



Wittgenstein Centre

FOR DEMOGRAPHY AND  
GLOBAL HUMAN CAPITAL

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

Samir K.C.<sup>1</sup>, Wolfgang Lutz<sup>1</sup>, Warren Sanderson<sup>1,2</sup>,  
Sergei Scherbov<sup>1</sup>, and Erich Striessnig<sup>1</sup>

<sup>1</sup> Wittgenstein Centre for Demography and Global Human Capital,

<sup>2</sup> State University of New York

Joint Eurostat/UNECE Work Session on Demographic Projections, 29-31/10/2013, Rome, Italy



# 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 )

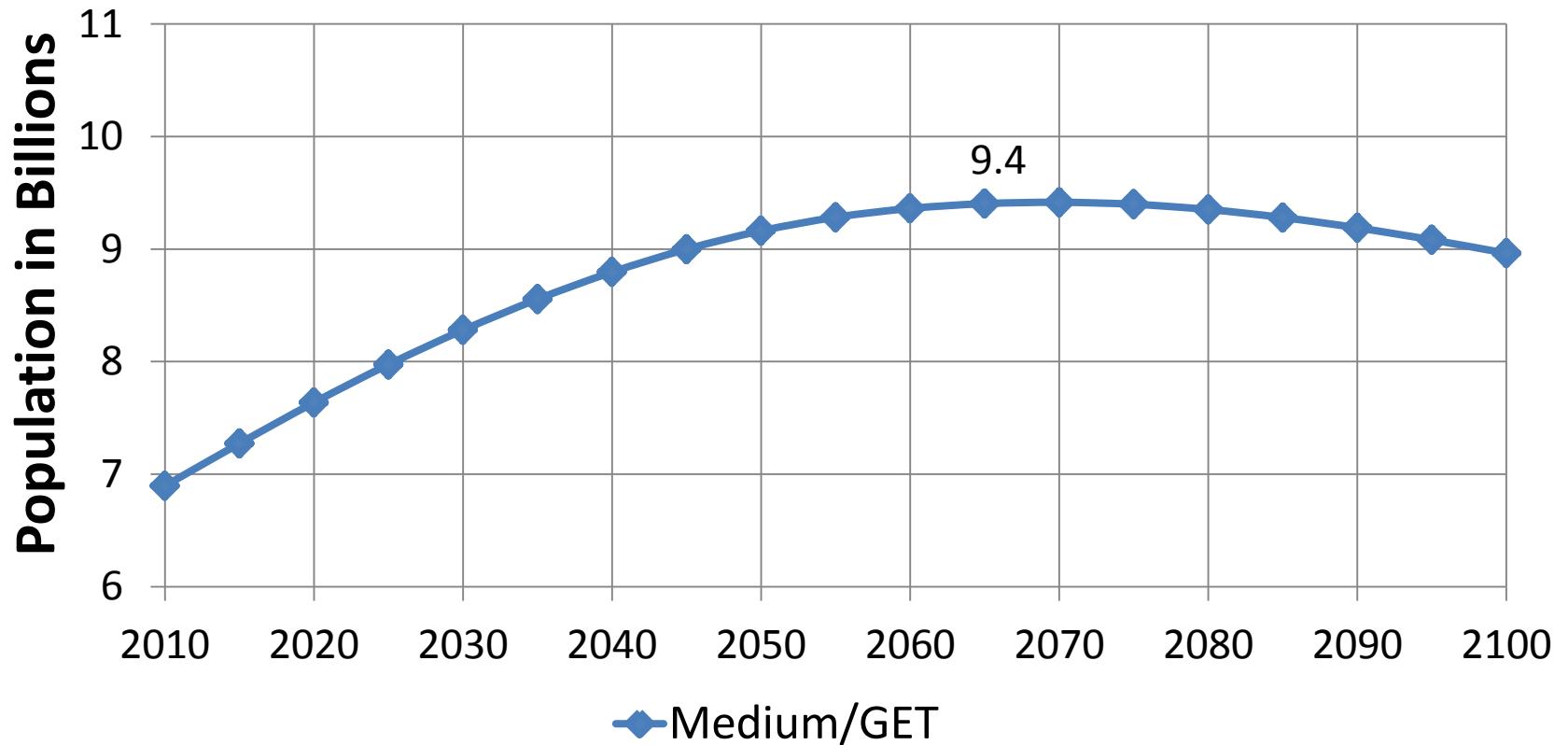


# Scenarios

- Demographic:
  - Medium
  - Low
  - High
  - Alternatives
- Education:
  - Global Education Trend (GET)
  - Fast Track (FT)
  - Constant Enrollment Rate (CER)

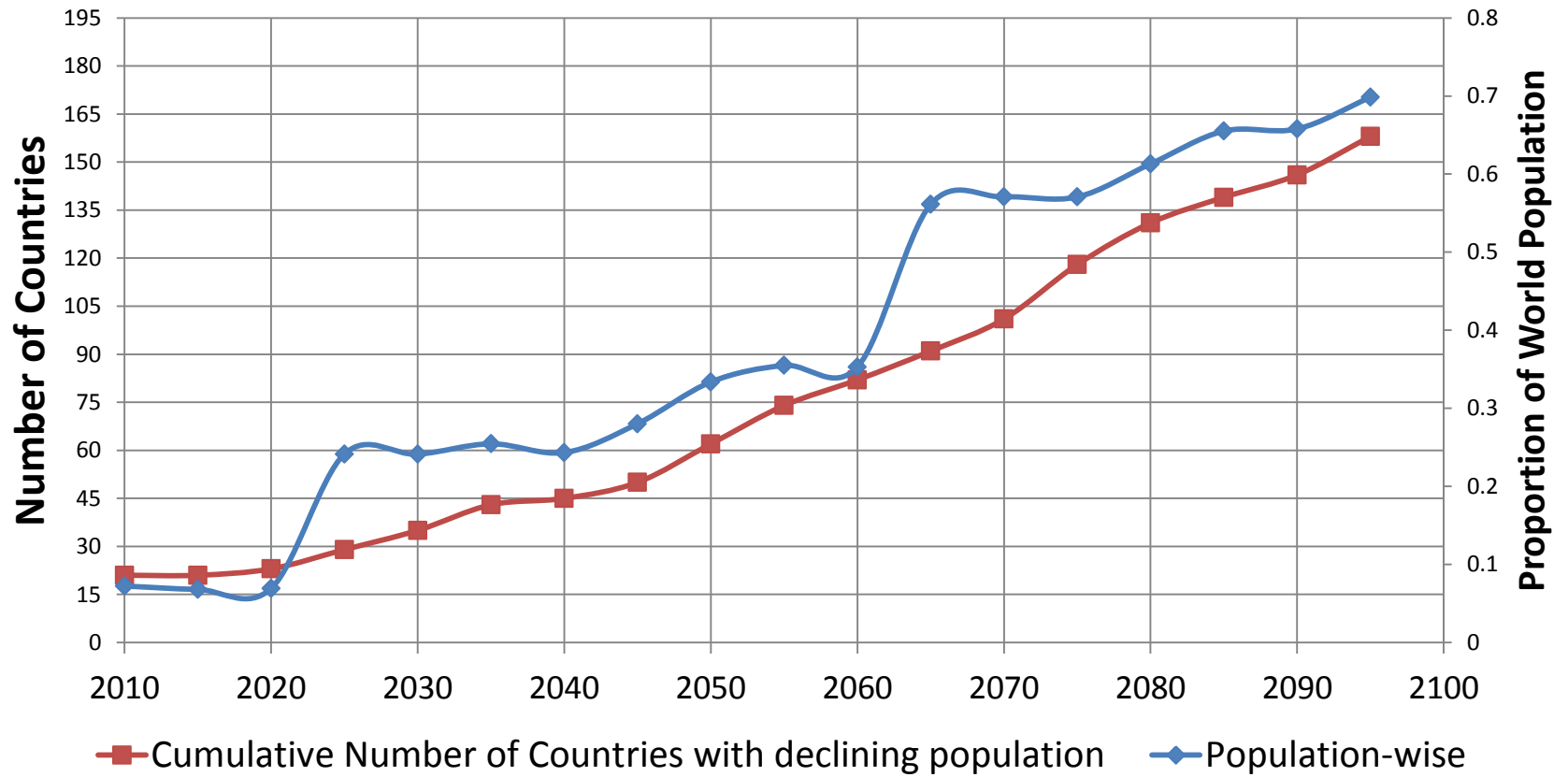
# The End of World Population Growth

## World Population under Medium/GET Scenario



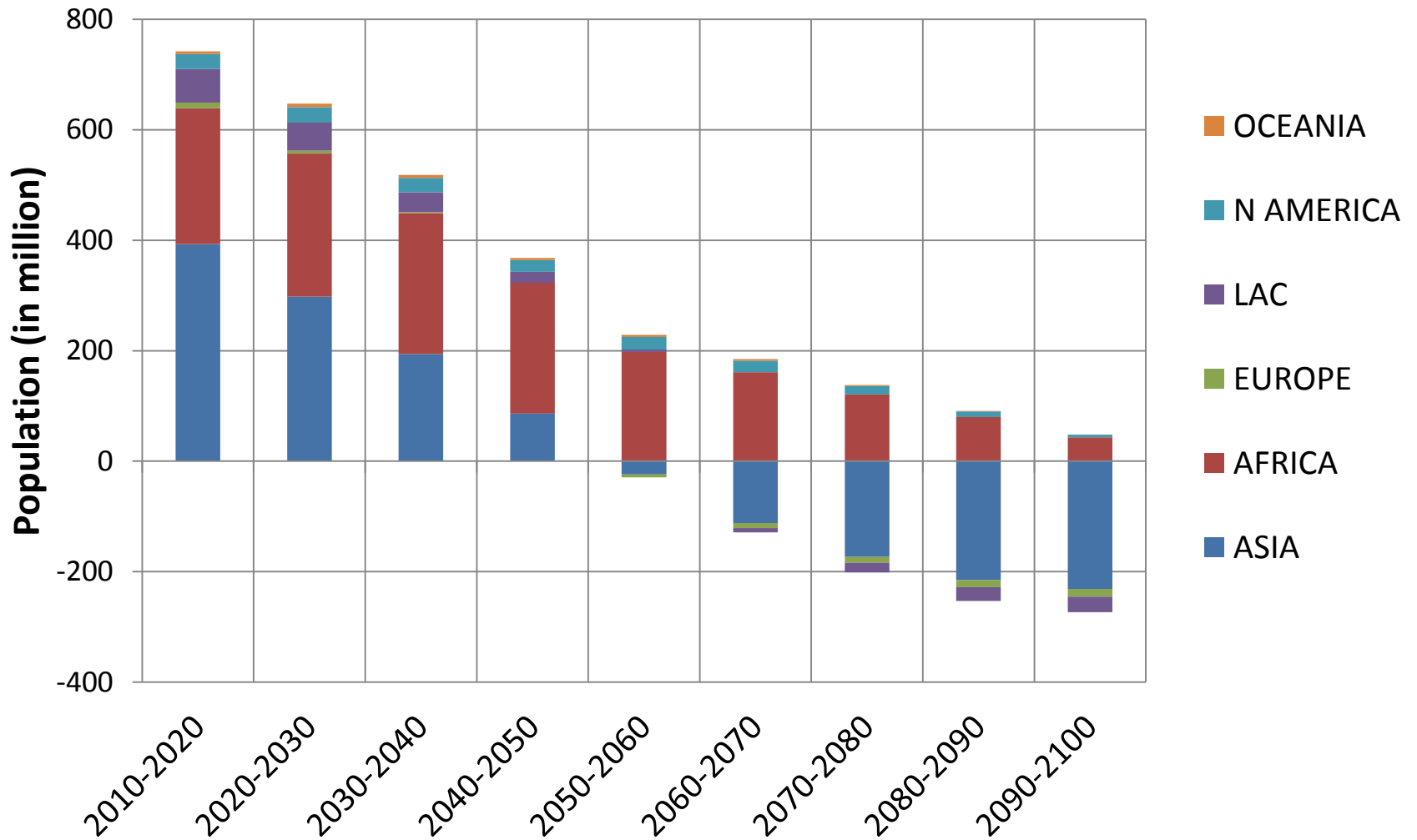
# Pathway to the Global Peak (Medium)

## Number of Countries with Declining Population



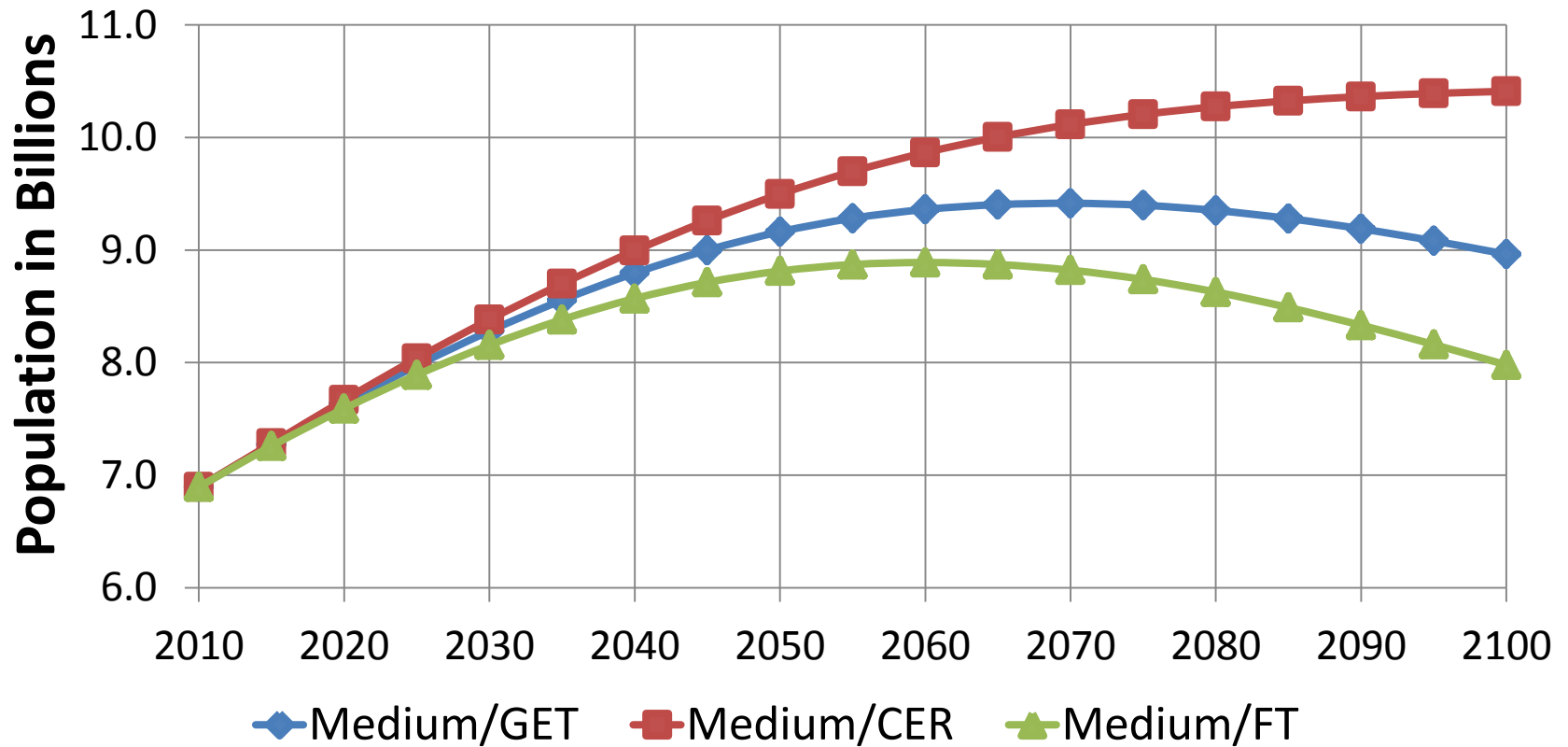


# Absolute Decadal Change in Global Population by World Regions

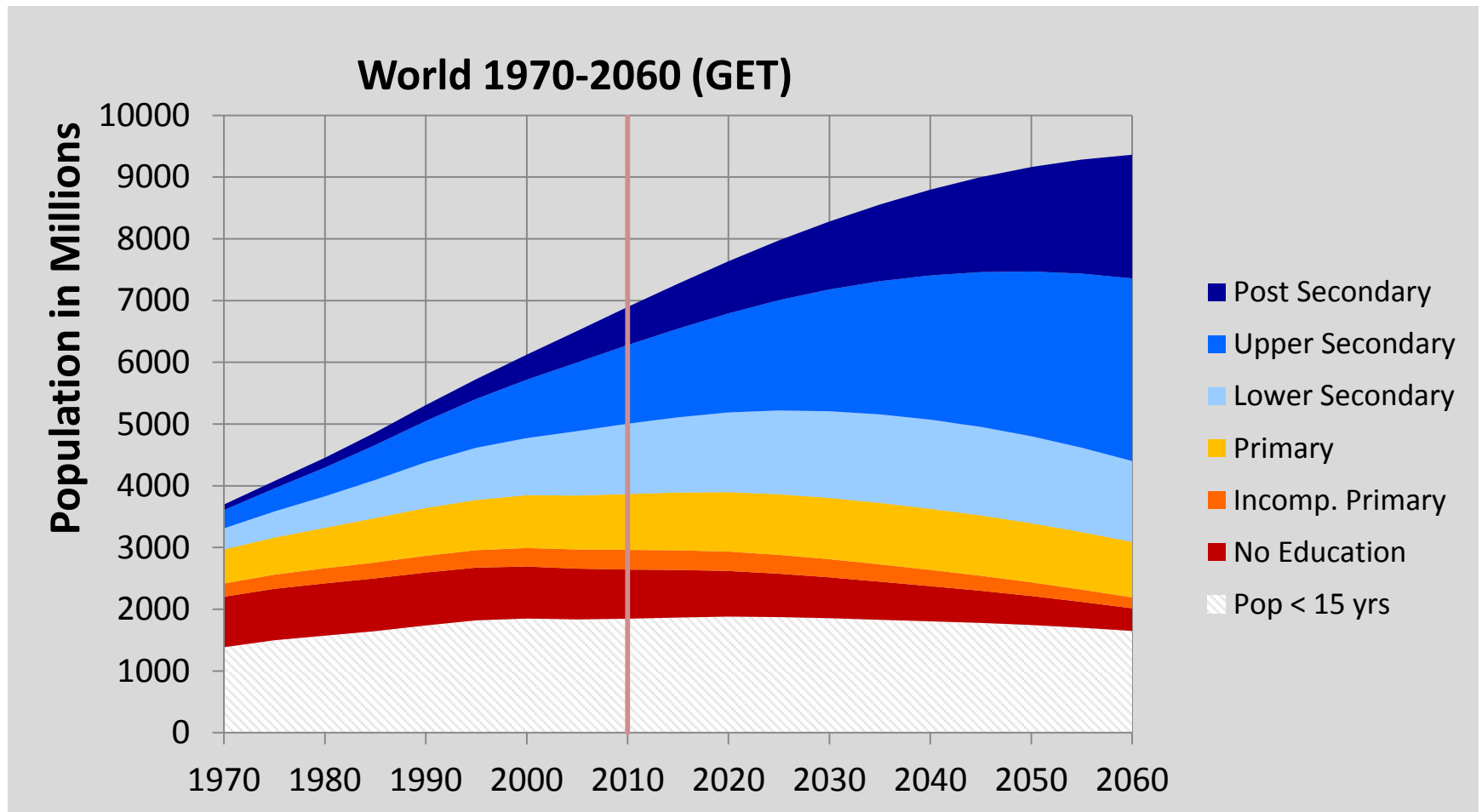


# The End of Global Population Growth

## World Population under Different Scenarios

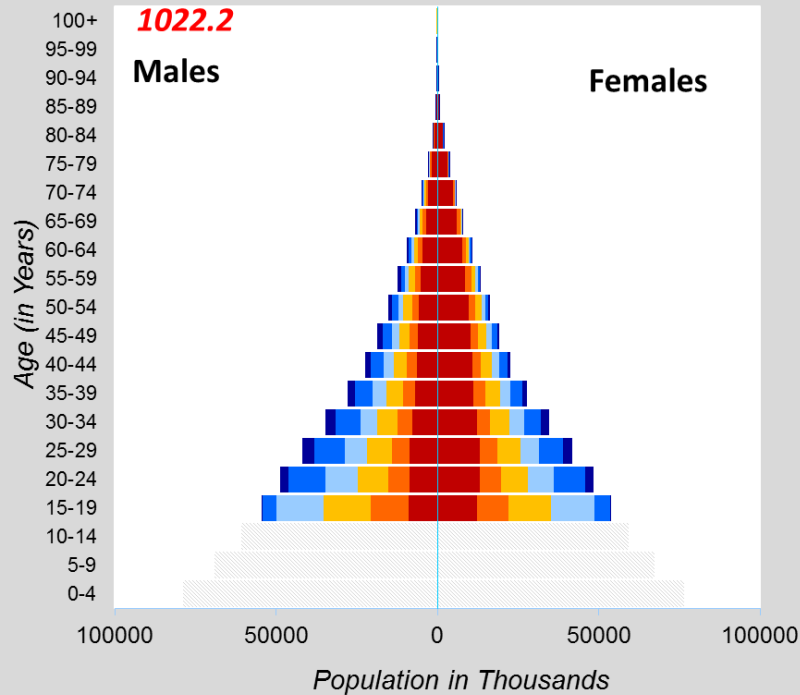


# The Rise of Global Human Capital (Medium-Global Education Trend)



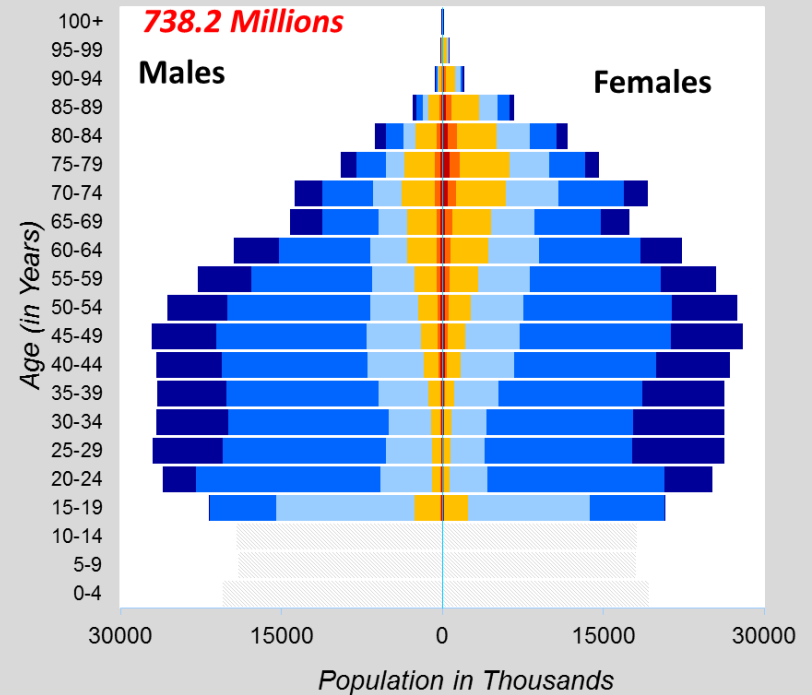
# The Rise of Global Human Capital

Africa-Base year 2010



Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

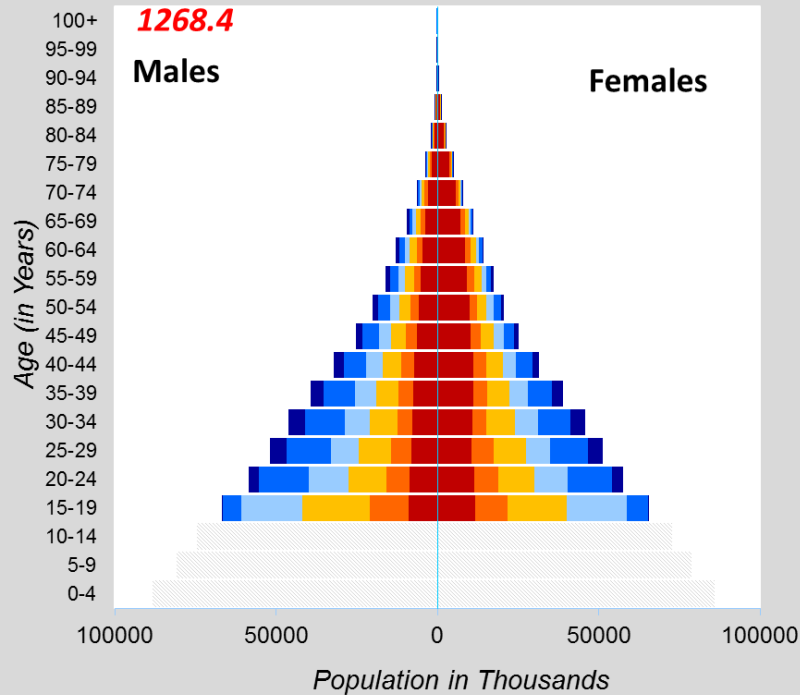
Europe-Base year 2010



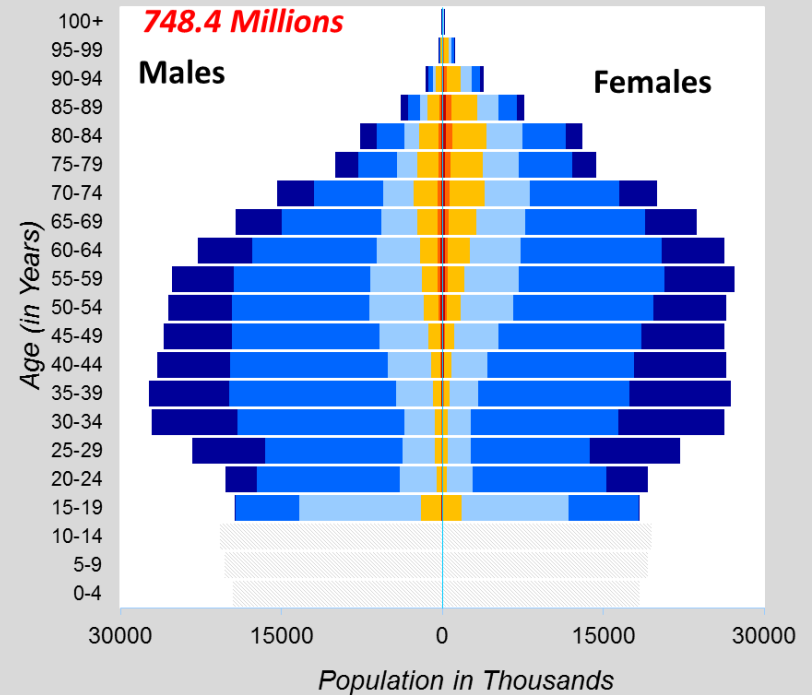
Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

# The Rise of Global Human Capital

Africa-Projections 2020



Europe-Projections 2020

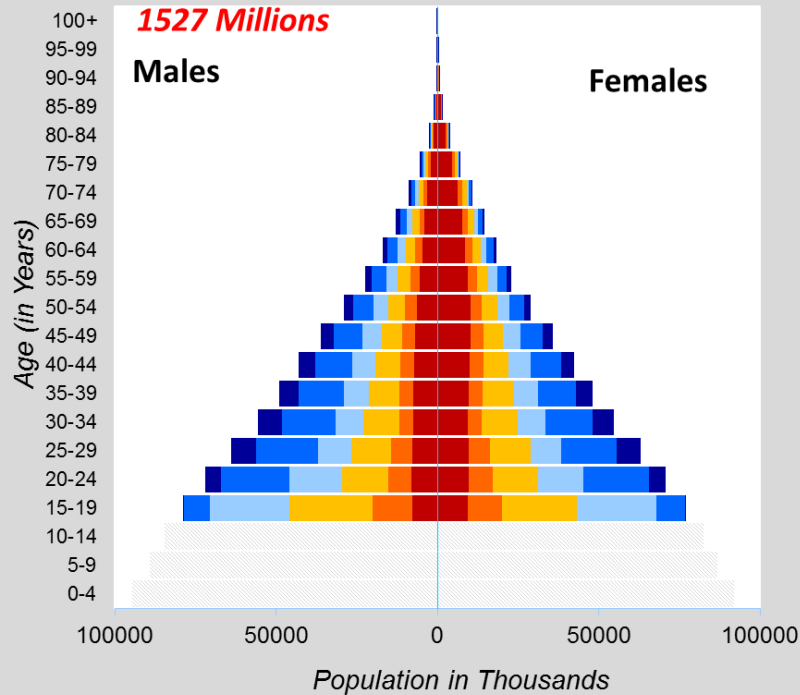


Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

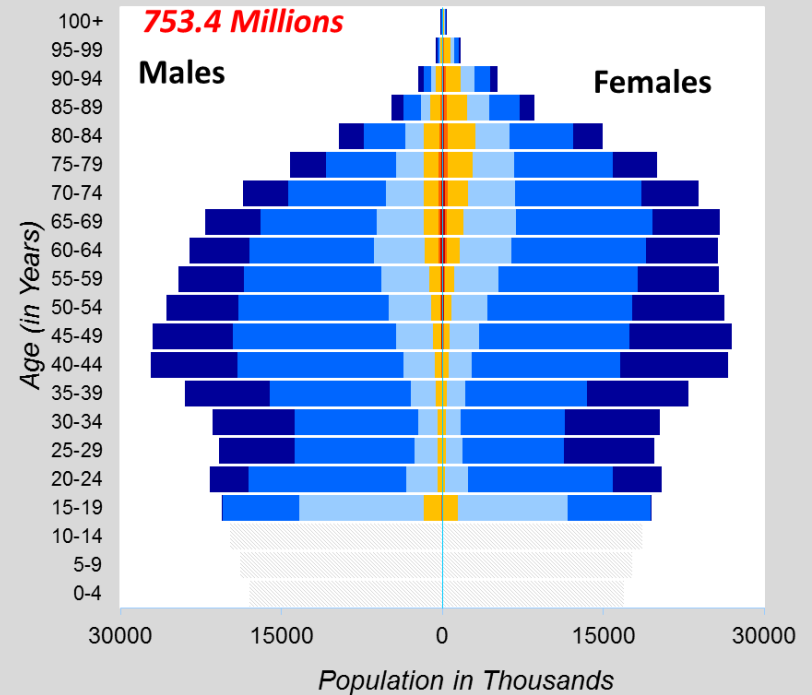
Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

# The Rise of Global Human Capital

Africa-Projections 2030



Europe-Projections 2030

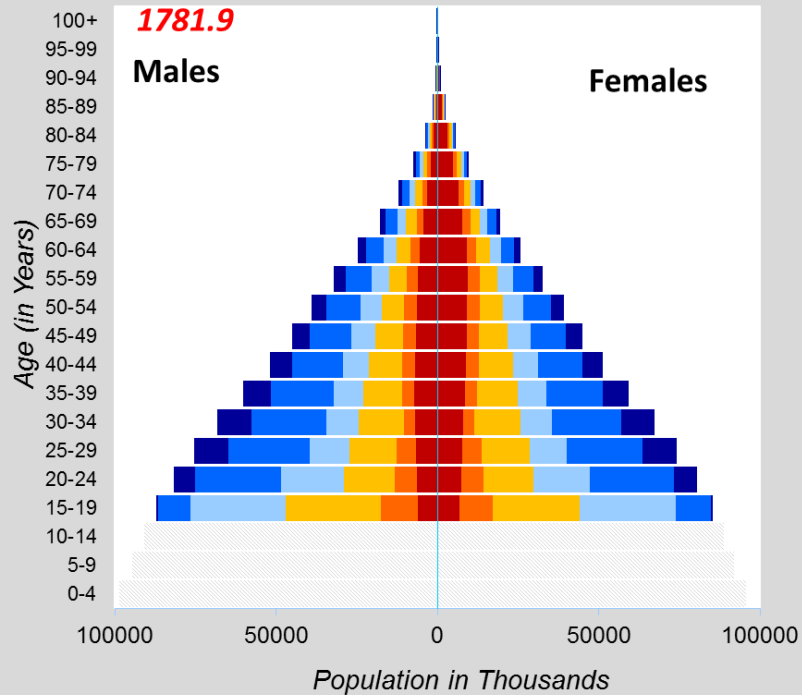


Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

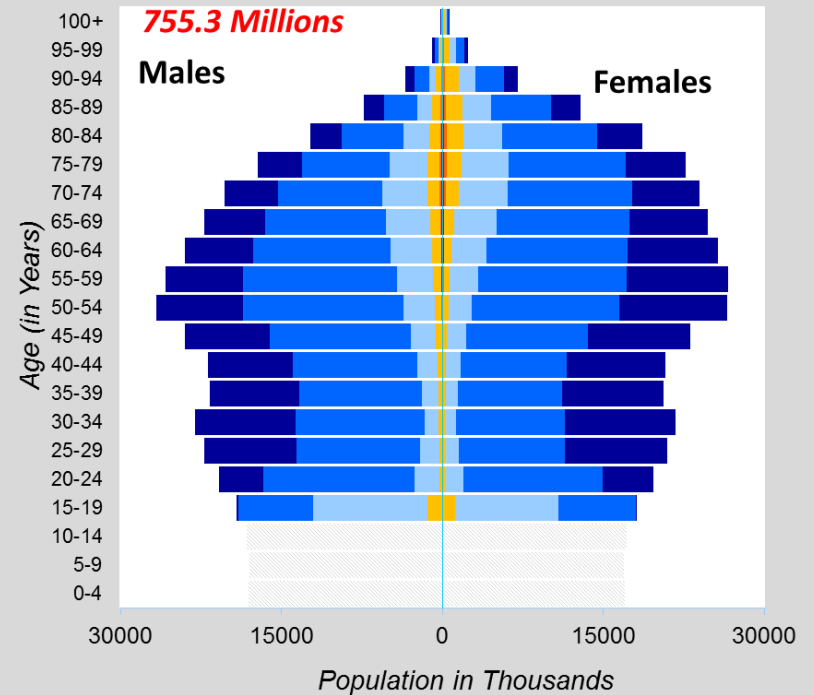
Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

# The Rise of Global Human Capital

Africa-Projections 2040



Europe-Projections 2040

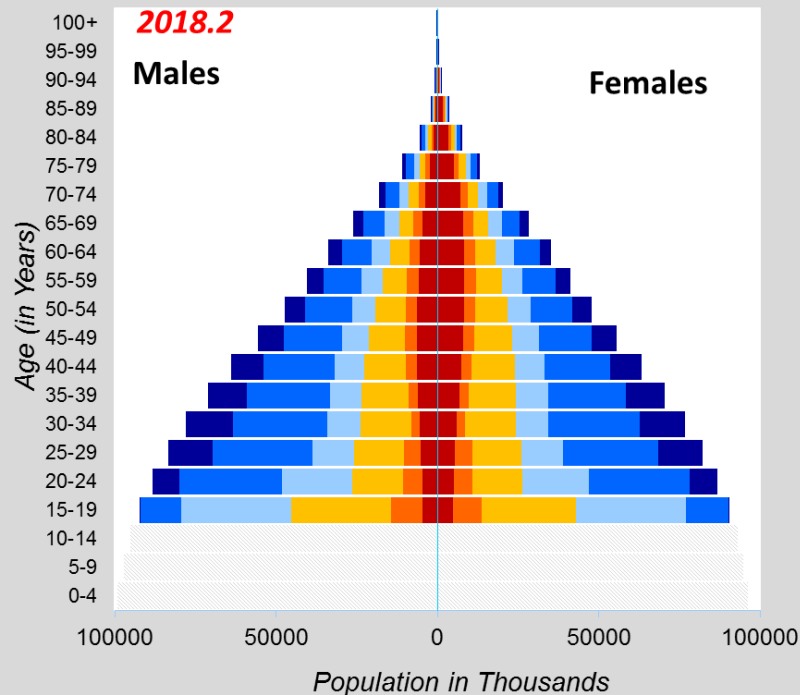


Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

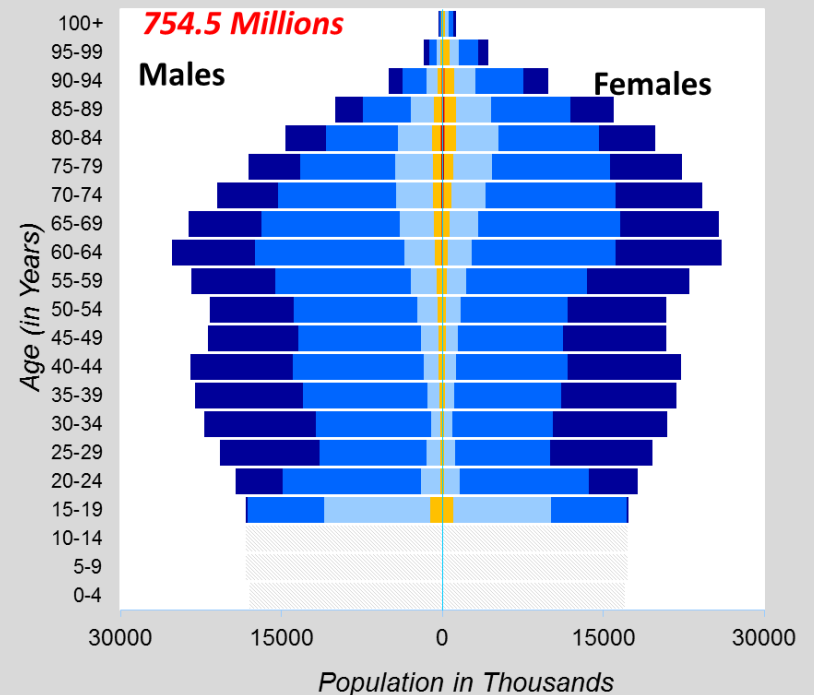
Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

# The Rise of Global Human Capital

Africa-Projections 2050



Europe-Projections 2050



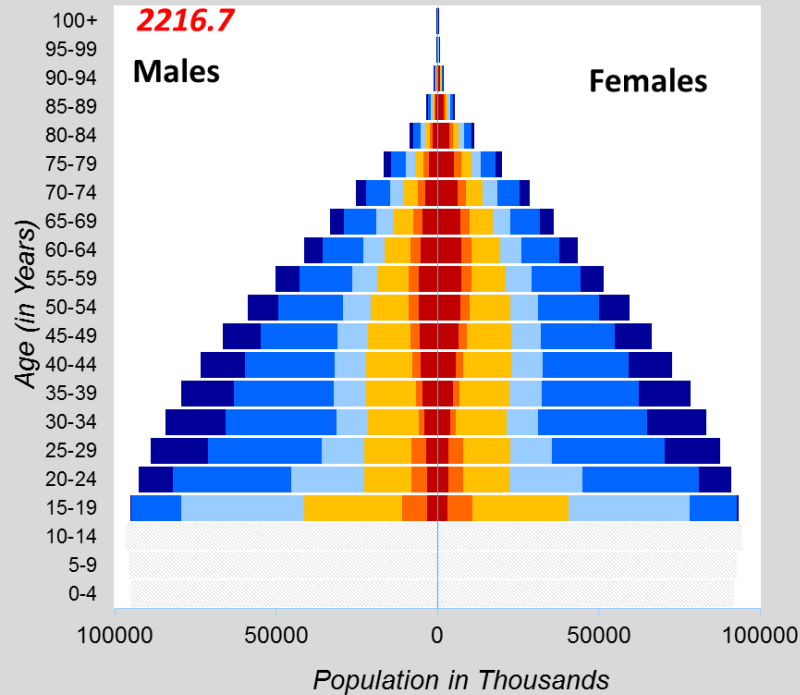
Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

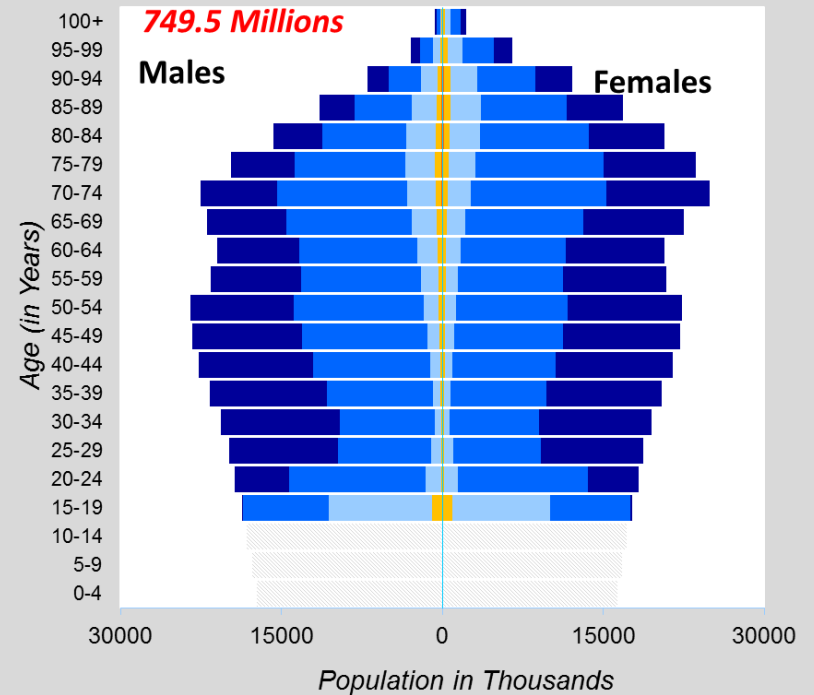


# The Rise of Global Human Capital

Africa-Projections 2060



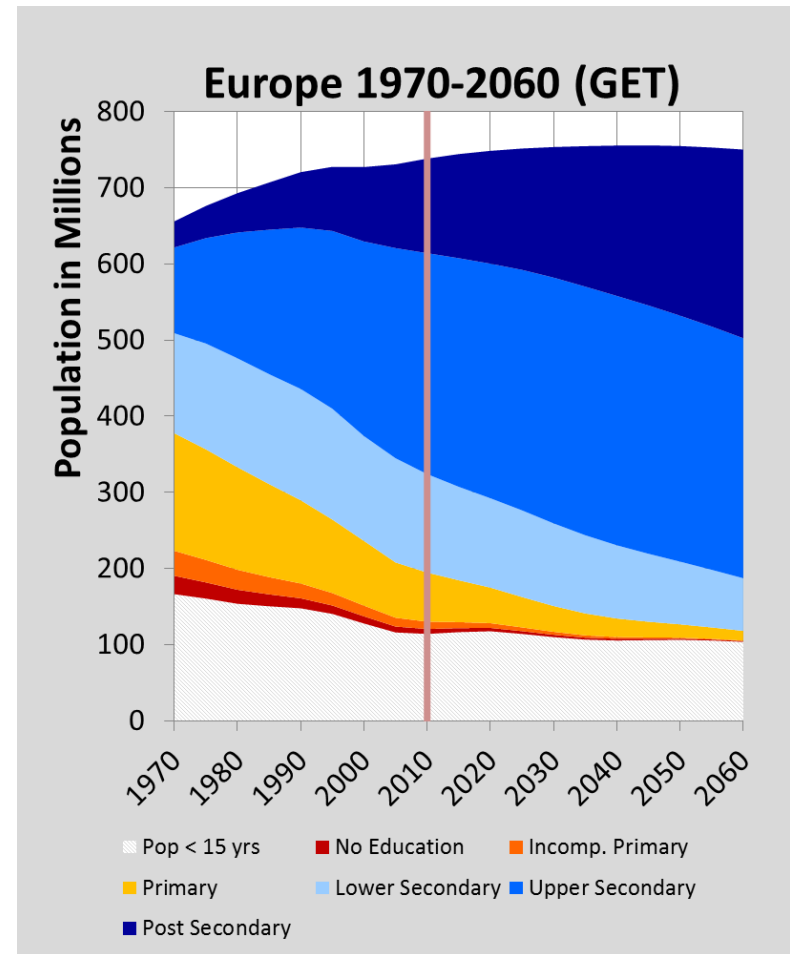
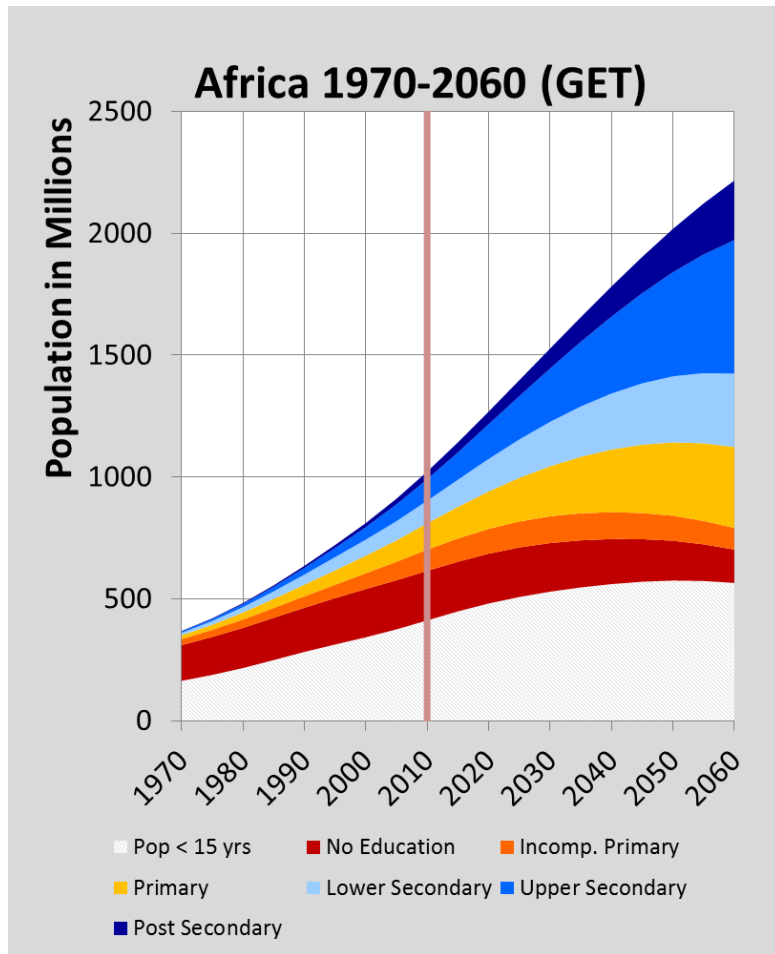
Europe-Projections 2060



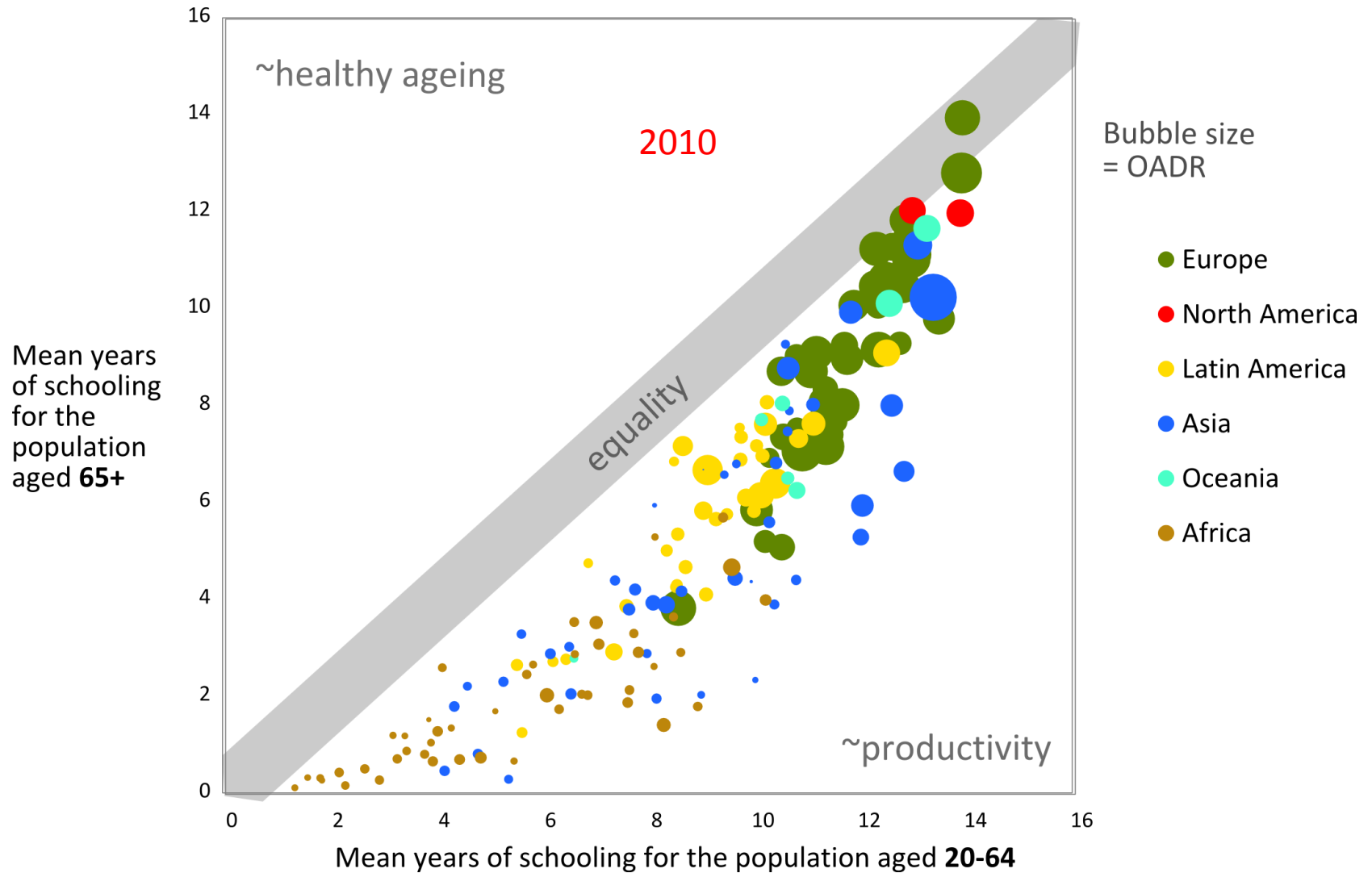
Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

Pop < 15 yrs
  No Education
  Incomp. Primary
  Primary
  Lower Secondary
  Upper Secondary
  Post Secondary

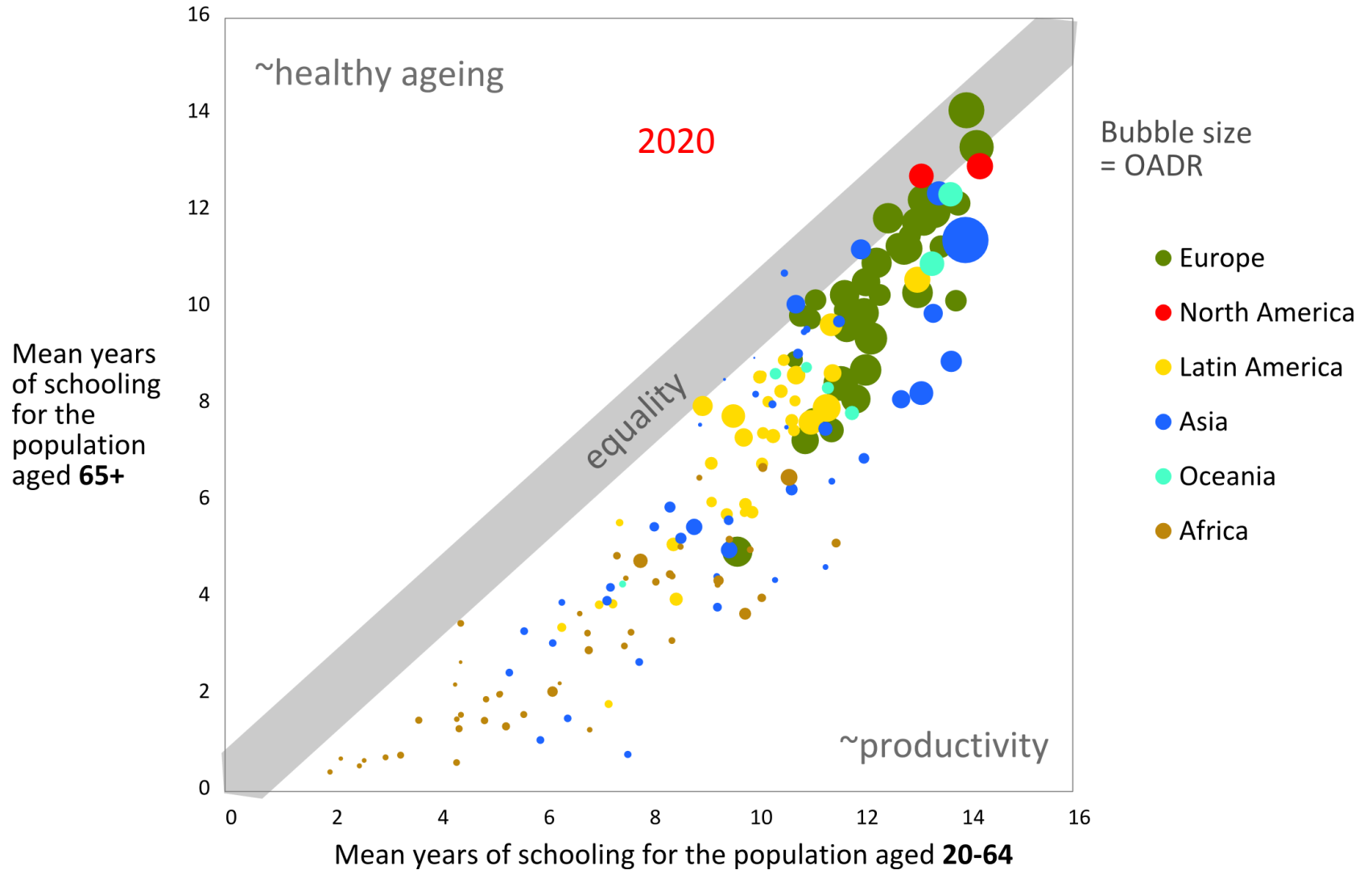
# The Rise of Global Human Capital (Global Education Trend)



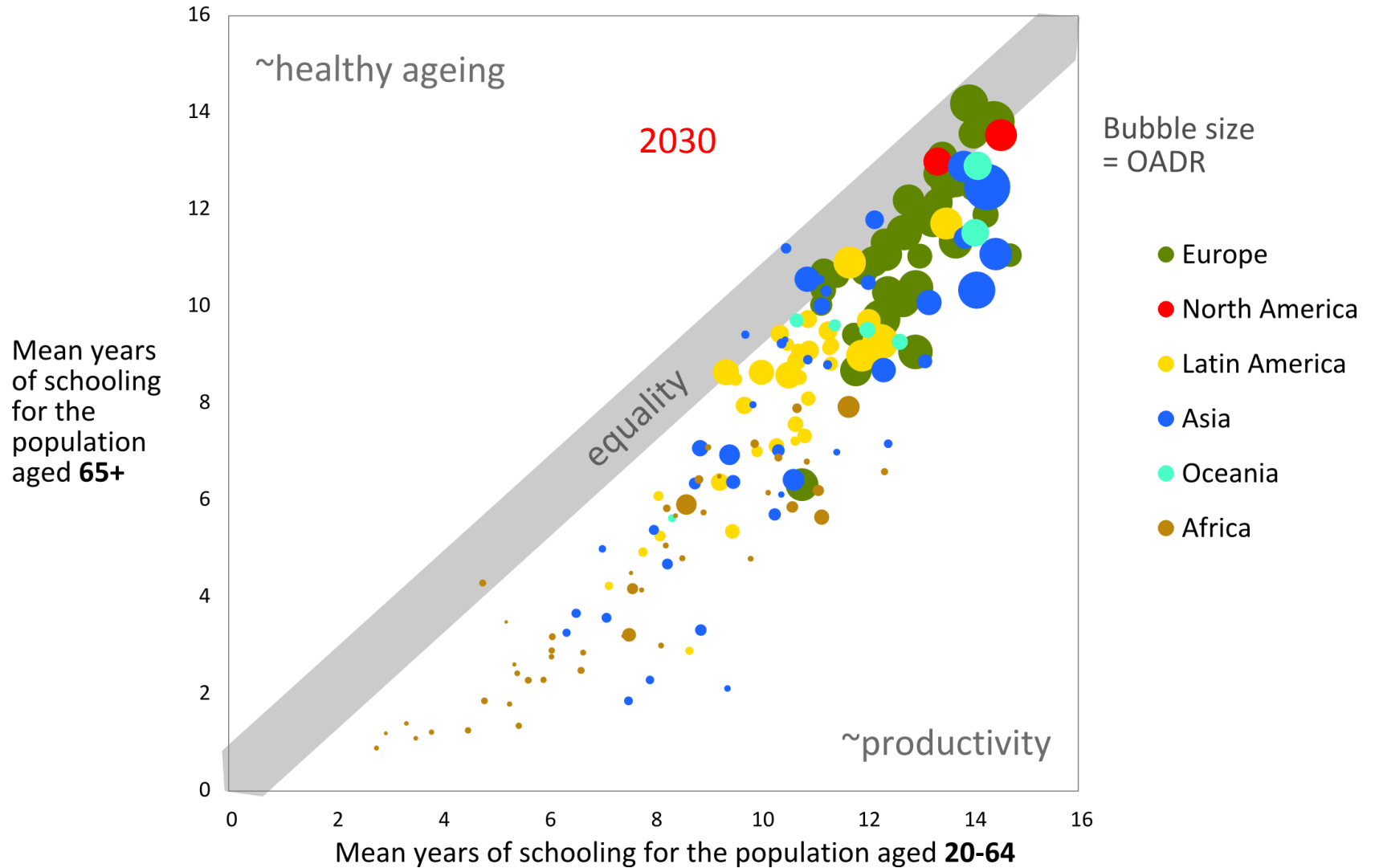
# Education Dividend



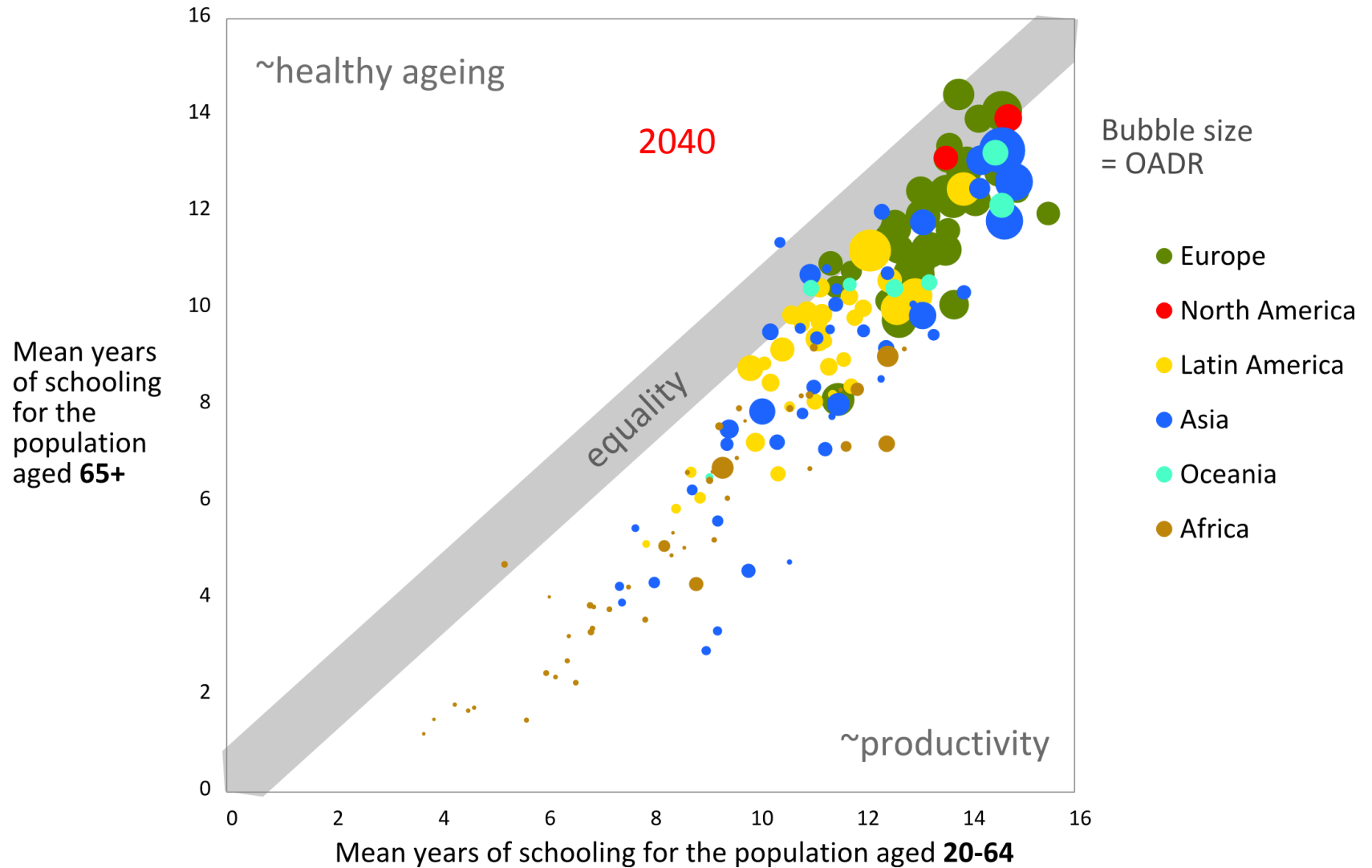
# Education Dividend



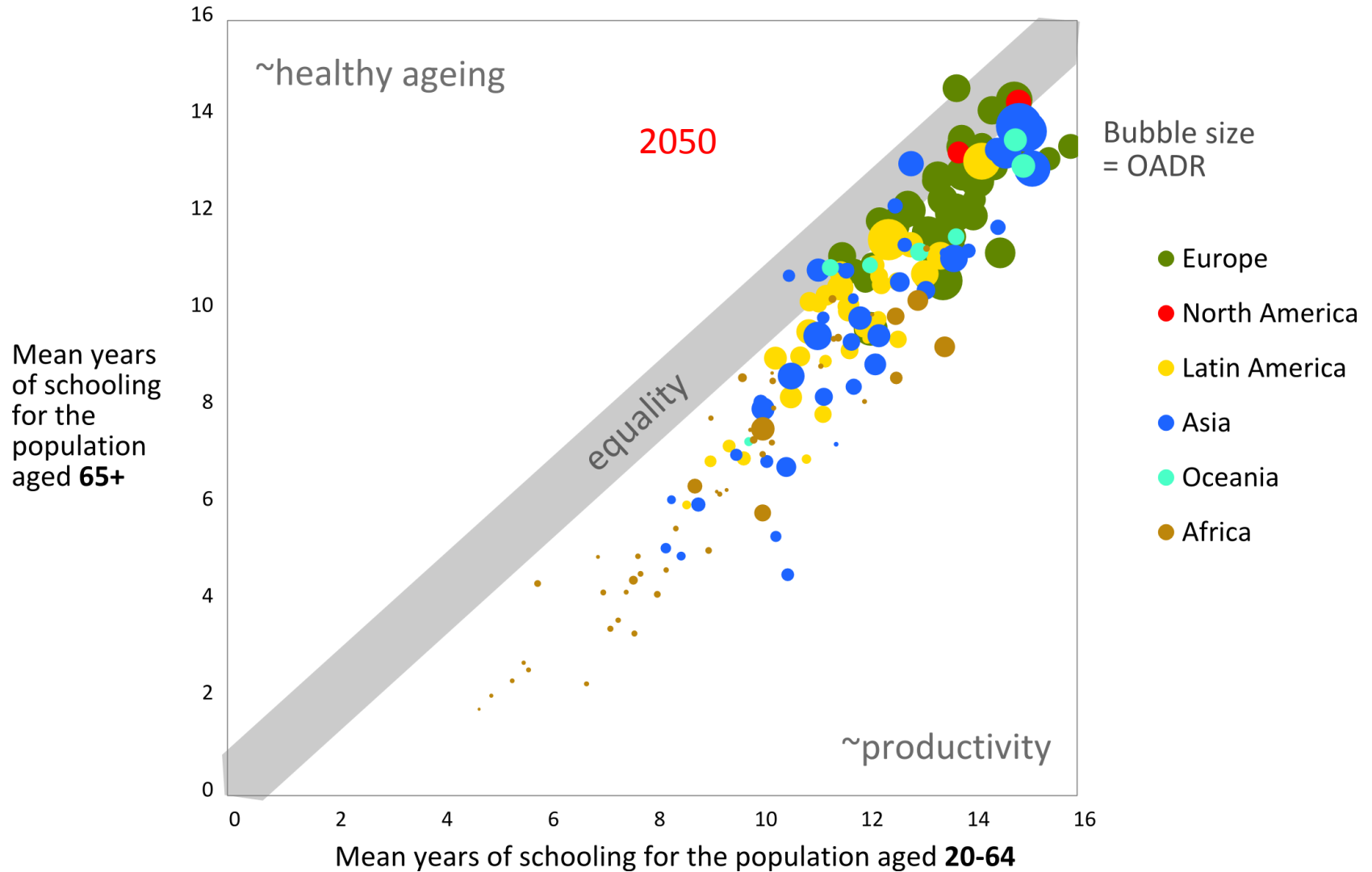
# Education Dividend



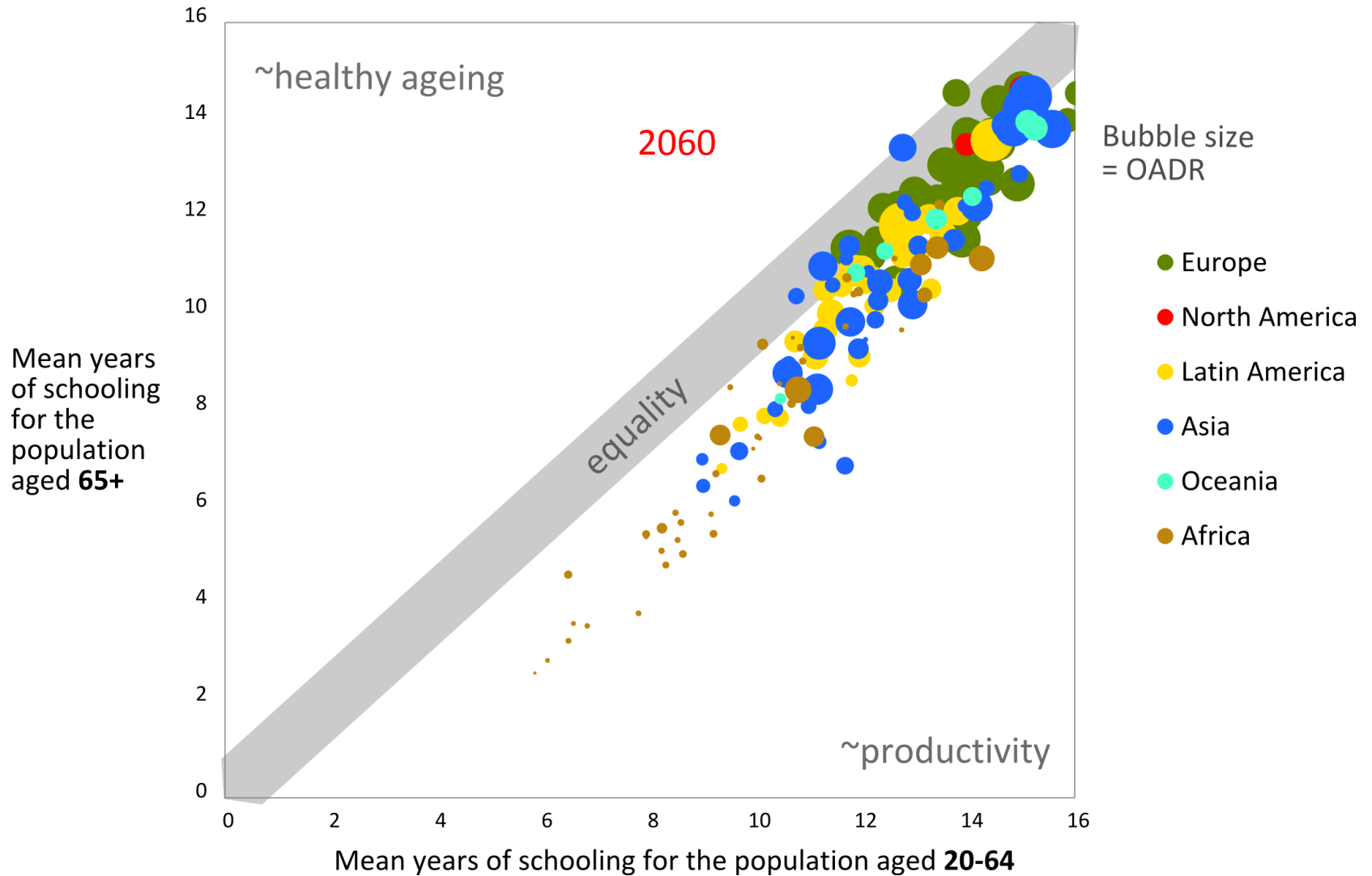
# Education Dividend



# Education Dividend

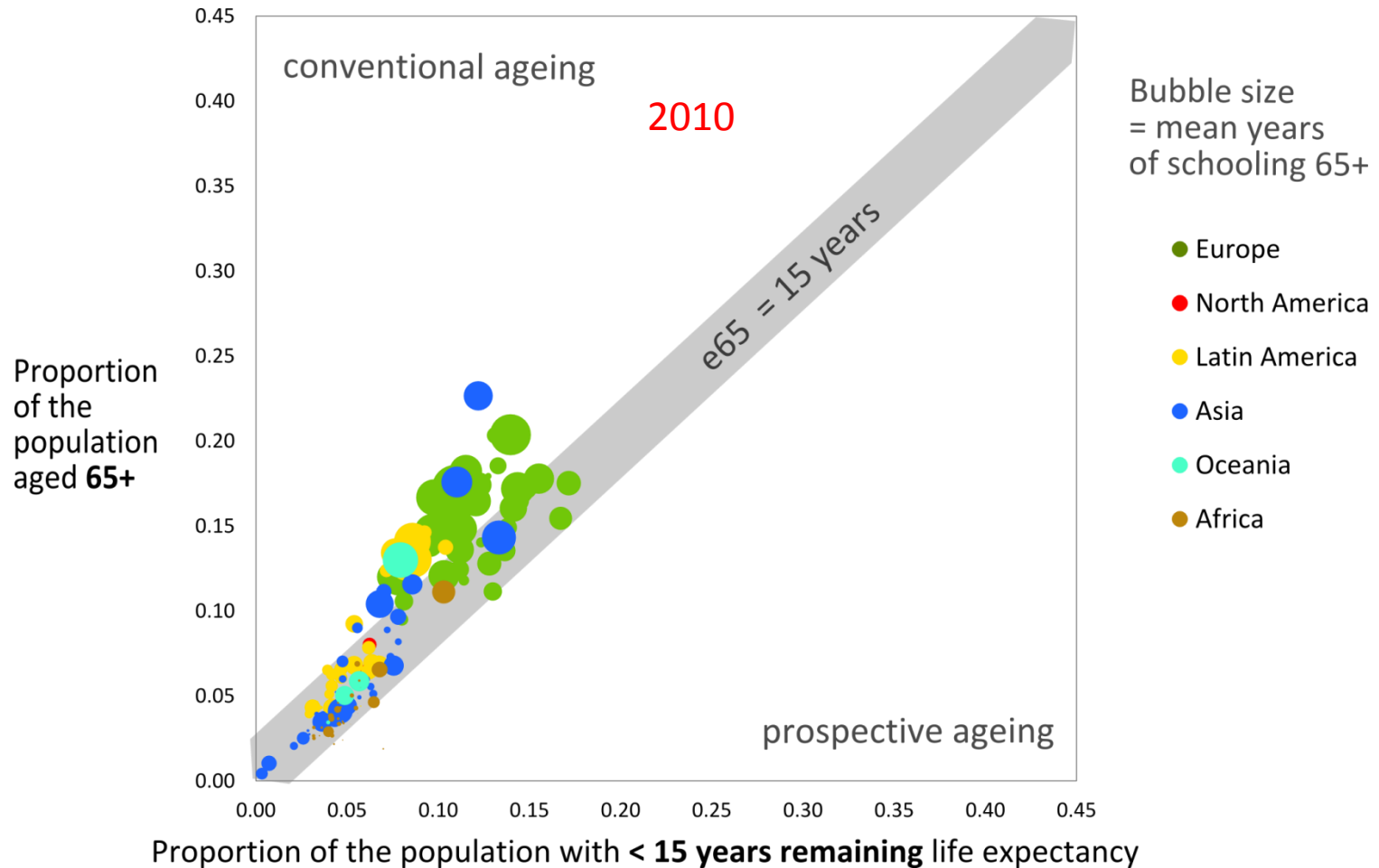


# Education Dividend

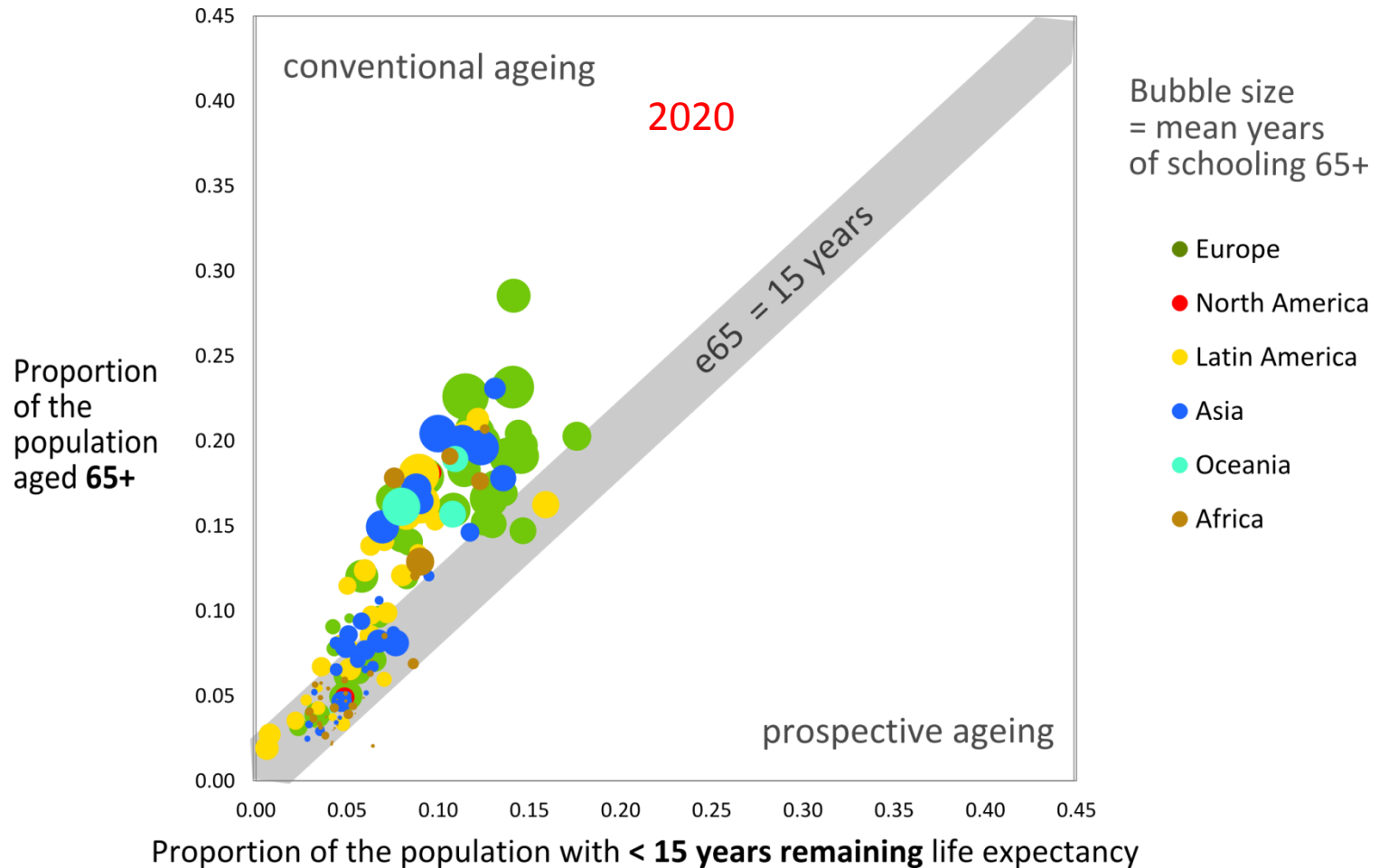




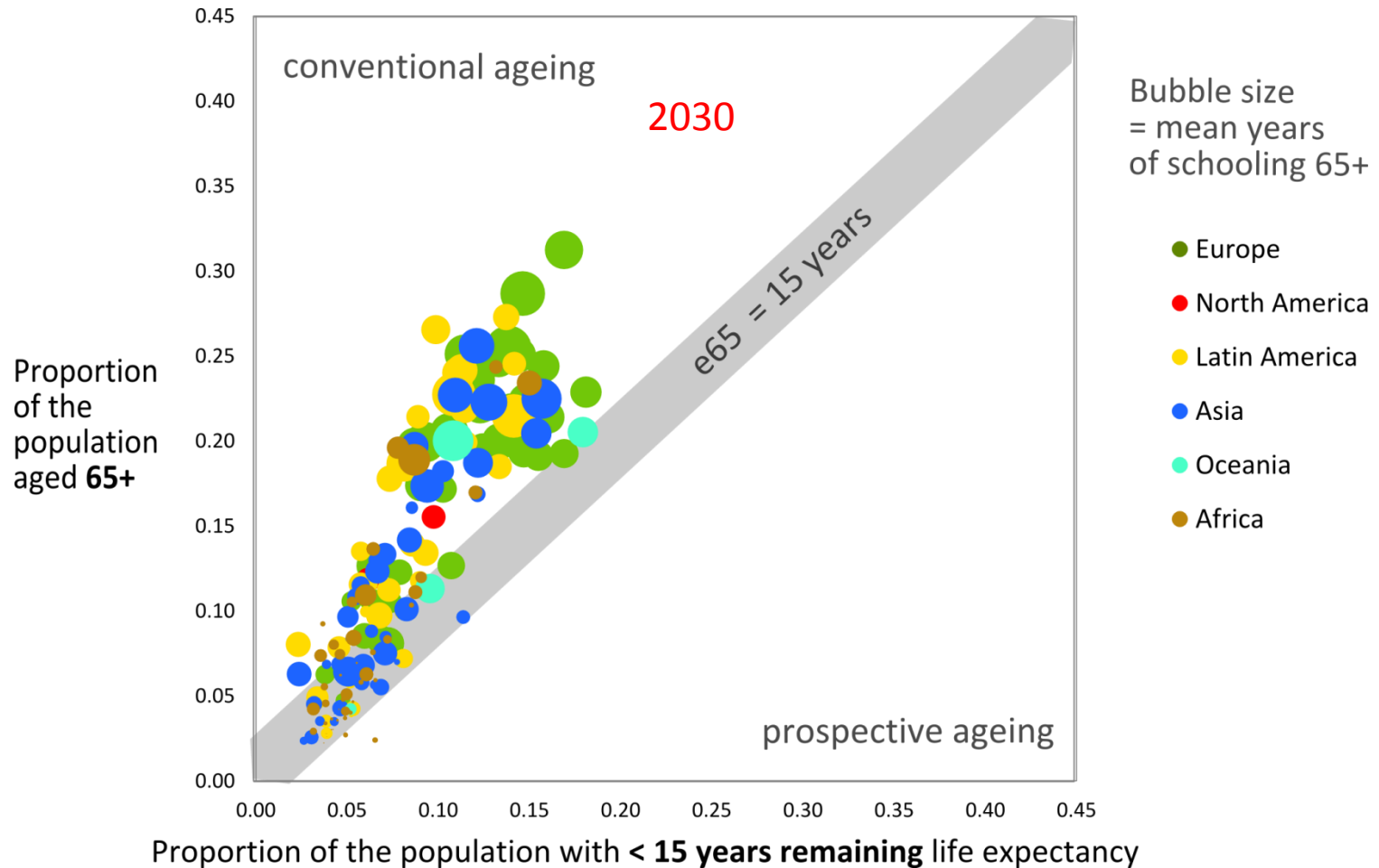
# Remeasuring 21<sup>st</sup> century population ageing



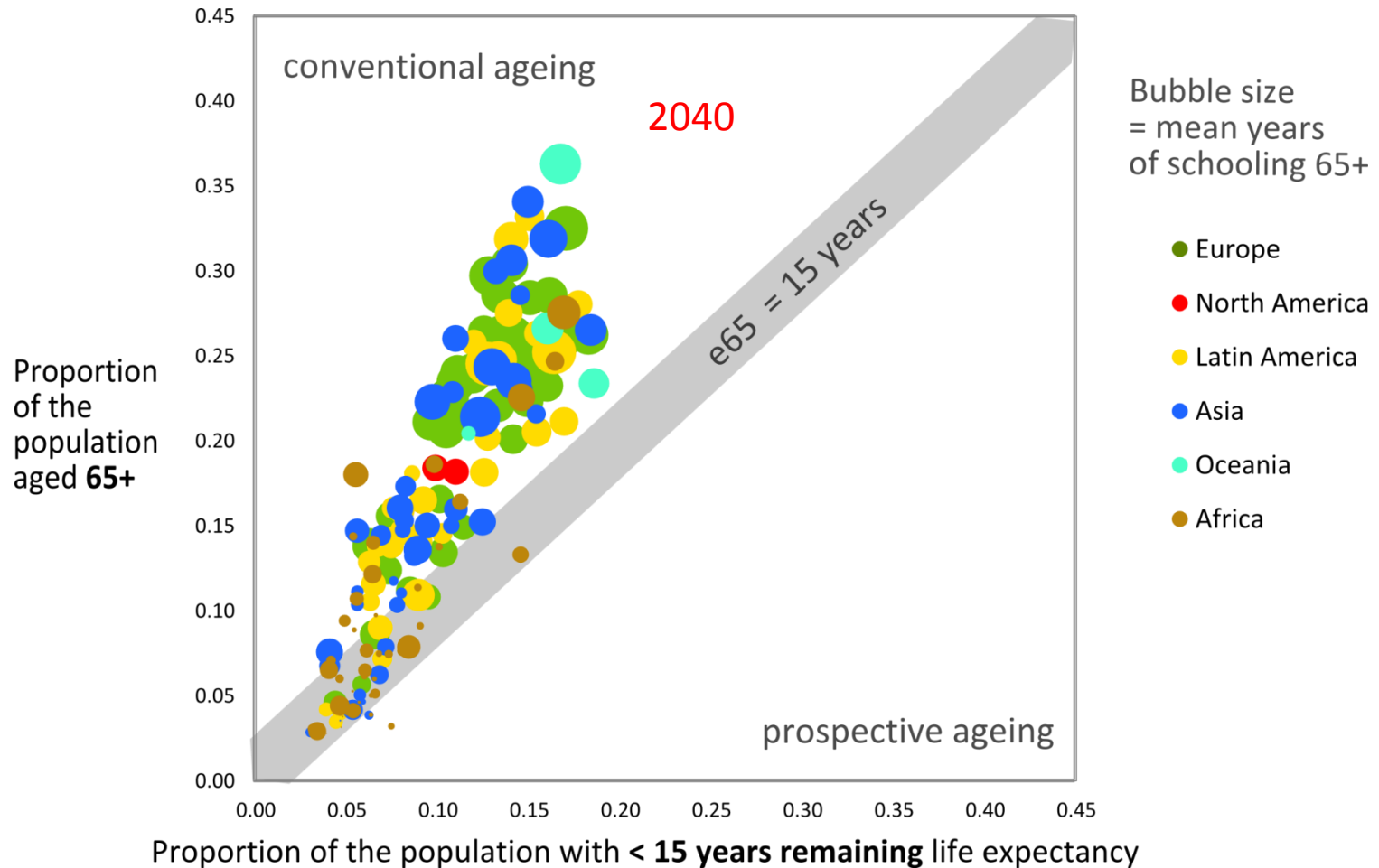
# Remeasuring 21<sup>st</sup> century population ageing



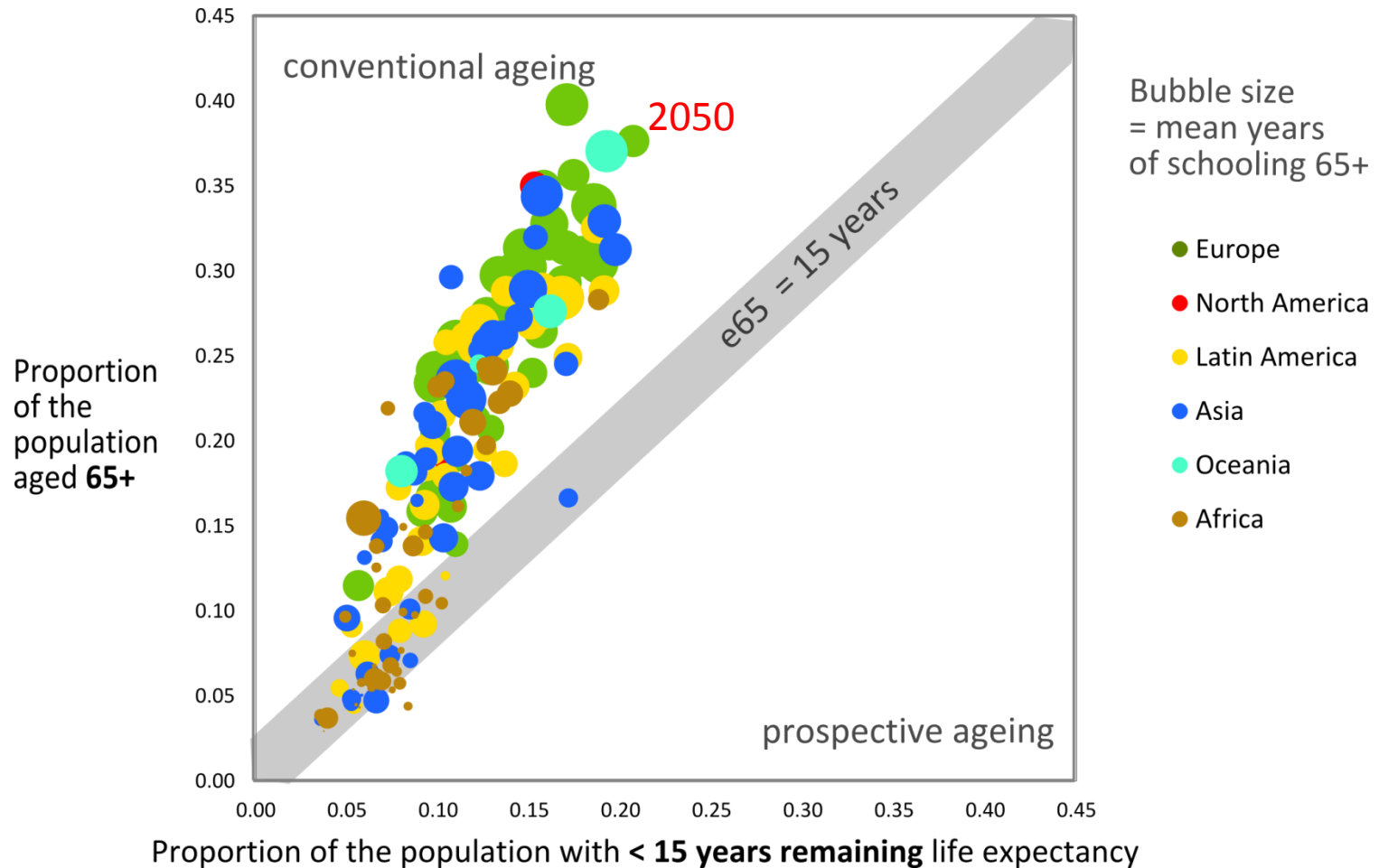
# Remeasuring 21<sup>st</sup> century population ageing



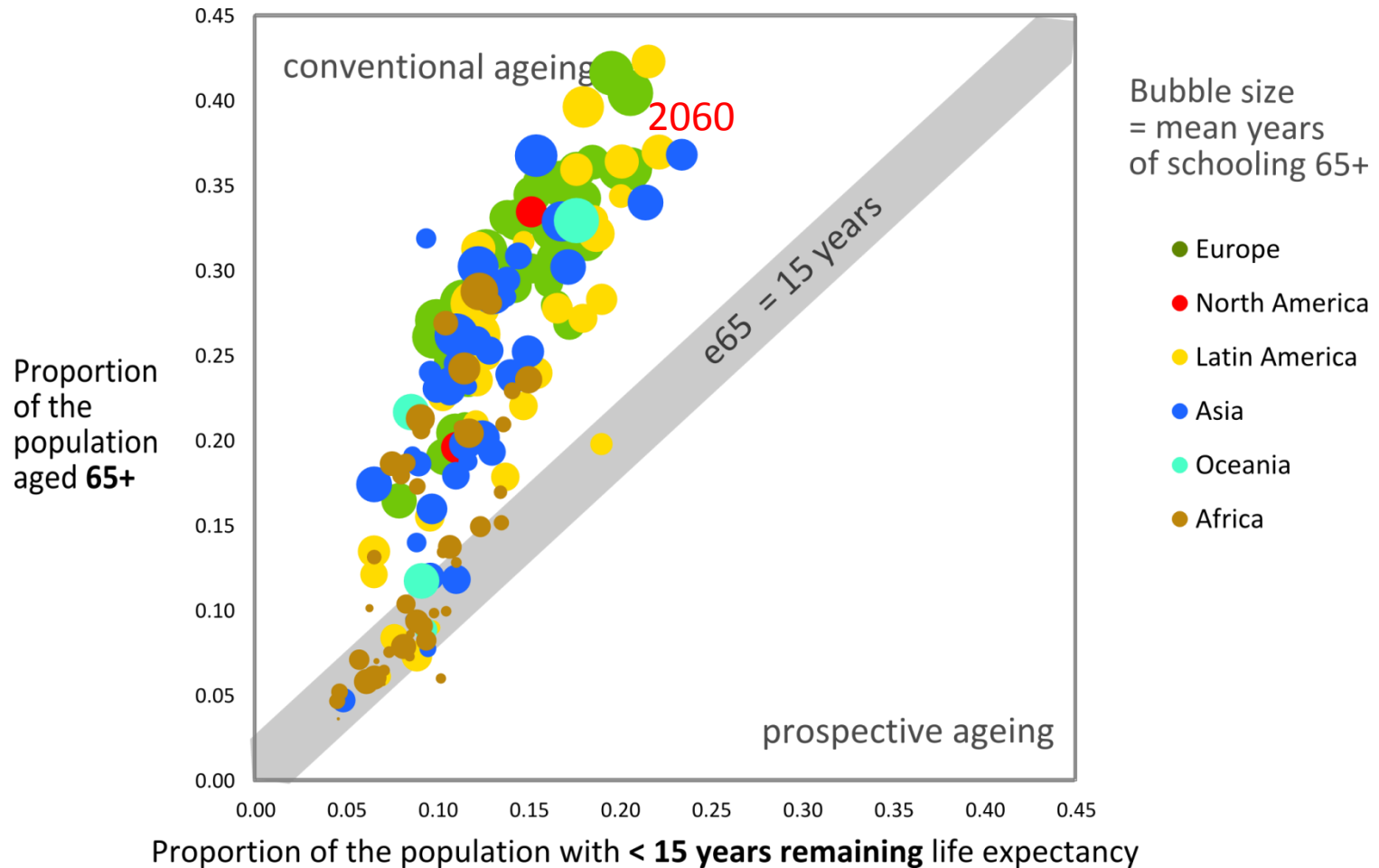
# Remeasuring 21<sup>st</sup> century population ageing



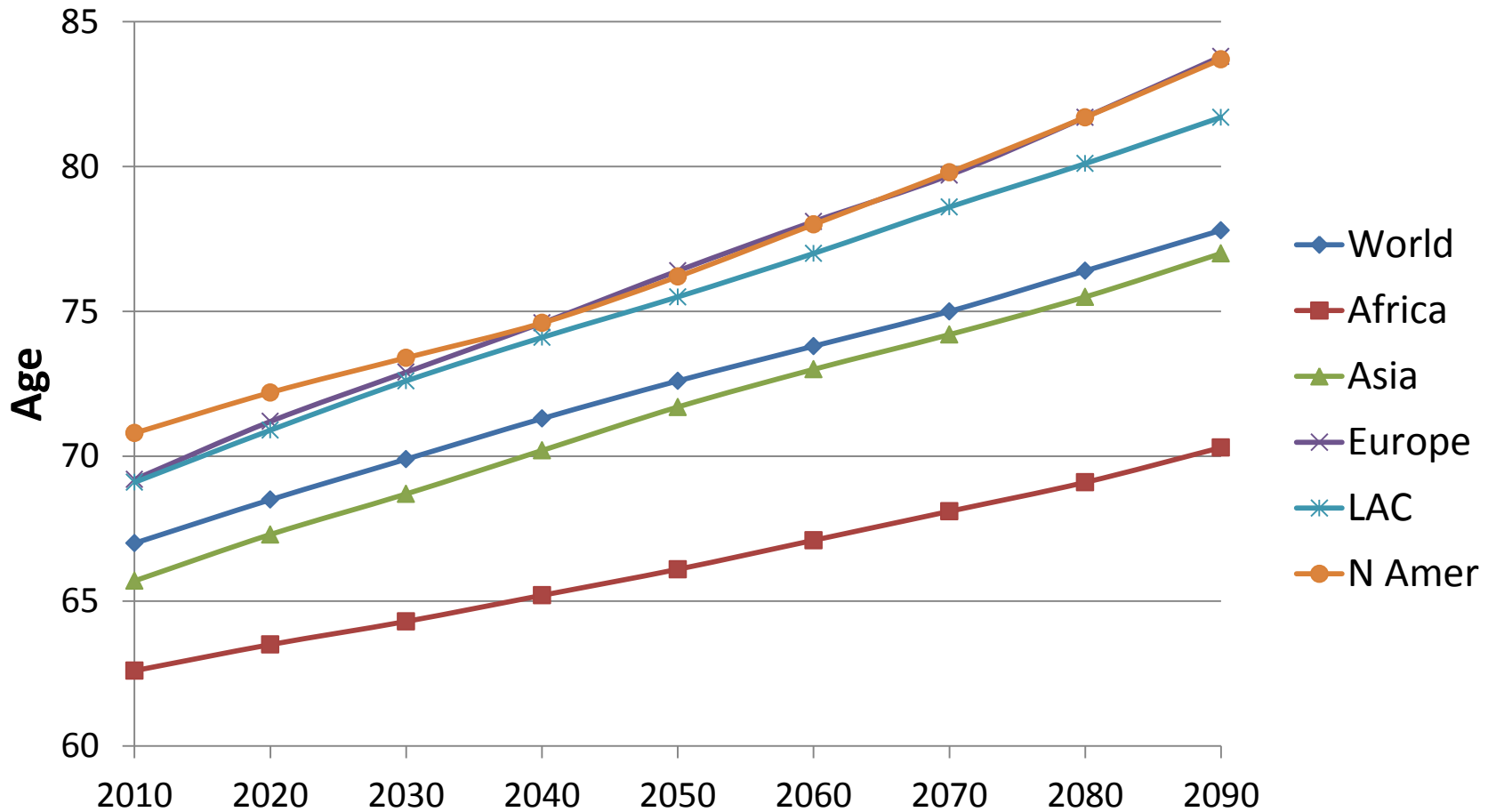
# Remeasuring 21<sup>st</sup> century population ageing



# Remeasuring 21<sup>st</sup> century population ageing



# 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





# Wittgenstein Centre

FOR DEMOGRAPHY AND  
GLOBAL HUMAN CAPITAL

**Data will be available very soon...**



International Institute for  
Applied Systems Analysis  
[www.iiasa.ac.at](http://www.iiasa.ac.at)

