Results of the New Wittgenstein Centre
Population Projections by Age, Sex and Level of Education for 171 Countries

Samir K.C. 1, Wolfgang Lutz1, Warren Sanderson1,2, Sergei Scherbov1, and Erich Striessnig1

1 Wittgenstein Centre for Demography and Global Human Capital,
2 State University of New York

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Outline

• General methodology of population projections by age, sex, and education
• What’s new about the Wittgenstein Projections
• Results and implications
• Conclusion
General Methodology of the Wittgenstein Projections

• Projections by age and sex
  – Cohort-component method
• Future education pathways
• Introducing education-differentials
  – Mortality, fertility, and migration
• Projections by age, sex and education
  – Multi-dimensional cohort-component method
What’s new

• 171 countries (earlier: 120 countries)
• Expert-opinion based assumptions (earlier: UN)
• Mortality
  – Under-15 mortality by mother’s education (earlier: no differentials)
  – Separate differentials for males and females (earlier: no difference)
What’s new

• Fertility
  – Empirically grounded differentials by levels of educational attainment – harmonized education data (taken from survey)
  – Convergence (earlier: no change)

• Migration
  – Bi-regional model
  – Education distribution of migrants derived from national education distributions (earlier – pooled migration)

• Education
  – Bayesian model including country-specific pathways (earlier: global pathway for all)
  – Census-based recalculation of mean years of education (earlier: official duration of schooling and education distribution)
Scenarios

• Demographic:
  – Medium
  – Low
  – High
  – Alternatives

• Education:
  – Global Education Trend (GET)
  – Fast Track (FT)
  – Constant Enrollment Rate (CER)
The End of World Population Growth

World Population under Medium/GET Scenario

Population in Billions

2010 2020 2030 2040 2050 2060 2070 2080 2090 2100

Medium/GET
Pathway to the Global Peak (Medium)

Number of Countries with Declining Population

- Cumulative Number of Countries with declining population
- Population-wise

Proportion of World Population

Number of Countries

Year:
- 2010
- 2020
- 2030
- 2040
- 2050
- 2060
- 2070
- 2080
- 2090
- 2100
Absolute Decadal Change in Global Population by World Regions

<table>
<thead>
<tr>
<th>Population (in million)</th>
</tr>
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<tbody>
<tr>
<td>800</td>
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- OCEANIA
- N AMERICA
- LAC
- EUROPE
- AFRICA
- ASIA
The End of Global Population Growth

World Population under Different Scenarios

Population in Billions

- Medium/GET
- Medium/CER
- Medium/FT

Years: 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, 2100

Population in Billions: 6.0 to 11.0
The Rise of Global Human Capital (Medium-Global Education Trend)
The Rise of Global Human Capital

**Africa-Base year 2010**

- **1022.2** Males
- **Females**

**Europe-Base year 2010**

- **738.2 Millions** Males
- **Females**

**Population in Thousands**

- **Age (in Years)**
  - 0-4
  - 5-9
  - 10-14
  - 15-19
  - 20-24
  - 25-29
  - 30-34
  - 35-39
  - 40-44
  - 45-49
  - 50-54
  - 55-59
  - 60-64
  - 65-69
  - 70-74
  - 75-79
  - 80-84
  - 85-89
  - 90-94
  - 95-99
  - 100+

**Education Levels**

- Pop < 15 yrs
- No Education
- Incomp. Primary
- Primary
- Lower Secondary
- Upper Secondary
- Post Secondary
The Rise of Global Human Capital

Africa-Projections 2020

Europe-Projections 2020

- **Males**
- **Females**

**Population in Thousands**

- Pop < 15 yrs
- No Education
- Incomp. Primary
- Primary
- Lower Secondary
- Upper Secondary
- Post Secondary
The Rise of Global Human Capital

Africa-Projections 2030

1527 Millions
Males

Females

Europe-Projections 2030

753.4 Millions
Males

Females

Population in Thousands

Age (in Years)

Population in Thousands

Age (in Years)
The Rise of Global Human Capital

Africa-Projections 2040

1781.9 Males

Females

Europe-Projections 2040

755.3 Millions Males

Females
The Rise of Global Human Capital

Africa-Projections 2050

Europe-Projections 2050

Population in Thousands

Age (in Years)

- Pop < 15 yrs
- No Education
- Incomp. Primary
- Primary
- Lower Secondary
- Upper Secondary
- Post Secondary
The Rise of Global Human Capital

Africa-Projections 2060

- **Males**: 2216.7
- **Females**:

Europe-Projections 2060

- **Males**: 749.5 Millions
- **Females**
The Rise of Global Human Capital
(Global Education Trend)
Education Dividend

2010

~healthy ageing

Mean years of schooling for the population aged 65+

~productivity

Mean years of schooling for the population aged 20-64

Bubble size = OADR

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa

Mean years of schooling for the population aged 65+
Education Dividend

Mean years of schooling for the population aged 65+

~healthy ageing

2020

~productivity

Mean years of schooling for the population aged 20-64

Bubble size = OADR

Europe
North America
Latin America
Asia
Oceania
Africa
Education Dividend

Mean years of schooling for the population aged 65+

Bubble size = OADR

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa

2030

~healthy ageing

equality

~productivity

Mean years of schooling for the population aged 20-64
Education Dividend

~healthy ageing

Mean years of schooling for the population aged 65+

~productivity

2040

Mean years of schooling for the population aged 20-64

Bubble size = OADR

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa
Education Dividend

Mean years of schooling for the population aged 65+

- Healthy ageing
- Equality
- Productivity

2050

Bubble size = OADR

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa

Mean years of schooling for the population aged 20-64
Education Dividend

Mean years of schooling for the population aged **65+**

~healthy ageing

2060

~productivity

Mean years of schooling for the population aged **20-64**

Bubble size = OADR

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa
Remeasuring 21st century population ageing

Proportion of the population aged 65+

Proportion of the population with < 15 years remaining life expectancy

Bubble size = mean years of schooling 65+

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa
Remeasuring 21st century population ageing

Proportion of the population aged ≥65+

Proportion of the population with < 15 years remaining life expectancy

Bubble size = mean years of schooling ≥65+

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa
Remeasuring 21st century population ageing

Proportion of the population aged 65+

Proportion of the population with < 15 years remaining life expectancy

Bubble size = mean years of schooling 65+

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa

conventional ageing

e65 = 15 years

2030
Remeasuring 21st century population ageing

Proportion of the population aged 65+

Conventional ageing

Prospective ageing

Proportion of the population with < 15 years remaining life expectancy

Bubble size = mean years of schooling 65+

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa
Remeasuring 21st century population ageing

Bubble size = mean years of schooling 65+

Proportion of the population aged 65+

prospective ageing

Proportion of the population with < 15 years remaining life expectancy

Conventional ageing

2050
Remeasuring 21st century population ageing

Proportion of the population aged 65+

Prospective ageing

Conventional ageing

Bubble size = mean years of schooling 65+

- Europe
- North America
- Latin America
- Asia
- Oceania
- Africa

Proportion of the population with < 15 years remaining life expectancy
Threshold-ages for Becoming “old”
Conclusion

• Better data and methodology for projecting the population by age, sex, and education
• The end of World population growth (Medium/Global education scenario)
• The rise of global human capital
• Future education dividend might reduce the negative effect of ageing
• Reassessment of the ageing process shows human populations can become younger even as they grow older chronologically