Divergence or convergence?
The role of improving education of the elderly in changing geographical patterns of aging in a globalizing world, 1980-2010

Introduction
Since the mid 20th century, mortality has been on the decline everywhere, and over the past 40 years, the demographic shift has also been seen in the vast majority of the world's population.

Motivation
> While this demographic shift has raised widespread alarms over its likely threat to future social and economic well-being, the trend of ongoing improvements in the educational attainments of the elderly population also carries great importance for the future human capital of societies.

Data
In addition to conventional aging indicators taken from the UN (2013) (Crude death rate, Population) Aged 65 and Over as well as 80 and Over, Median Age, Male and Female Life Expectancies, Old Age Dependency Ratio), we used ISAIA-VID updated country-specific data (Lutz and K., 2011) on the proportions of educational attainment of the elderly population (education categories: No Education = "E1", Incomplete Primary = "E2", Completed Primary = "E3", Completed Lower Secondary = "E4", Completed Upper Secondary = "E5", and Post-Secondary = "E6") in the years selected.

Results: Factor analyses
The factor loadings show a structural variation of demographic dynamics of population aging in the underlying dimensions. Factor scores represent the extracted dimension in the spatial units (countries). The higher (positive) or lower (negative) factor scores calculated for a single country, the more the country is characterized by the representative dimension.

Results: MDS analyses
MDS Analysis enables the spatial representation of the proximities between 140 countries in a 3 dimensional (contextual) space, based on 13 different variables. Proximities express the similarity or dissimilarity between data objects.

Concluding remarks
> According to the global demographic transition theory, fertility has been on the decline everywhere and the world as a whole and most of its regions are expected to experience a significant increase in the onset of population aging over the coming years.

> The analyses in this study clearly show that the onset of aging populations differs substantially from country to country and region to region.

> While the conventional aging indicators (Population Aged 65 and over and 80 and over, old age dependency ratio, median age of the population) indicated by positive loadings and factor scores, improvements in the education level of the elderly population can be seen as the distinctive structural change of demographic dynamics of population aging between 1980 and 2010.

> Very high human development countries are characterized by an significant increase in the educational attainment (E4, E5, and E6) of the elderly population from 1980 to 2010. Thus, the last decades have brought an unprecedented increase in healthy life expectancy particularly in favour of the developed countries.

References