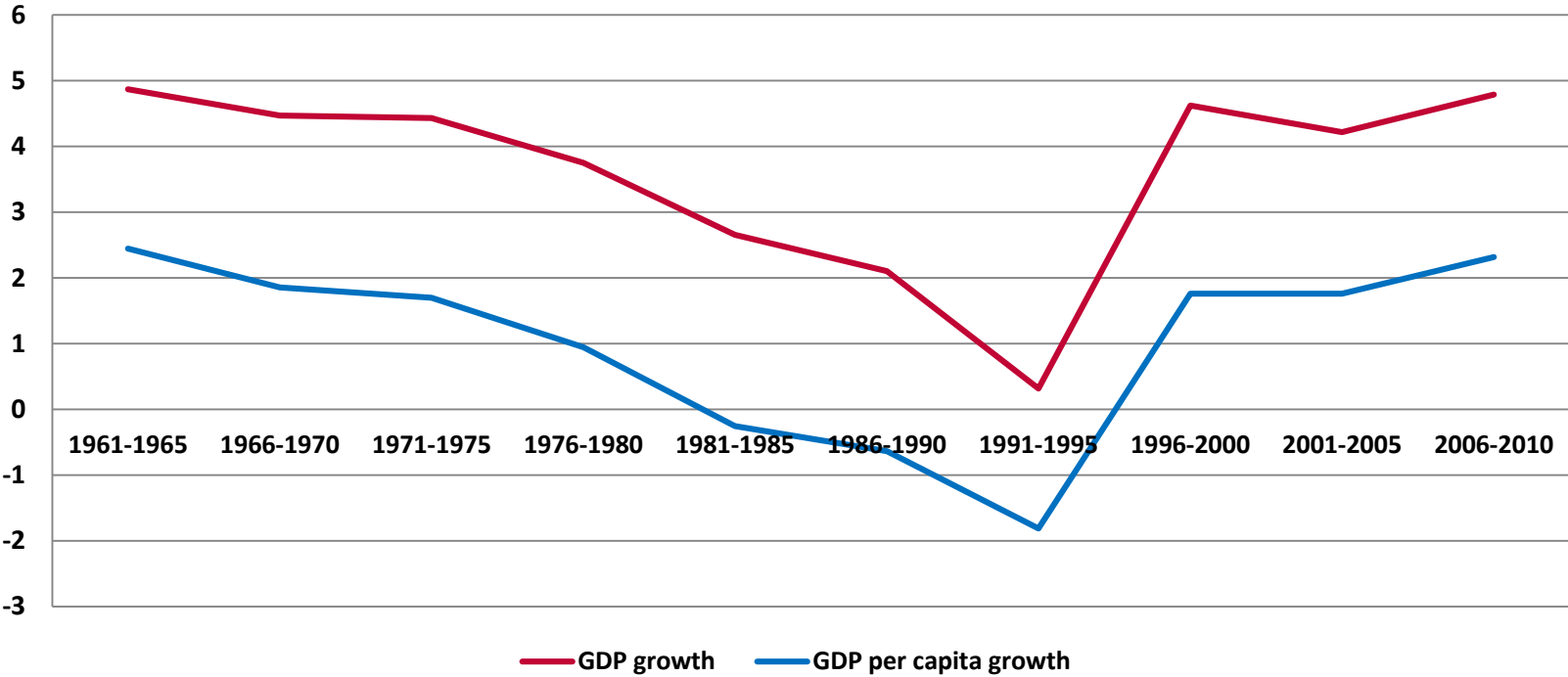
### Realizing the Savings Dividend

Harness the 2<sup>nd</sup> dividend

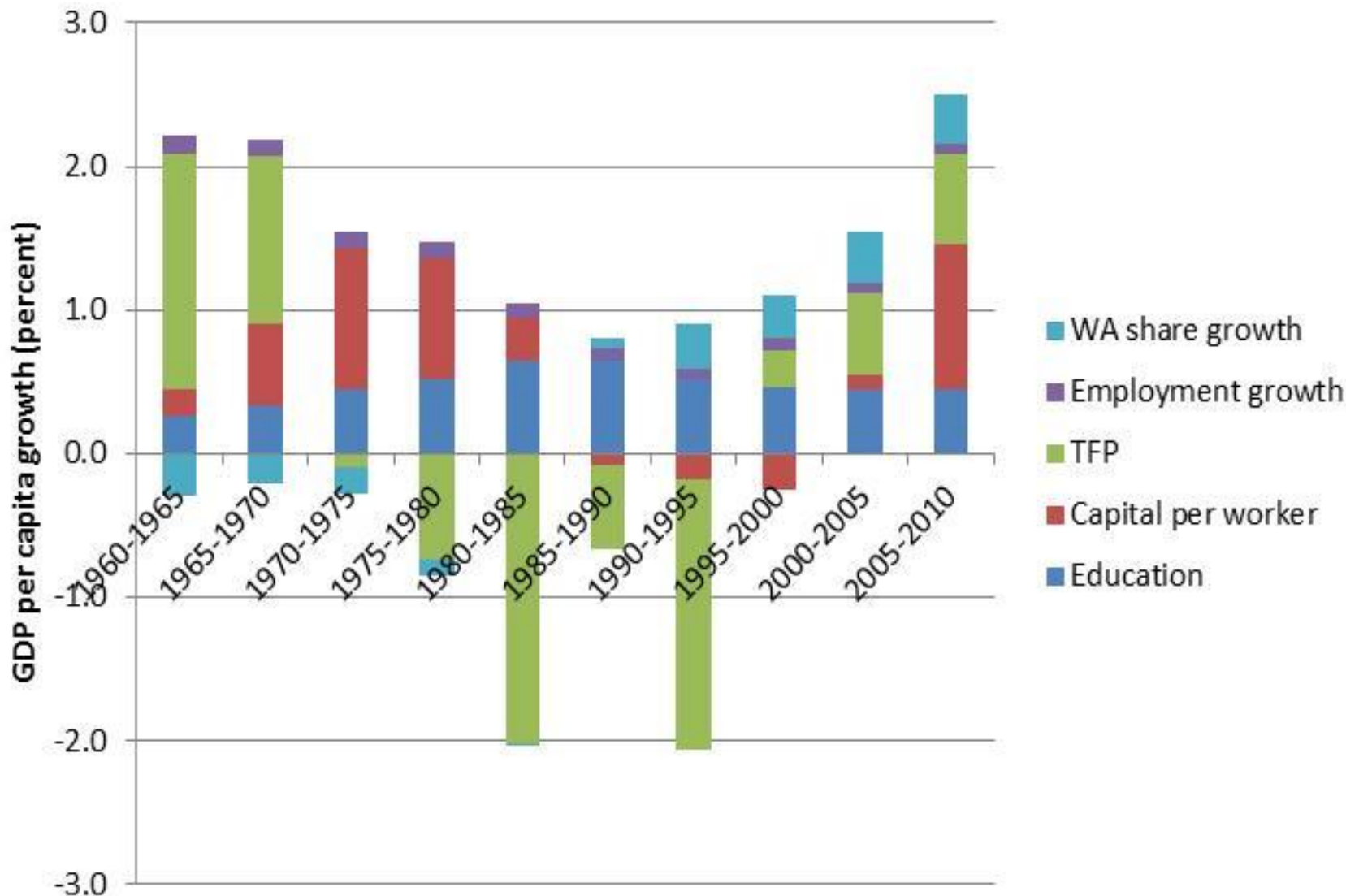
Improve policies and institutions for promoting domestic savings and investment

# Economic Growth in Sub-Saharan Africa

Annual Growth Rates  
GDP & GDP per capita



Decomposition of GDP/cap growth:  $\alpha=0.33, \beta=0.67, \gamma=0.1$



# Economic Consequences

## The Demographic Dividend

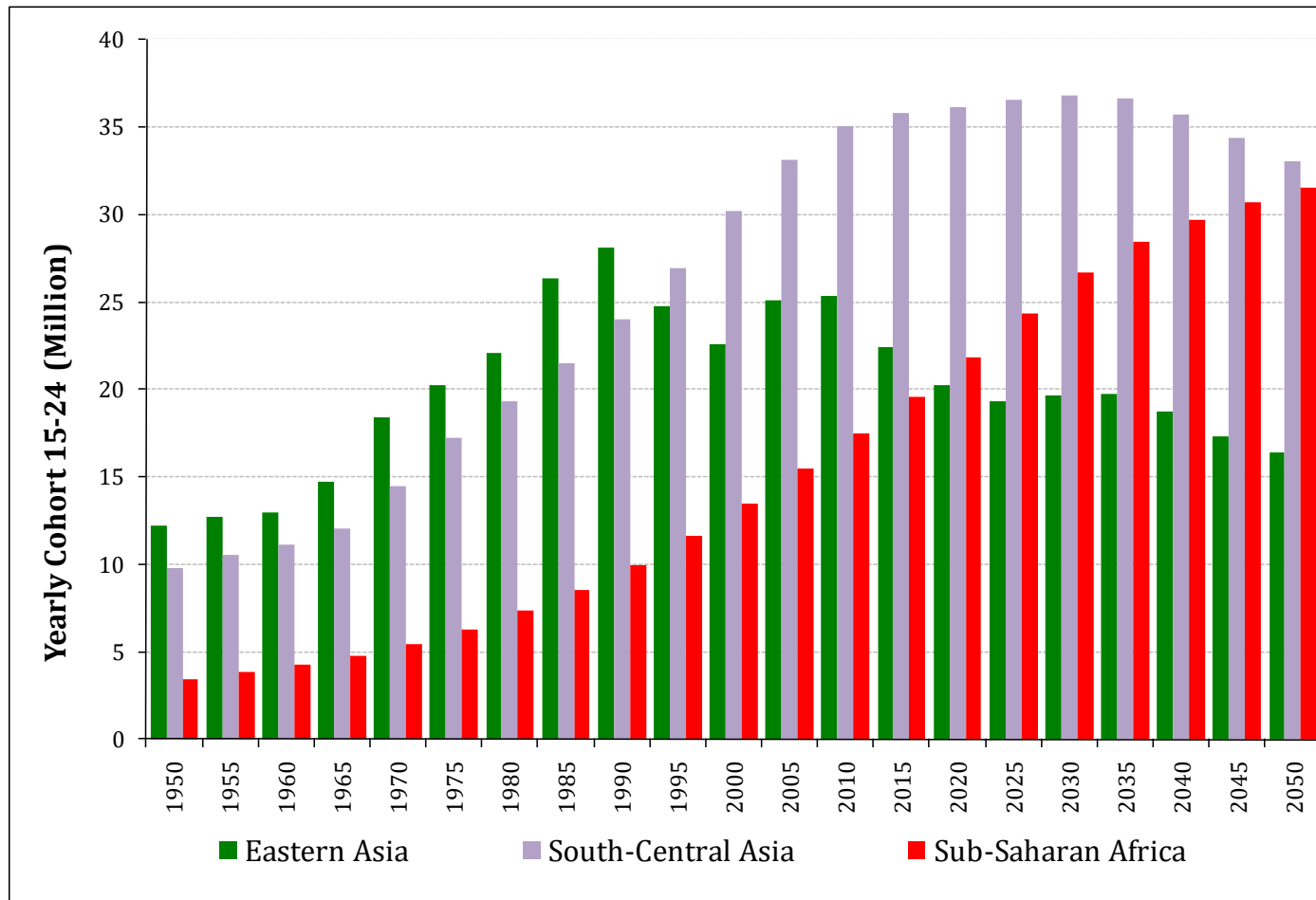
- Working age share 30 – 50 year boost
  - Labor force per capita
- Investments in
  - Child Health
  - Education
- Female Labor Force Participation
- Savings

# Demographic Dividend is not Automatic

- Depends on effective policies in other areas
  - Education
  - Labor market
  - Trade
  - Governance
  - Macroeconomic management
- Demography creates supply side increases in labor, human capital, and saving – but there is still a need for jobs and investment



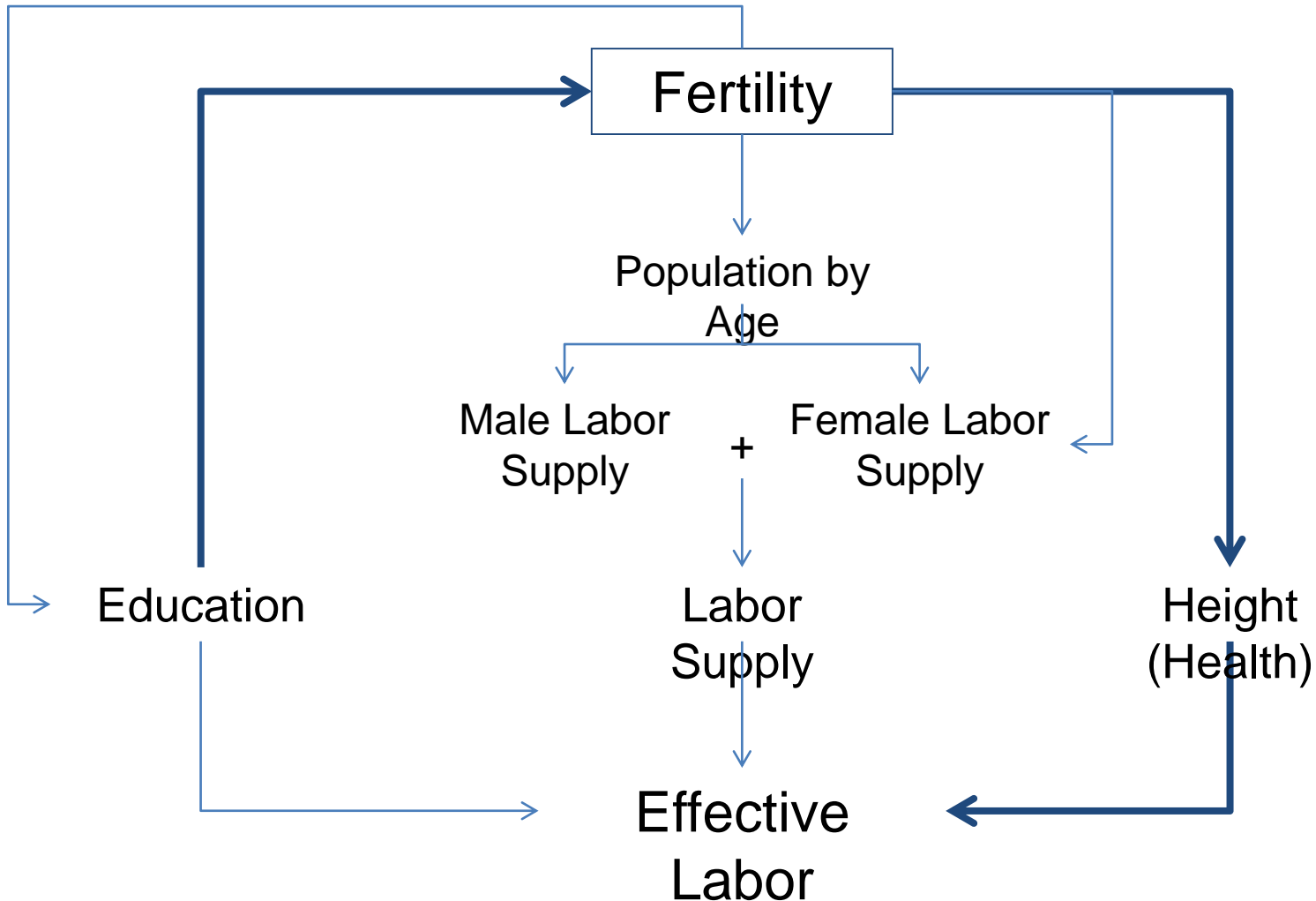
# Increasing Youth Cohorts In Sub Saharan Africa



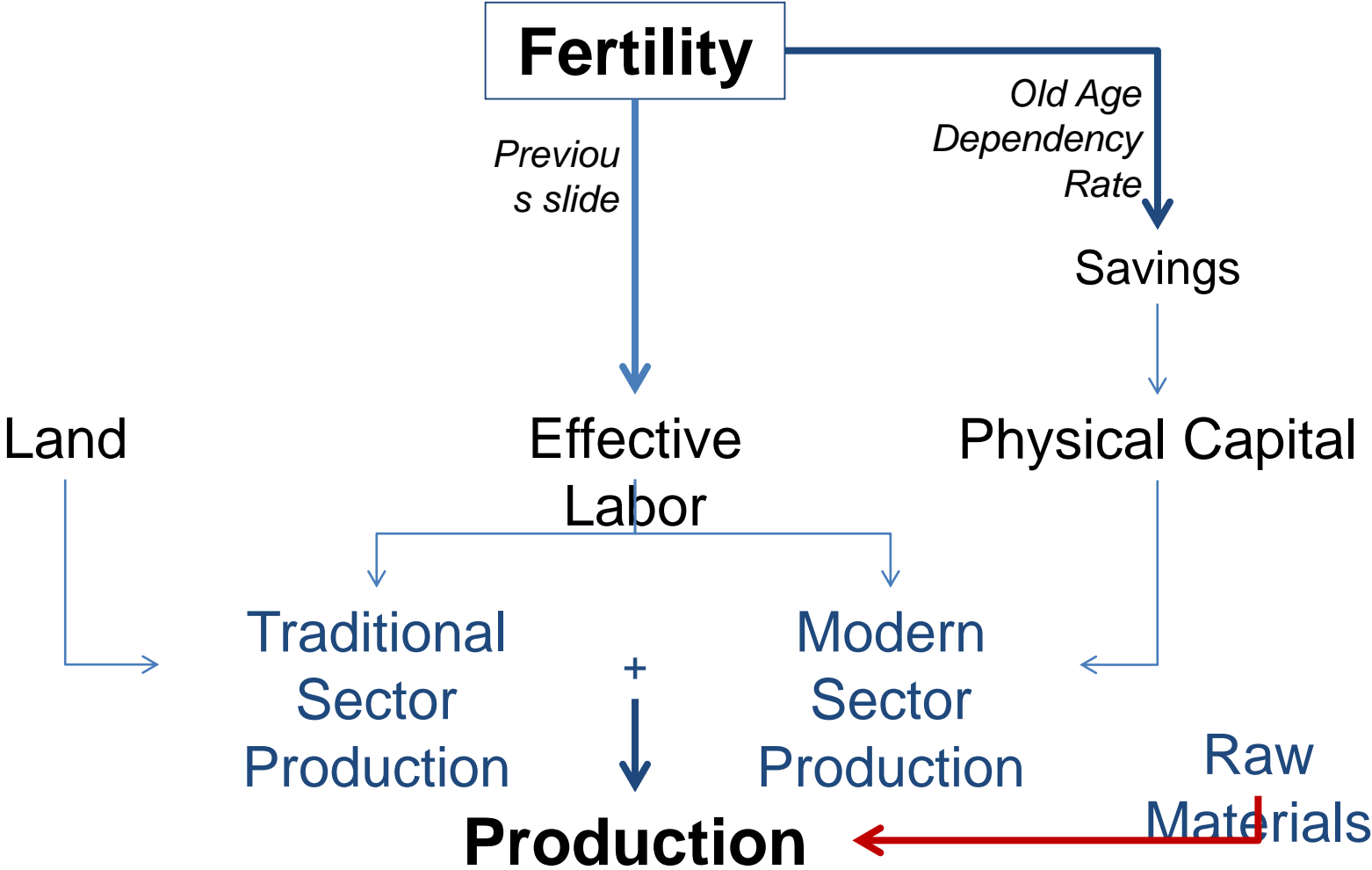
# Impact of large youth cohorts

- Youth Unemployment
- Underemployment in unpaid and low productivity jobs
- Slows industrialization and structural transformation, youth are absorbed in low productivity sectors such as agriculture
- Requires high levels of investment to maintain capital labor ratio

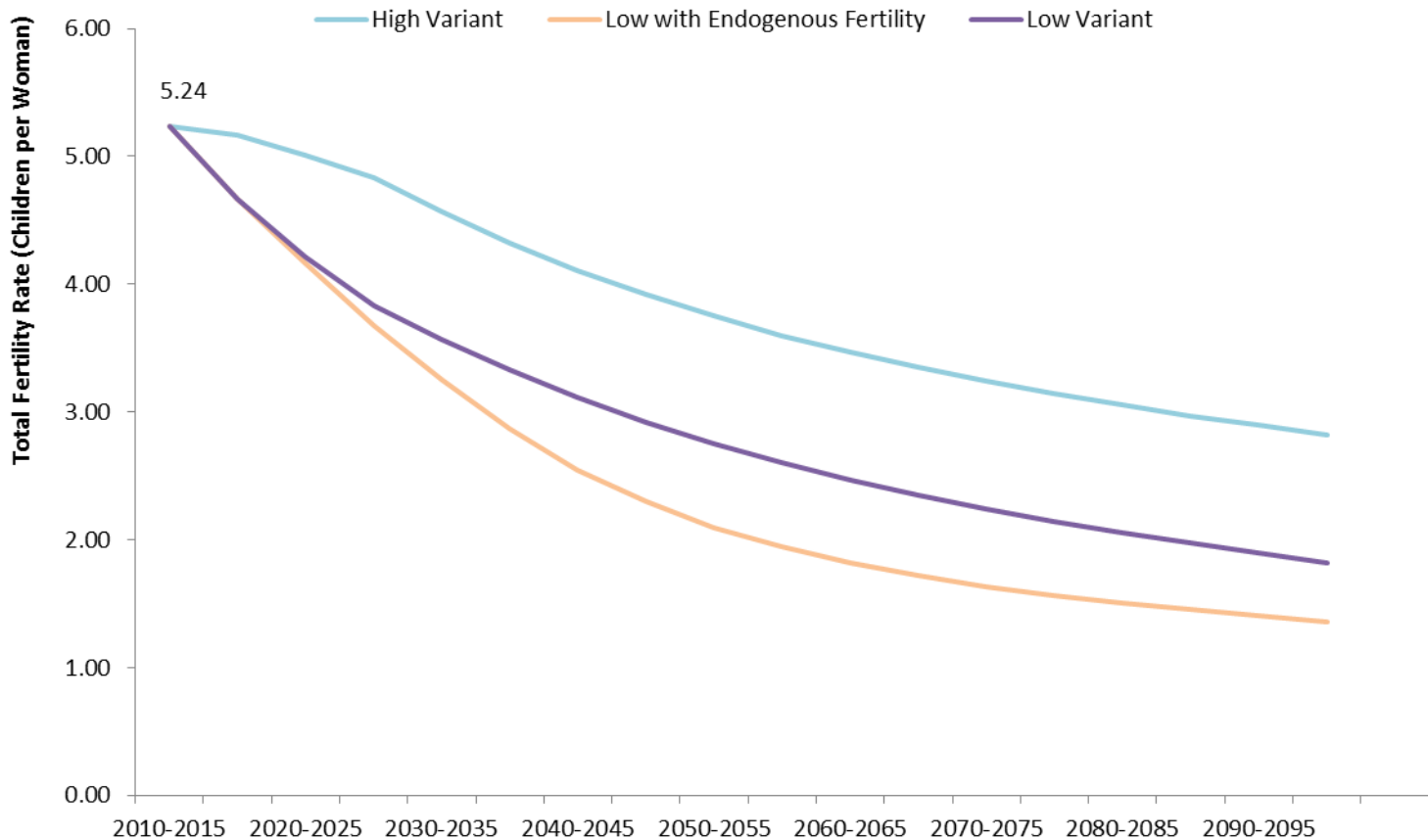
# Effective Labor



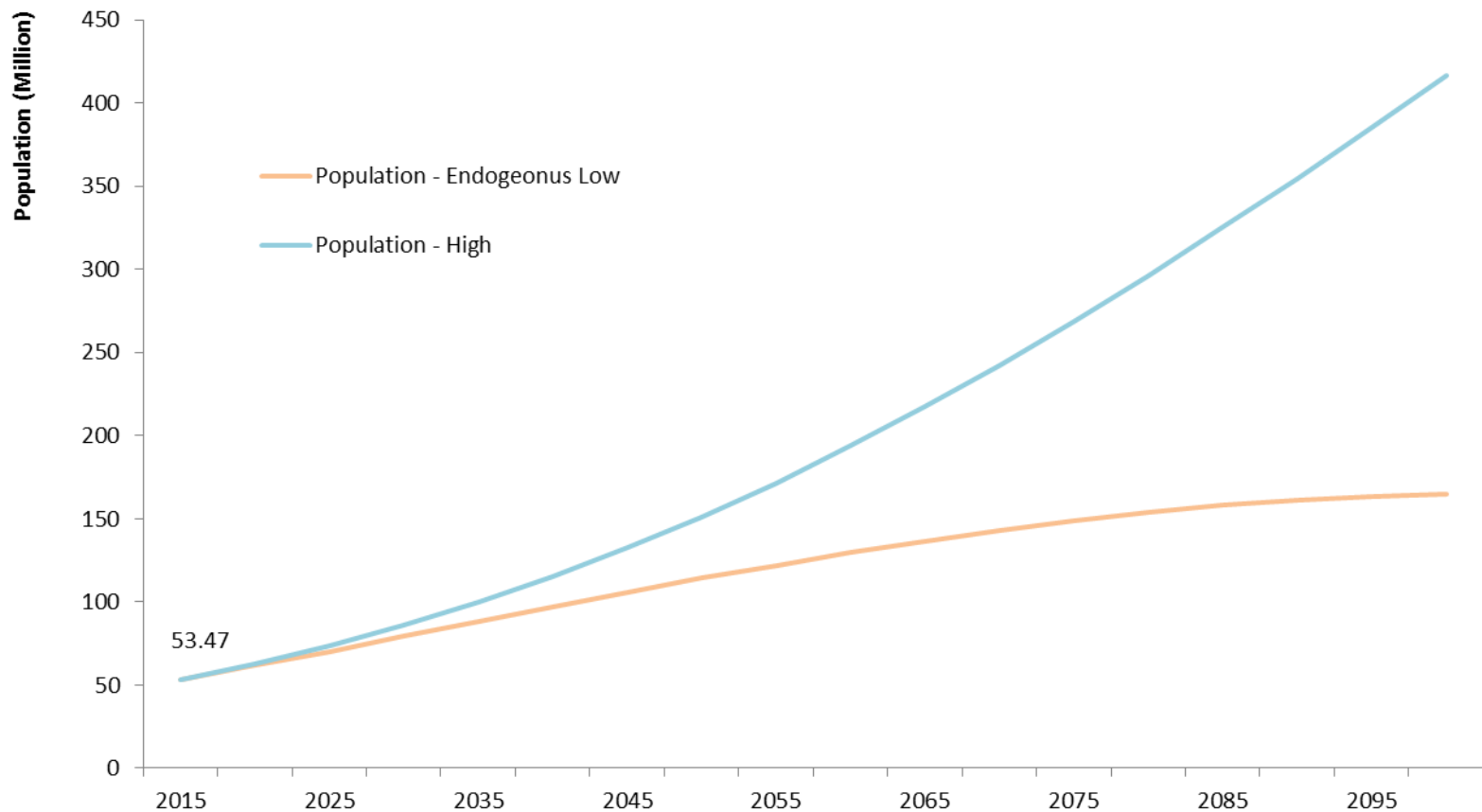
# Production



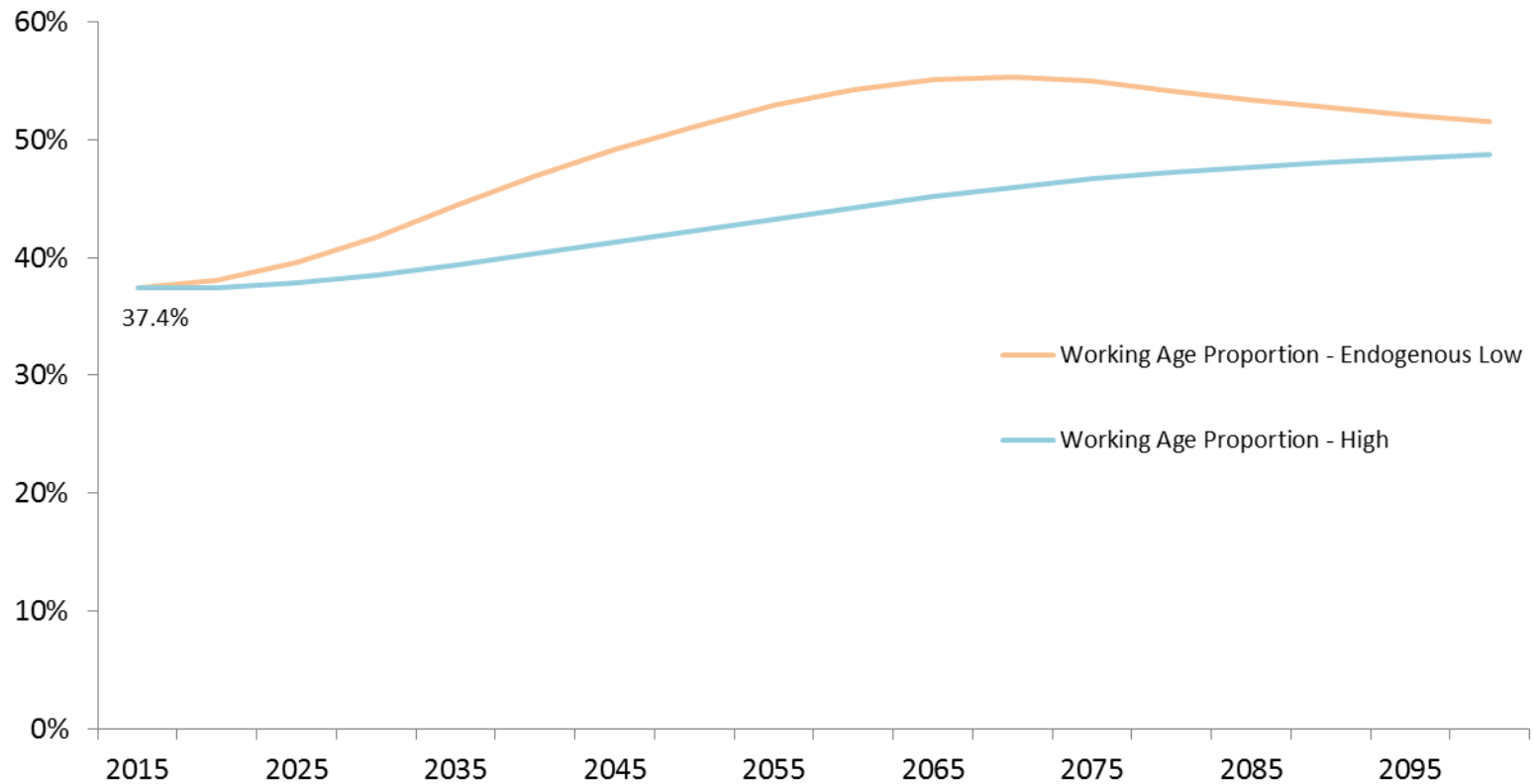
# Tanzania: Total Fertility Rate Under Different Scenarios



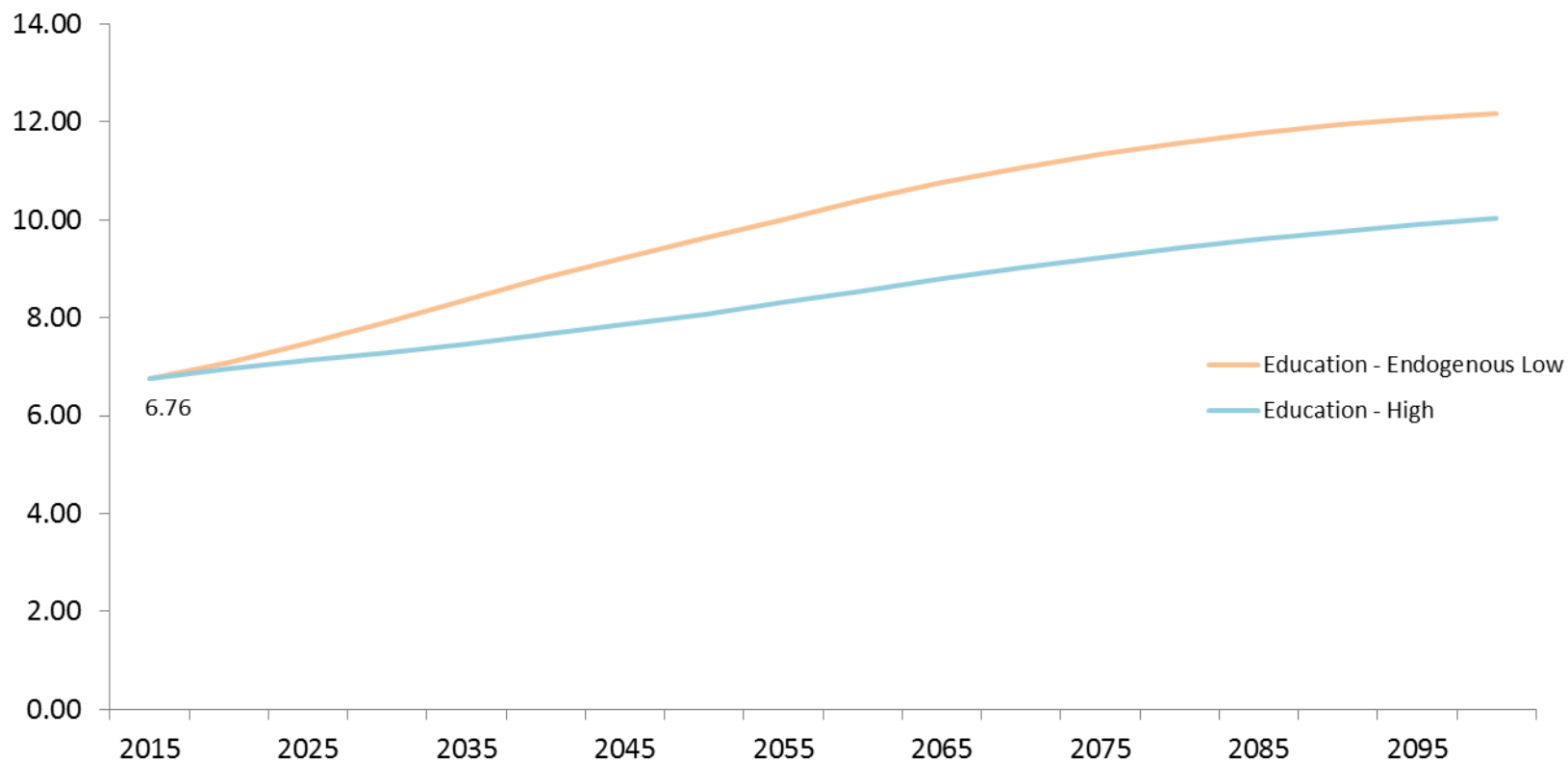
# Tanzania: Total Population Under Different Scenarios



# Tanzania: Working Age Share of the Population



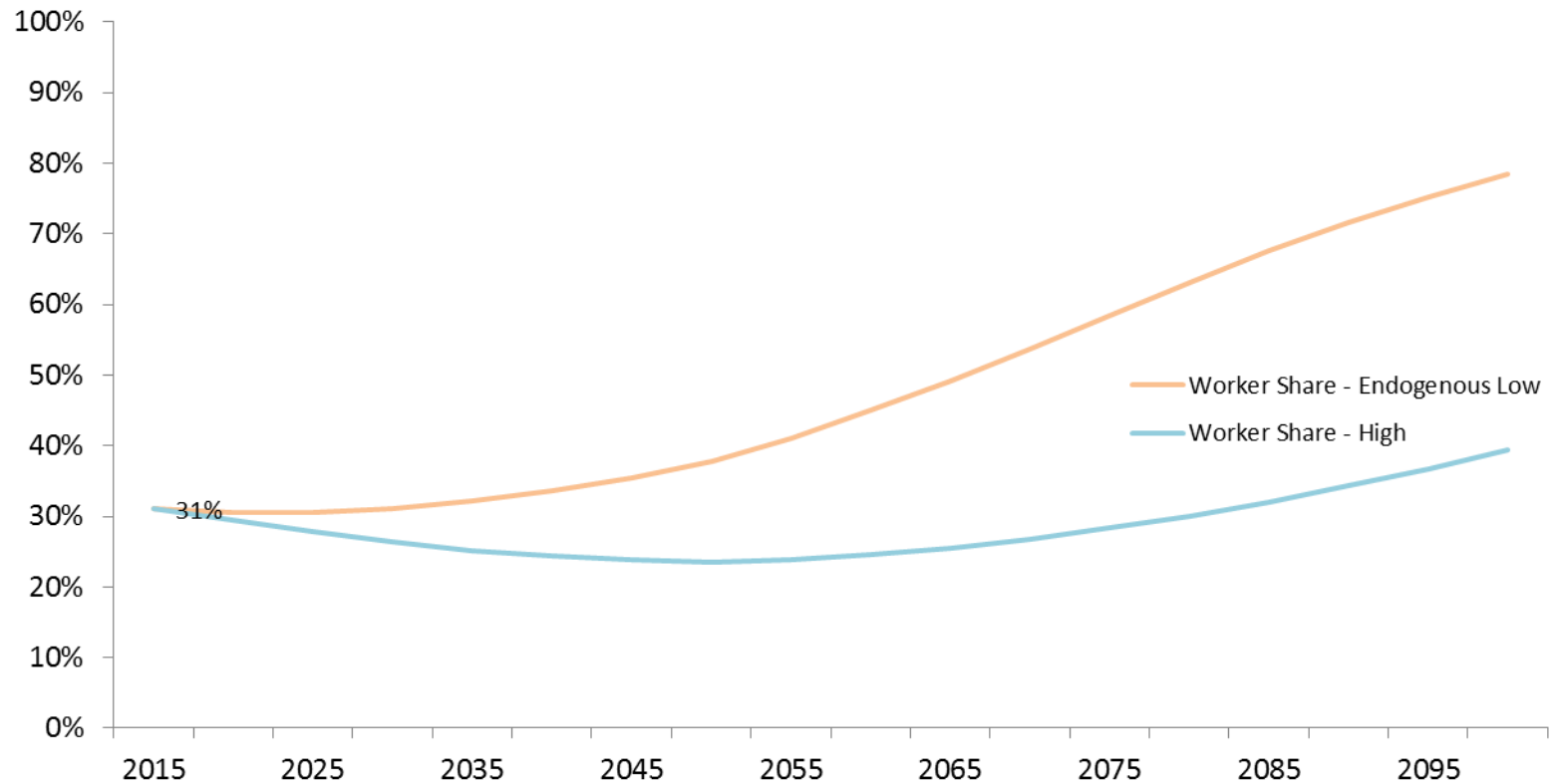
# Tanzania: Average Years of Schooling of the Workforce





# Tanzania

## Share of Workers in Modern Sector



# Tanzania: PPP Income per Capita

