Ethiopia’s Age Structure and the Challenges of Meeting the 2050 Development Goals

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December 19, 2019
When economic growth isn’t catching up to the needs of a rapidly increasing population…

Sure glad the hole isn’t at our end.
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- Population subject areas
- Baseline demography: where are we now?
- Vision 2050
- Ethiopia’s population growth 1900 – 2019
- The relationship between a population’s age structure and development
- The Demographic Dividend: What is it?
- Key observations and policy implications
Selected Subject Areas in Population Studies

- Population size (current & projected)
- Population growth rate
- Level of urbanization; rural population
- Labor force: employment, unemployment, etc.
- My Topic: Age Structure (youth, adults, elderly dependency burden)
- Labor force: employment, unemployment, etc.
- Population growth rate
- Migration patterns and rates – internal & international
- Education composition, literacy; completion rate; skills
- Mortality level: Infant, Child, Maternal, etc.
- Fertility rate; teenage pregnancy, etc.
- Morbidity: prevalence of HIV/AIDS; TB; Cholera, etc.
- Life expectancy at birth, males & females
- Population with access to water, health services, electricity,
- Sanitation, good housing, transport etc.
Vision: Ethiopia 2050...baseline, where are we now?

Baseline demography:

- Percentage of Women with no Education and with Post-secondary education:
  - Somali: 8.6%, 75.3%
  - Affar: 46.7%, 68.7%
  - Amhara: 26.7%, 54.1%
  - Oromiya: 33.1%, 51.1%
  - Benishangul-Gumuz: 36.1%, 46.7%
  - SNNPR: 33.3%, 43.9%
  - Tigray: 36.1%, 43%
  - Harari: 33.3%, 41.8%
  - Dire: 33.3%, 41.8%
  - Gambela: 33.3%, 41.8%
  - Addis Ababa: 26.7%, 51.1%

- Percent Distribution by Wealth Quantile:

<table>
<thead>
<tr>
<th>Wealth Quantile</th>
<th>Addis Ababa</th>
<th>Afar</th>
<th>Somali</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>3</td>
<td>74.2</td>
<td>68.5</td>
</tr>
<tr>
<td>Second</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Middle</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Fourth</td>
<td>89</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Highest</td>
<td>4</td>
<td>23</td>
<td>23</td>
</tr>
</tbody>
</table>

- Using modern contraceptive method:
  - Ethiopia: 50.0%
  - Vietnam: 12.0%

- In the lowest wealth quartile (bottom 20%):
  - Ethiopia: 0.0%
  - Vietnam: 74.2%

- Percentage: married women in a polygynous union:
  - Ethiopia: 2.0%
  - Vietnam: 19.0%

- Total Fertility Rate (TFR):
  - Ethiopia: 1.8
  - Vietnam: 5.5

- Mean ideal number of children:
  - Ethiopia: 3.6
  - Vietnam: 5.6

Births this year: Ethiopia, 3,447,651; Vietnam, 1,617,298
Deaths this year: Ethiopia, 810,053; Vietnam, 536,003
Population growth this year: Ethiopia, 2,624,114; Vietnam, 1,040,422

Source: Ethiopia Demographic and Health Survey 2016
Percentage of women age 15-49 who had a live birth in the 5 years before the survey (for the most recent birth) ...and

Baseline demography:

Received any ANC from skilled provider

Had 4+ ANC visits

Had ANC in first trimester

2000 EDHS 2005 EDHS 2011 EDHS 2016 EHDS

27 28 34 62
10 12 19 32

* Skilled provider for EDHS 2000, 2005, and 2011 includes doctor, nurse, and midwife. Skilled provider for EDHS 2016 includes doctor, nurse, midwife, health officer, and health extension worker.

Source: https://www.statcompiler.com/en/
Ethiopia and Kenya: Percentage of Women with Access to Health Facilities Deliveries and Children who have Achieved Full Immunization During National Demographic and Health Surveys

Baseline demography:

Source: https://www.statcompiler.com/en/
Regional Differences

Under 5 Mortality Rate (2016)

<table>
<thead>
<tr>
<th>Region</th>
<th>Infant Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affar</td>
<td>125</td>
</tr>
<tr>
<td>Benishangul-Gumuz</td>
<td>98</td>
</tr>
<tr>
<td>Somali</td>
<td>94</td>
</tr>
<tr>
<td>Dire Dawa</td>
<td>93</td>
</tr>
<tr>
<td>Gambela</td>
<td>88</td>
</tr>
<tr>
<td>SNNPR</td>
<td>88</td>
</tr>
<tr>
<td>Amhara</td>
<td>85</td>
</tr>
<tr>
<td>Oromiya</td>
<td>79</td>
</tr>
<tr>
<td>Harari</td>
<td>72</td>
</tr>
<tr>
<td>Tigray</td>
<td>59</td>
</tr>
<tr>
<td>Addis Ababa</td>
<td>39</td>
</tr>
</tbody>
</table>

Source: https://www.statcompiler.com/en/

Education of Mothers Makes A Differences

Infant mortality by mother’s education (2016)

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Infant Mortality Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>No education</td>
<td>64</td>
</tr>
<tr>
<td>Primary</td>
<td>57</td>
</tr>
<tr>
<td>Secondary</td>
<td>43</td>
</tr>
<tr>
<td>More than secondary</td>
<td>35</td>
</tr>
</tbody>
</table>

Baseline demography:
Trends in place of birth

Health facility births by education

Baseline demography:

Health facility births by region

Percentage of live births in the 5 years before the survey that were delivered in a health facility

- Addis Ababa: 97%
- Tigray: 57%
- Dire Dawa: 56%
- Harari: 50%
- Gambela: 45%
- Amhara: 27%
- SNNPR: 26%
- Benishangul-Gumuz: 26%
- Oromiya: 19%
- Somali: 18%
- Affar: 15%
Vision: Ethiopia 2050

- V1. Year-over-year reductions in net population gain based on the fertility lowering effects of minimum high quality secondary education for all Ethiopians
- V2. Equal status for women and men
- V3. Accelerated urbanization
- V4. Data-driven social/economic/political discourse and policy making
- V5. Focus on families (not masses)

Wildcards
- Degree of Age Structure Transformation
- Ethiopian politics
- National debt
- World affairs including global warming
Ethiopia's Population

1900 - 2019
Based on own (reverse) projection from 1955

52 million: 1994 census

42,616,876: 1984 census

Source: https://www.worldometers.info/world-population/
Comparison with two other countries
Population of Ethiopia, Vietnam and Japan, 1900 to 2019

Five year from now in 2024

Ethiopia  126,750,868
Japan       124,543,923

Ethiopia 65 years to gain 10 million
Ethiopia 15 years to gain 10 million

Source: https://unstats.un.org/unsd/demographic/meetings/wshops/Morocco/2012/docs/s01.ppt
Age Structure Transformation (AST)

2020 - 2050
Demography and Development: Age Structure Transformation

Match the age pyramid with the name of a country: Ethiopia, Japan, Vietnam

n > 95 million

Median age: 48
Child DR = 21.0
Old A DR = 48.0
Total DR = 69.0

n > 95 million
Median age: 32
Child DR = 33.6
Old A DR = 11.4
Total DR = 45.0

n > 95 million
Median age: 19
Child DR = 70.6
Old A DR = 6.2
Total DR = 76.8

Source: https://www.populationpyramid.net/viet-nam/2020/
Births per woman by income level, 2013

Pink bubbles show country averages for income (GDP per capita, PPP adjusted) and for the total fertility rate. For all other countries the fertility rate is shown for each wealth quintile within the country. It is plotted against the average income per corresponding quintile in the same country.

ET 2nd quintile: $800, 6 births
ET 4th quintile: $1,500, 5.2 births
ET Richest quintile: $2,900, 3.0 births
Vietnam Richest quintile: $5,000, 1.8 births

Which Ethiopia: 2050?
The ten development goals need to target subpopulations for prioritization, with varying timetables and target dates.
Age structure Transformation: How long does it take for fertility to fall from more than 6 children per woman to fewer than 3 children per woman?

Data source: OurWorldData.Org
This chart shows that fertility started to decline in 1970, long before the introduction of the one-child-policy in 1978.

Taiwan never introduced a one-child-policy but experienced the same decline.

“There is similar evidence from other countries. In India, for example, the "sterilization camps" from the 1970s were ineffective - and it is possible they actually contributed to population growth in the long run by eroding trust in family planning policies.”

(Note: You can read more about coercive population control policies in our entry here. And you can read more about India's sterilization camps in this academic article.)
What is the correct answer?

Meeting the 10 development challenges requires drastic changes in Ethiopia’s age structure through rapid urbanizations and population control measures that relied on

a. gender equality,
b. empowerment of women and girls
c. minimum high quality secondary education or higher
d. All of the above

The answer is d

Click HERE for population pyramids past present and future
Age Structure and Median Age as key Indicators of Development
Age Structure and Level of Development

The year 2018, marked the 60th anniversary of a landmark publication by demographer Ansley Coale and economist Edgar M. Hoover who first recognized the close relationship between a population’s age structure and development. They predicted the rise of Asian “Tiger” countries: Hong King, Singapore, South Korea, Taiwan. Africa did not live up to their predictions.*

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**Data source:**
[https://apps.who.int/gho/data/view.main.POP2040](https://apps.who.int/gho/data/view.main.POP2040)

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*Source: [https://www.weforum.org/agenda/2018/12/is-demographic-change-the-key-to-development/](https://www.weforum.org/agenda/2018/12/is-demographic-change-the-key-to-development/)
Ethiopia and Vietnam: Median Age at First Marriage [Women]: 25-49
## Ethiopia: Age-Specific and Total Fertility Rate, 2016

<table>
<thead>
<tr>
<th>Age group</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cumulative Total Fertility Rate (TFR)</td>
<td>Cumulative Total Fertility Rate (TFR)</td>
<td>Cumulative Total Fertility Rate (TFR)</td>
</tr>
<tr>
<td>20-24</td>
<td>0.67</td>
<td>1.64</td>
<td>1.4</td>
</tr>
<tr>
<td>25-29</td>
<td>1.27</td>
<td>2.86</td>
<td>2.47</td>
</tr>
<tr>
<td>30-34</td>
<td>1.83</td>
<td>3.91</td>
<td>3.42</td>
</tr>
<tr>
<td>35-39</td>
<td>2.21</td>
<td>4.67</td>
<td>4.11</td>
</tr>
<tr>
<td>40-44</td>
<td>2.28</td>
<td>5.07</td>
<td>4.46</td>
</tr>
<tr>
<td>45-49</td>
<td>2.28</td>
<td>5.20</td>
<td>4.57</td>
</tr>
</tbody>
</table>
What do Gender Equality and Female Empowerment Mean?

“Gender equality: concerns women and men, and it involves working with men and boys, women and girls to bring about changes in attitudes, behaviors, roles and responsibilities at home, in the workplace, and in the community. Genuine equality means more than parity in numbers or laws on the books; it means expanding freedoms and improving overall quality of life so that equality is achieved without sacrificing gains for males or females.”

“Female empowerment: is achieved when women and girls acquire the power to act freely, exercise their rights, and fulfill their potential as full and equal members of society. While empowerment often comes from within, and individuals empower themselves, cultures, societies, and institutions create conditions that facilitate or undermine the possibilities for empowerment.”

News: Family planning liberating for women in rural Ethiopia, 16 July 2018

Her first few children were born in rapid succession. "I had my children spaced very much close to each other, which affected their health and well-being as well as mine," she said. Thirteen years ago, she and her husband decided that life could not continue this way. They decided to use family planning – a big deal for Ms. Belay's husband, a prominent member of their conservative community. But they have no regrets. “We agreed that we need to use family planning to save our resources, educate and raise our children well,” said Ms. Belay. 

Image source: https://www.unfpa.org/news/family-planning-liberating-women-rural-ethiopia
A health extension worker teaches women about family planning.
© UNFPA Ethiopia

The Demographic Dividend

What is it?
– Stage 1: Population is stable. There is high fertility and high mortality; so deaths and births cancel out.

– Stage 2: Population grows rapidly. There is high fertility but low mortality.

– Stage 3: Population growth slows down. Social norms adapt to the fact that children survive. Fertility declines with increasing education and labour opportunities for women.


– Stage 5: Population potentially starts growing again. The evidence here is limited, but the idea is that further social and economic opportunities may raise fertility again.

(Note: This is only a stylized overview of the demographic transition model. You can find a more complete explanation [here](http://www.OurWorldinData.org/world-population-growth). You can also find more details in [this 5-minute video](http://www.OurWorldinData.org/world-population-growth) as well as in entry on the determinants of fertility.)
Q. Is Ethiopia’s population size an asset; a demographic dividend?

A. No; not in its current composition

“Countries with the greatest demographic opportunity for development are those entering a period in which the working-age population has good health, quality education, decent employment and a lower proportion of young dependents. Smaller numbers of children per household generally lead to larger investments per child, more freedom for women to enter the formal workforce and more household savings for old age. When this happens, the national economic payoff can be substantial. This is a "demographic dividend."
In other words.......
EDUCATION is the starting point. This means that AST is not cheap as it requires massive investments, especially if the goal is to bring about parity between the sexes.

[Link to UNFPA's Demographic Dividend](https://www.unfpa.org/demographic-dividend)
Education in Ethiopia

Source: Demographic and Health Survey 2016

Obaansi’s father, was aware of the problems of his daughter getting married that young, thanks to an awareness campaign by Right To Play working with local organizations

“Like many other families in Ethiopia, [Obaansi’s parents] made the brave choice to resist a harmful tradition like child marriage for the sake of their daughter. Not only has Obaansi benefitted, but all the rest of the children in the village benefit too thanks to her work tutoring them.”

“...she’s not even done high school but through her teaching she is transforming future generations in her hometown.”

Ethiopia Total fertility Rate [Women 15-49] by Level of Educational Attainment

The education gap

A 1994 school reform in Ethiopia:
• abolished school fees for grades one to ten,
• revised school curriculum,
• introduced local languages as a medium of instruction,
• a school feeding program,

“In our cross sectional data; teenage fertility occurs in around 61% of women with no education as compared to 16% of women with completed primary school (8 years or more)”

It is useful to consider the rate of population change and not just the overall size.

The annual global growth rates peaked in 1962.

Growth rates are likely going to continue decreasing through the century.

While the world population quadrupled in the 20th century, it will not even double in the 21st century.

This means that the human population is not currently growing exponentially as some feared.
Global population reached 1 billion in 1820

7.8 billion in 2020 (7 percent of humans who ever lived)

1950: More than twice as many Europeans (529,329,000) as Africans (227,794,000)

2019: Nearly twice as many Africans (1,340,598) as Europeans (747,636,000)

Source: Based on https://unstats.un.org/unsd/demographic/meetings/wshops/Morocco/2012/docs/s01.ppt

https://population.un.org/wup/Country-Profiles/
Ethiopia and Vietnam: The Number and Percentage of the Population Below Age 15, 1950-2000
Ethiopia and Vietnam: Annual Population Increase, 1950 - 2099

Number of persons

Population Increase Ethiopia
Population Increase Vietnam
SUMMARY

Theoretical Model for Ethiopia: 2050 Age Structure Transformation
### Age structure Transformation and the 10 development goals

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Manufacturing</td>
<td>Access to Clean Water</td>
<td>Access to Large-Scale Urbanization</td>
<td>Food Security &amp; Sustainability</td>
<td>Energy Demand</td>
<td>Health-Care</td>
<td>ICT Infrastructure</td>
<td>Transportation</td>
<td>Manufacturing</td>
<td>Education</td>
</tr>
</tbody>
</table>

#### Basic Development Transformation

- **Household income**
- **Child survival**
- **Educational attainment**

#### Age structure Transformation

- Slowed growth of school entrants
- Increased per-pupil spending

- Slowed workforce growth
- Taxable worker bulge
- Fiscal savings

Source: Adapted from: https://www.newsecuritybeat.org/2018/12/demographic-change-set-pace-development/
**Key observations:** One objective of Ethiopia’s 1993 policy on population was to raise the economic and social status of women “….by freeing them from the restrictions and drudgeries of traditional life and making it possible for them to participate productively in the larger community”.

Two and a half decades later, this objective remains unmet.

As a result, the main cause of Ethiopia’s ongoing socioeconomic malaise remains: a) the rapid increase of its population size and b) the bottom-heavy age structure.

Both are intimately linked to:

1. the very low level of education, especially among women and girls, and
2. their inferior socioeconomic status which is preventing the full exercise of rights to control their fertility while enjoying equal status under the law
Policy implications
Invest massively in education, especially the education of women and girls.

Raise the proportion with secondary school completion or higher, which is only 7 percent currently, to levels required to make Ethiopia a lower middle income country - typically 70 percent or higher - by 2050 (not 2025 as stated in GTPII – the current Growth and Transformation Plan).

Women have to be included in all decision-making processes at all levels of government, as well as in choices relating to marriage and health, family planning, household resource distribution, and income usage.

Government accountability in the enforcement of women’s human rights, including development-related rights, is vital.

Implementing these measures now, will speed up the Age Structure Transformation (AST) and contribute to successes in meeting the 10 development goals.

Given that the country’s resources are finite, it will also prevent downstream economic costs of accelerated population growth for those yet to be born and those already here.