



Trends in life and health expectancies

Gender difference in health expectancy trends in Greenland

Isabelle Mairey¹, Peter Bjerregaard^{2,3}, Henrik Brønnum-Hansen⁴

¹ Centre of Health Economic Research (COHERE), Department of Business and Economics, University of Southern Denmark,

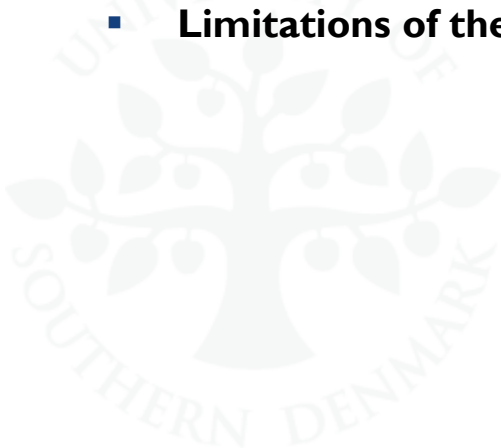
² National Institute of Public Health, University of Southern Denmark

³ University of Greenland

⁴ Faculty of Health Sciences, Department of Public Health, University of Copenhagen

Structure of the presentation

- **Background**
- **Objective**
- **Method**
 - § Date
 - § Analysis
- **Results**
- **Discussion of results**
- **Key Points**
- **Limitations of the study**





Demographic background

- **Current population; 56,000 people – 51,000 are born in Greenland**
- **The total area of Greenland is 2,166,086 km² (836,330 sq mi) (including other offshore minor islands)**
- **It is the least densely populated country in the world and 81% of the total geographical area is cover by the Greenlandic ice cap**





Background

- **Projections of future population composition in Greenland suggest that the percentage of the population aged 65 or older will grow from 8 percent in 2013 to 15 percent in 2040.**
 - § The prevalence of longstanding illnesses in Greenland increases with age and may affect the dependency ratio of the Greenlandic population, when retaining the working ages to 20-64 years.
- **The consequence on a societal level depends on the health- and social service needs of the population aged 65 and older as well as the life- and health expectancy of the 20 to 64 year olds and their ability to participate in the workforce.**





Background

- **Life expectancy in Greenland has increased markedly over the past 40 years and has now reached 68.7 years for men and 73.4 years for women.**
 - § The longer life expectancy may be reflected in a healthier life, but longer life and improved health do not necessarily go together.





Background

- **Life expectancy in Greenland has increased markedly over the past 40 years and has now reached 68.7 years for men and 73.4 years for women.**
 - § The longer life expectancy may be reflected in a healthier life, but longer life and improved health do not necessarily go together.
- **An earlier baseline study of health expectancy in Greenland based on survey data from 1993/1994 (Iburg, Brønnum-Hansen, Bjerregaard 2001) found that;**
 - § Greenlandic women live longer than men
 - § But expected life time in self-rated good health was shorter for women than for men

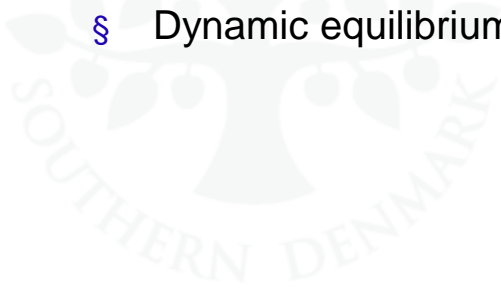




Objective

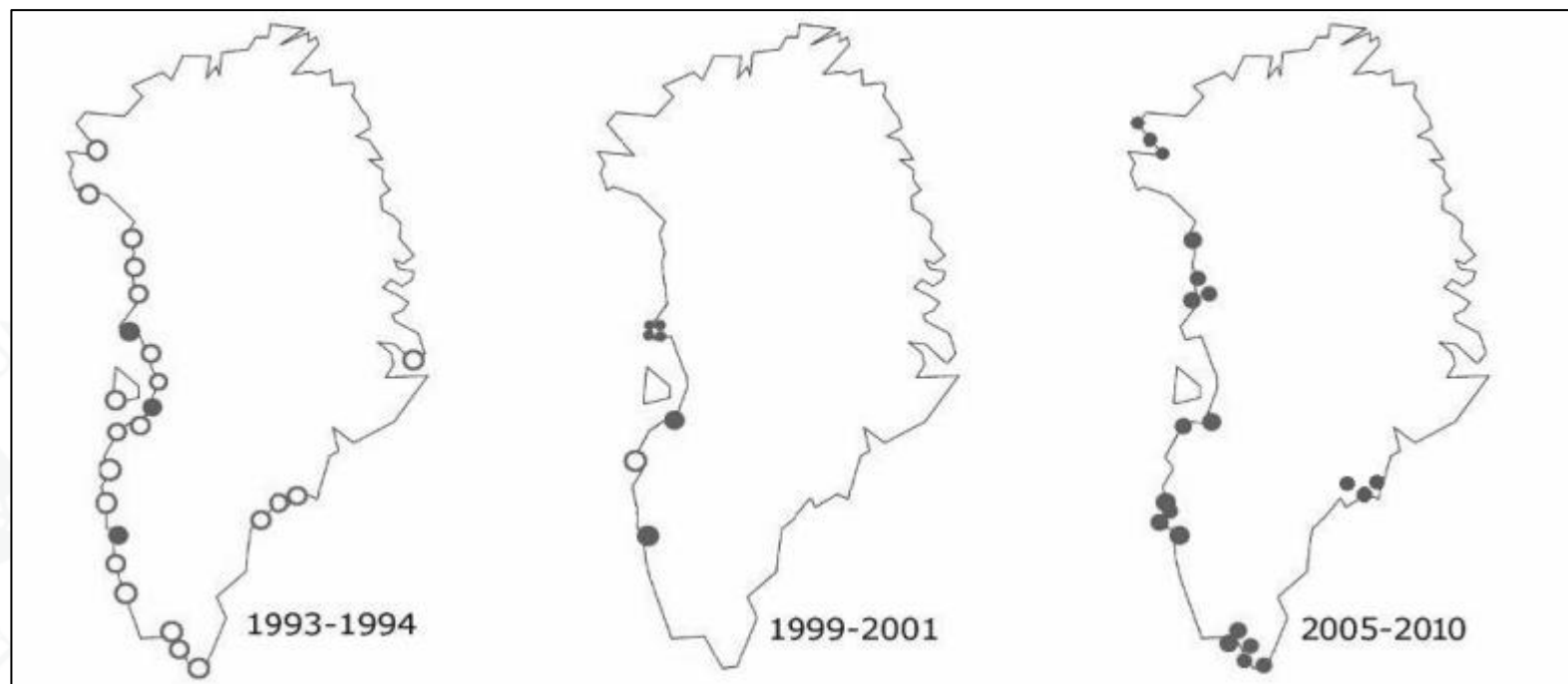
- **This study investigates recent trends in partial life- and health expectancy between age 20 and 65 among the Inuit population in Greenland**
 - § Changes in health expectancy are decomposed into the contributions from the effects of the mortality and morbidity components

- **It is analysed whether the trend supports the hypothesis of ;**
 - § Expansion of morbidity
 - § Compression of morbidity
 - § Dynamic equilibrium



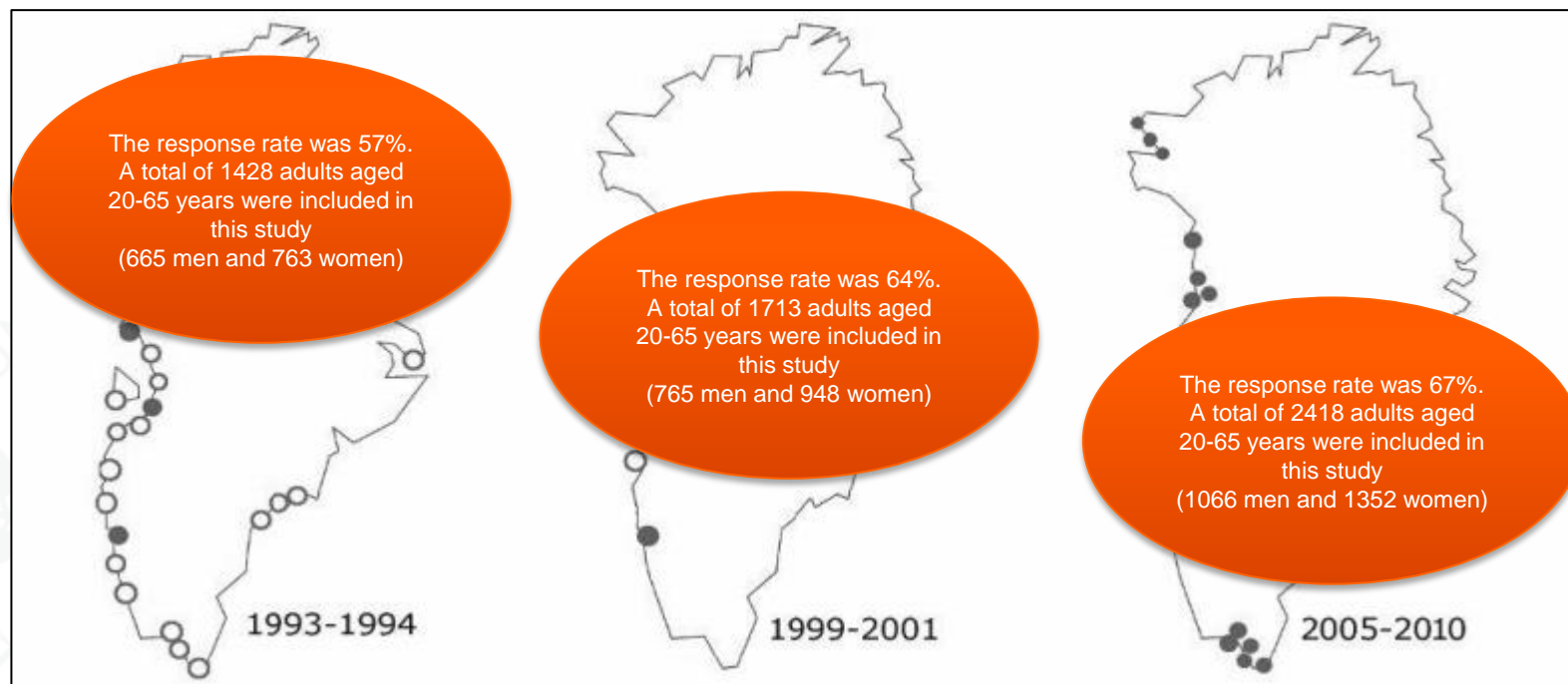
Data

- This study focuses on the health expectancy of the Inuit population of Greenland and do not include the minority Danish population.
- Data originate from interview surveys in Greenland in 1993/94, 1999/01 and 2005/10.



Data

- This study focuses on the health expectancy of the Inuit population of Greenland and do not include the minority Danish population.
- Data originate from interview surveys in Greenland in 1993/94, 1999/01 and 2005/10.





Data

- **Interviews and self-administered questionnaires gave information about**
 - § socio-demographic factors
 - § self-rated health
 - § disease prevalence
 - § lifestyle risk factors
- **Questions relevant to these health states were identical in the three health interviews surveys**
- **The age distribution of the population restricts the number of elderly people in the surveys**
 - § This study was limited to adults aged 20 to 65 years.
- **For comparison between studies the data was geographically weighted according to distribution of region and community size of the whole Inuit population in Greenland at the time of each survey.**



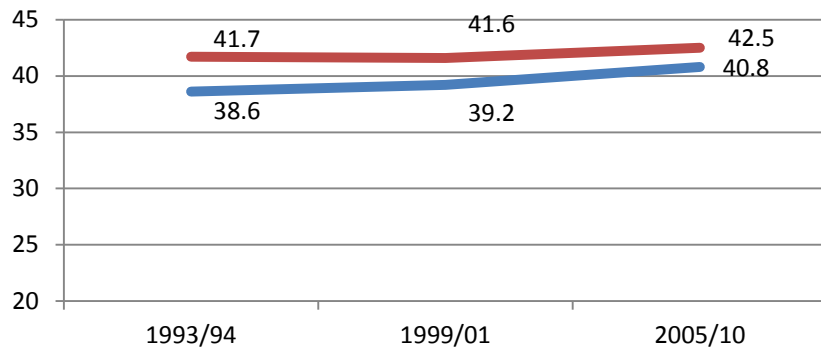
Analysis

- **Standard life tables from Statistics Greenland for 1991-1995, 1998-2002 and 2006-2009 provided information on mortality for the Greenland-born population.**
- **Health expectancies were calculated based on Sullivan's method (Sullivan 1971)**
 - § The total number of expected years lived in a 5-year age interval was calculated from the life tables and multiplied by age-specific proportions of healthy people from the health survey data.
 - § Statistical tests were carried out using a Z-test and confidence intervals were estimated.
- **The differences in partial health expectancies from the first period 1993/94 to the last period 2005/10 was decomposed into contributions made by changes in mortality and prevalence of an unhealthy state (Nusselder, Looman 2004)**



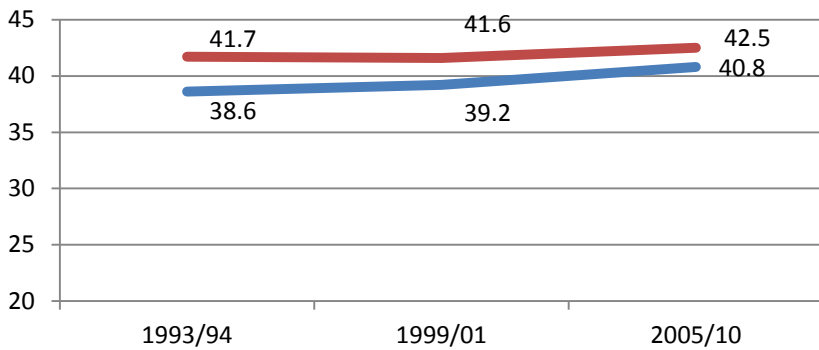
Results

1. During the period 1993 to 2010 partial life expectancy between age 20 and 65 increased for both men and women.

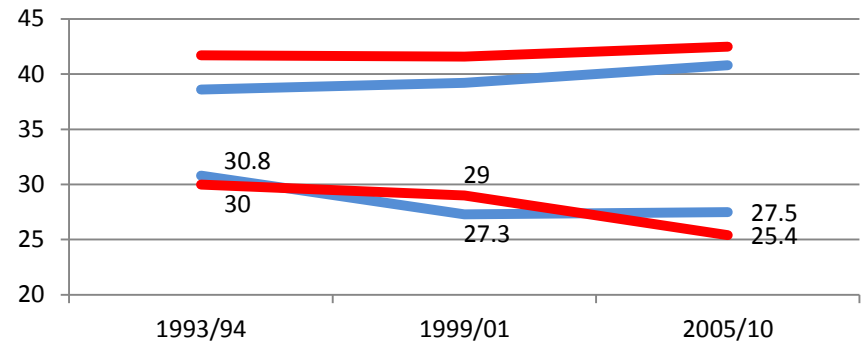


Results

1. During the period 1993 to 2010 partial life expectancy between age 20 and 65 increased for both men and women.



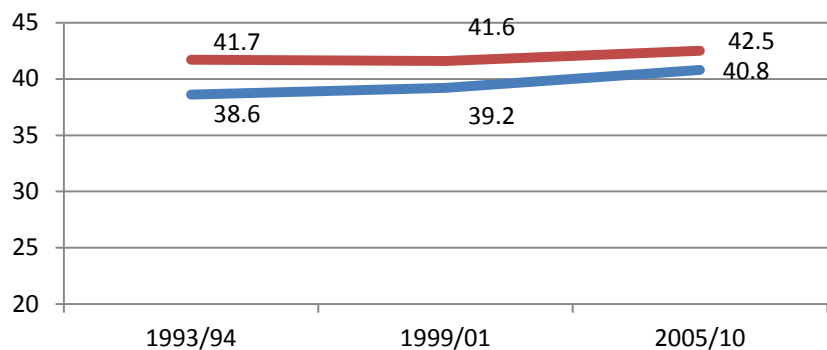
2. Partial lifetime in self-rated good health between age 20 and 65 decreased significantly for both men and women over the period



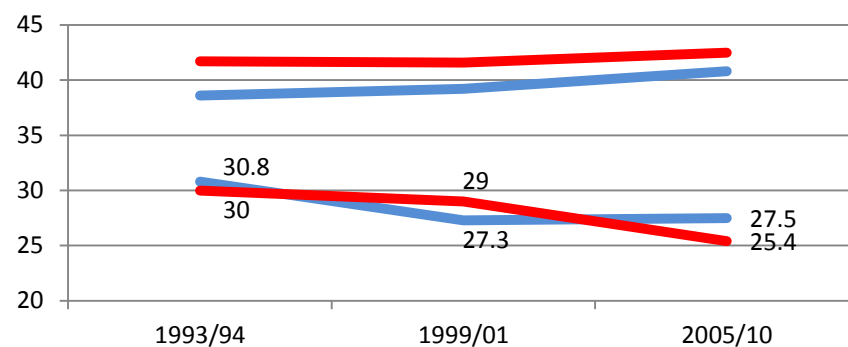


Results

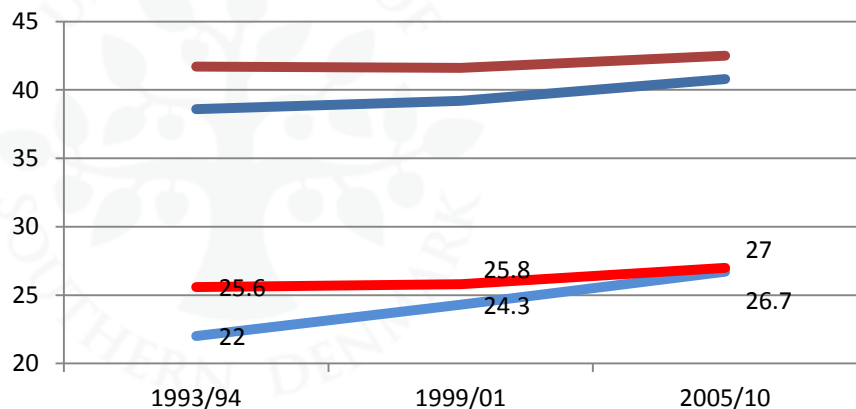
1. During the period 1993 to 2010 partial life expectancy between age 20 and 65 increased for both men and women.



2. Partial lifetime in self-rated good health between age 20 and 65 decreased significantly for both men and women over the period



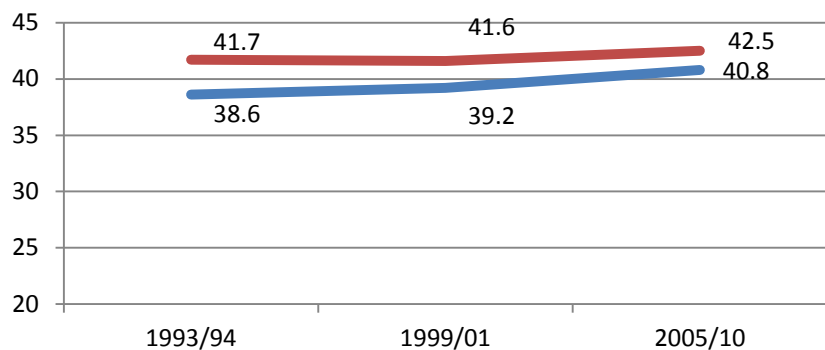
3. Partial life expectancy without longstanding illness between age 20 and 65 increased steadily from 1993 to 2010.



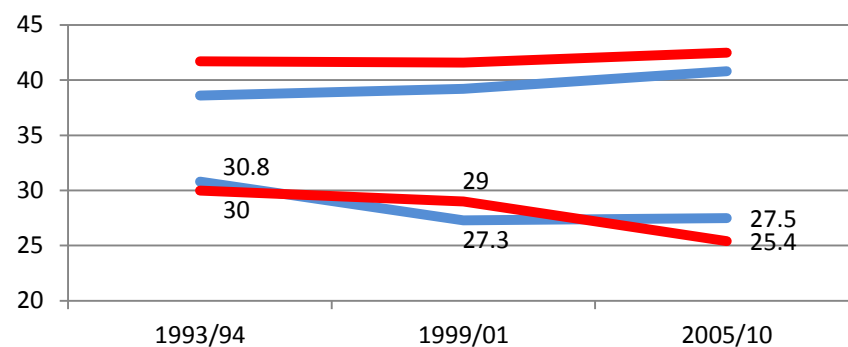


Results

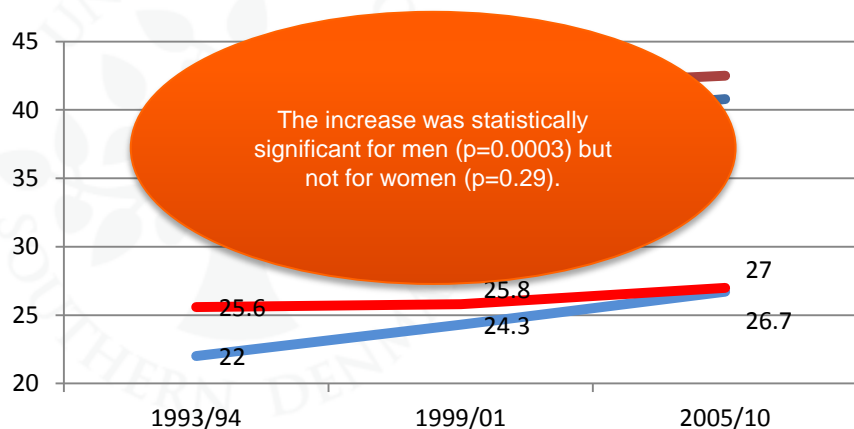
1. During the period 1993 to 2010 partial life expectancy between age 20 and 65 increased for both men and women.



2. Partial lifetime in self-rated good health between age 20 and 65 decreased significantly for both men and women over the period



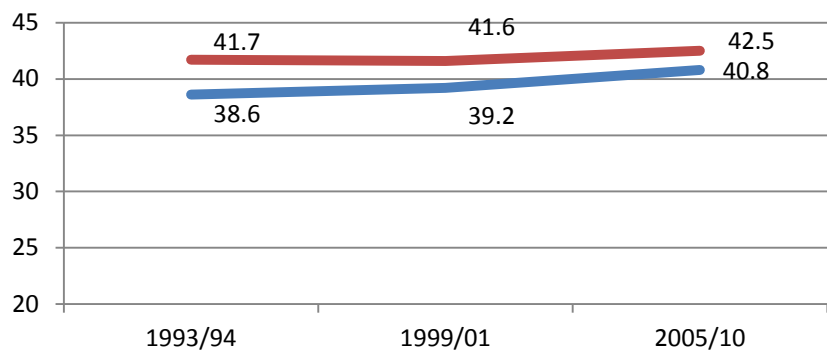
3. Partial life expectancy without longstanding illness between age 20 and 65 increased steadily from 1993 to 2010.



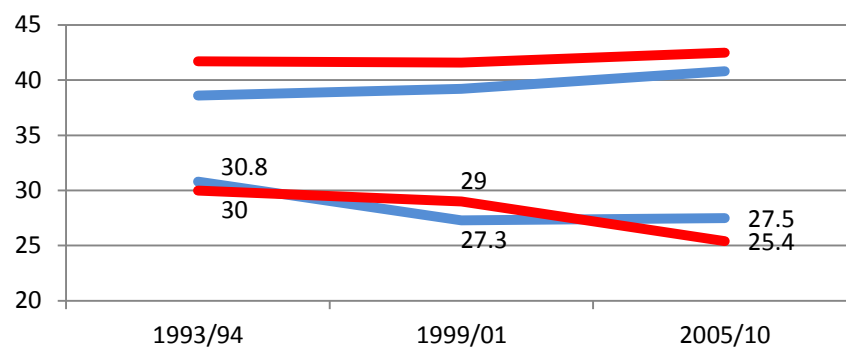


Results

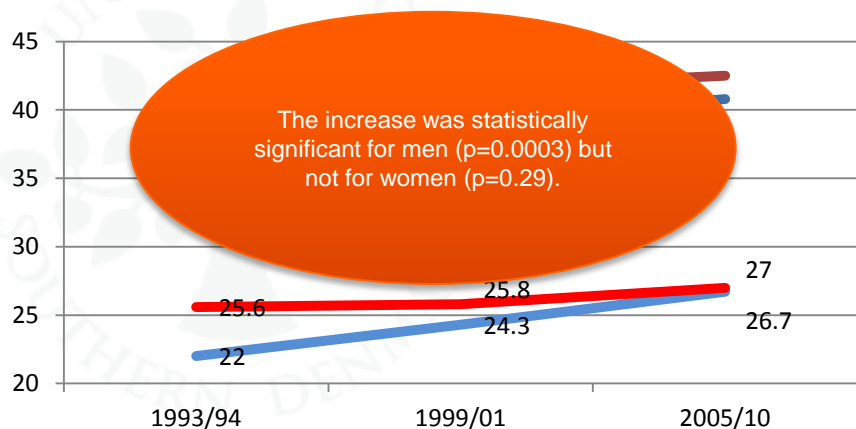
1. During the period 1993 to 2010 partial life expectancy between age 20 and 65 increased for both men and women.



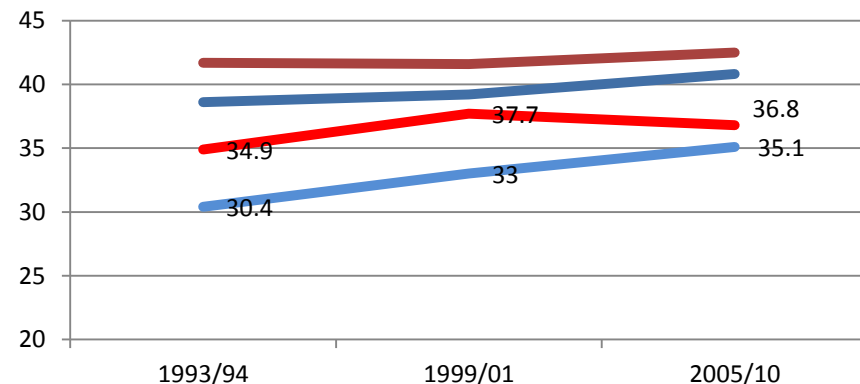
2. Partial lifetime in self-rated good health between age 20 and 65 decreased significantly for both men and women over the period



3. Partial life expectancy without longstanding illness between age 20 and 65 increased steadily from 1993 to 2010.

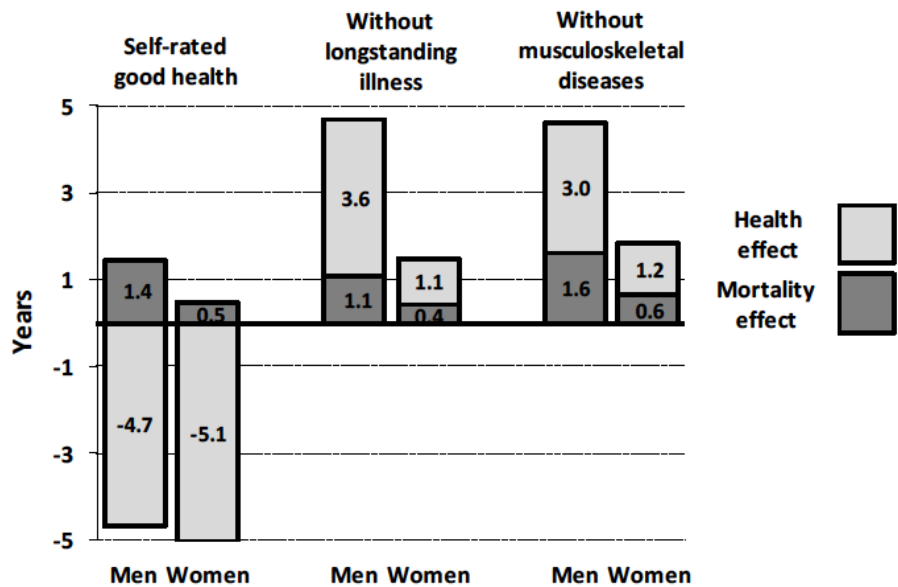


4. Partial life expectancy without musculoskeletal disease between age 20 and 65, depicts a steady increase for men, while there is a peak in 1999/2001 for women





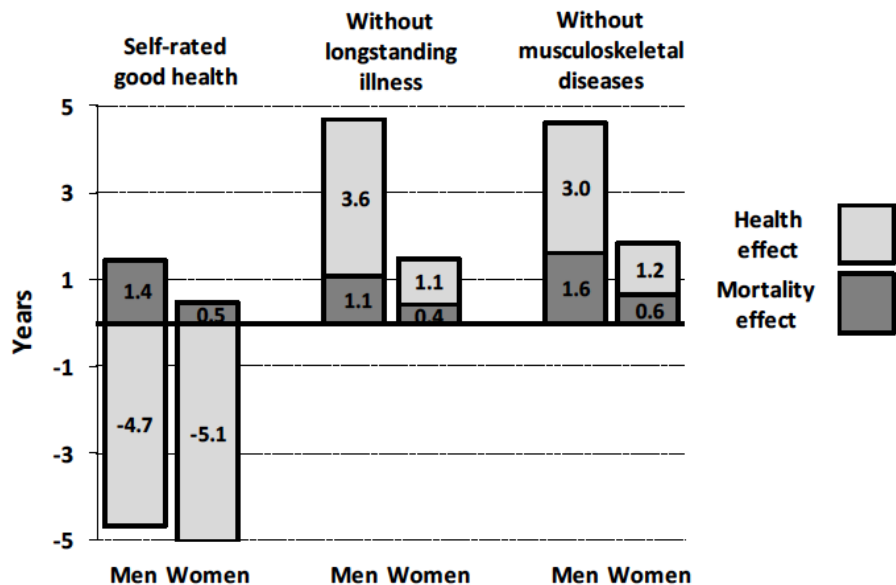
Results





Results

■ In general the mortality effect on the change in health expectancy was almost three times higher for men than for women.





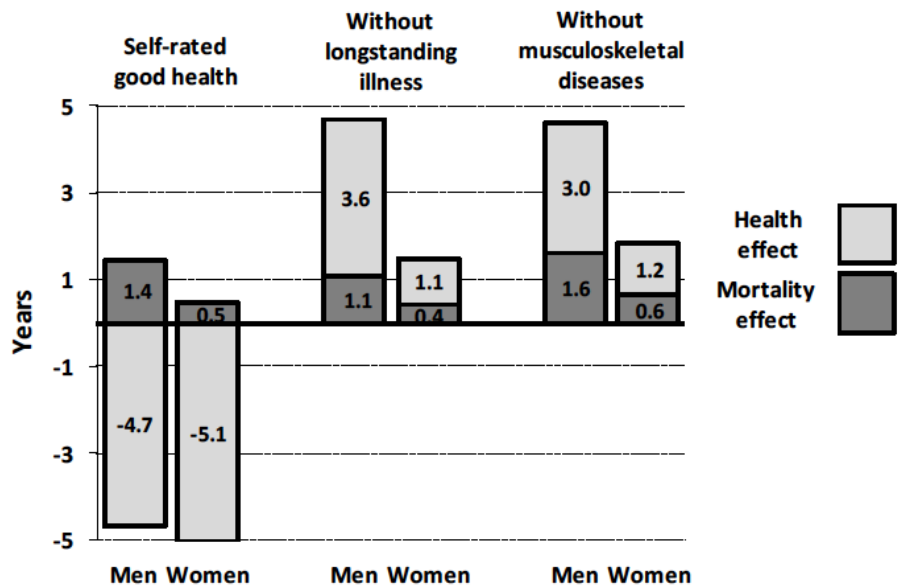
Results



- In general the mortality effect on the change in health expectancy was almost three times higher for men than for women.
- For self-rated good health the contribution from the health effect on the change in self-rated good health was almost the same for men and women



Results



■ In general the mortality effect on the change in health expectancy was almost three times higher for men than for women.

■ For self-rated good health the contribution from the health effect on the change in self-rated good health was almost the same for men and women

■ The contribution from the health effect on the increased lifetime without longstanding illness was significantly higher for men than women.





Results



- In general the mortality effect on the change in health expectancy was almost three times higher for men than for women.
- For self-rated good health the contribution from the health effect on the change in self-rated good health was almost the same for men and women
- The contribution from the health effect on the increased lifetime without long-standing illness was significantly higher for men than women.
- Also the contribution from the health effect on the increased lifetime without musculoskeletal disease was significantly higher for men.



Discussion

- **For both sexes the increase in partial life expectancy was not accompanied by increases in expected lifetime in self-rated good health.**
 - § The proportion of partial life expectancy between age 20 and 65 in self-rated good health decreased
 - § This supports the theory of (absolute) “expansion”

- **The increase in expected number of years lived between the age 20 and 65 without longstanding illness and musculoskeletal disease from 1993/94 to 2005/2010 results in a tendency towards an overall increase in the proportion of expected lifetime without longstanding illness from 1993 to 2010**
 - § This increase in the proportion of healthy life years supports the theory of “compression”

- **The apparent inconsistency in the decrease in prevalence of self-rated good health combined with a general decreasing prevalence of longstanding illnesses and musculoskeletal diseases during the period could support the theory of “dynamic equilibrium”**



Discussion

- **The result indicate a larger mortality effect on the change of healthy life years for Inuit men compared to Inuit women in Greenland for all three health indicators.**
- **For longstanding illnesses and musculoskeletal disease the health effect is also much larger for men than women.**





Discussion

- **The result indicate a larger mortality effect on the change of healthy life years for Inuit men compared to Inuit women in Greenland for all three health indicators.**
- **For longstanding illnesses and musculoskeletal disease the health effect is also much larger for men than women.**
- **One explanation to this phenomenon could pertain to smoking.**





Discussion

- **The result indicate a larger mortality effect on the change of healthy life years for Inuit men compared to Inuit women in Greenland for all three health indicators.**

- **For longstanding illnesses and musculoskeletal disease the health effect is also much larger for men than women.**

- **One explanation to this phenomenon could pertain to smoking.**
 - More than sixty percent of the adult population men and women are daily smokers of cigarettes
 - Although the prevalence of smoking has declined over the last 20 years this decline has been less pronounced among women than among men
 - This is substantiated by a continued increase in lung cancer mortality among women whereas the mortality has stabilized among men and the two sexes now have similar mortality rates



Key Points

- **During the period 1993 to 2010 partial life expectancy between age 20 and 65 increased for both men and women. Although women continue to live longer than men the gender gap in partial life expectancy between age 20 and 65 was reduced from 3.1 in 1993-1994 to 1.7 in 2005-2010.**
- **For both men and women the partial lifetime in self-rated good health decreased significantly ($p < 0.01$) over the period.**
- **The contribution from the health effect on the increased lifetime without longstanding illness as well as lifetime without musculoskeletal diseases was significantly higher for men than women**
- **These results call for special concern about the women's health in Greenland.**



Limitation

- **A limitation is the possible difference in the health status of respondents and non-respondents**
- **A countrywide estimate will not be suitable for regional indicators**
 - § Population heterogeneity exists according urbanization



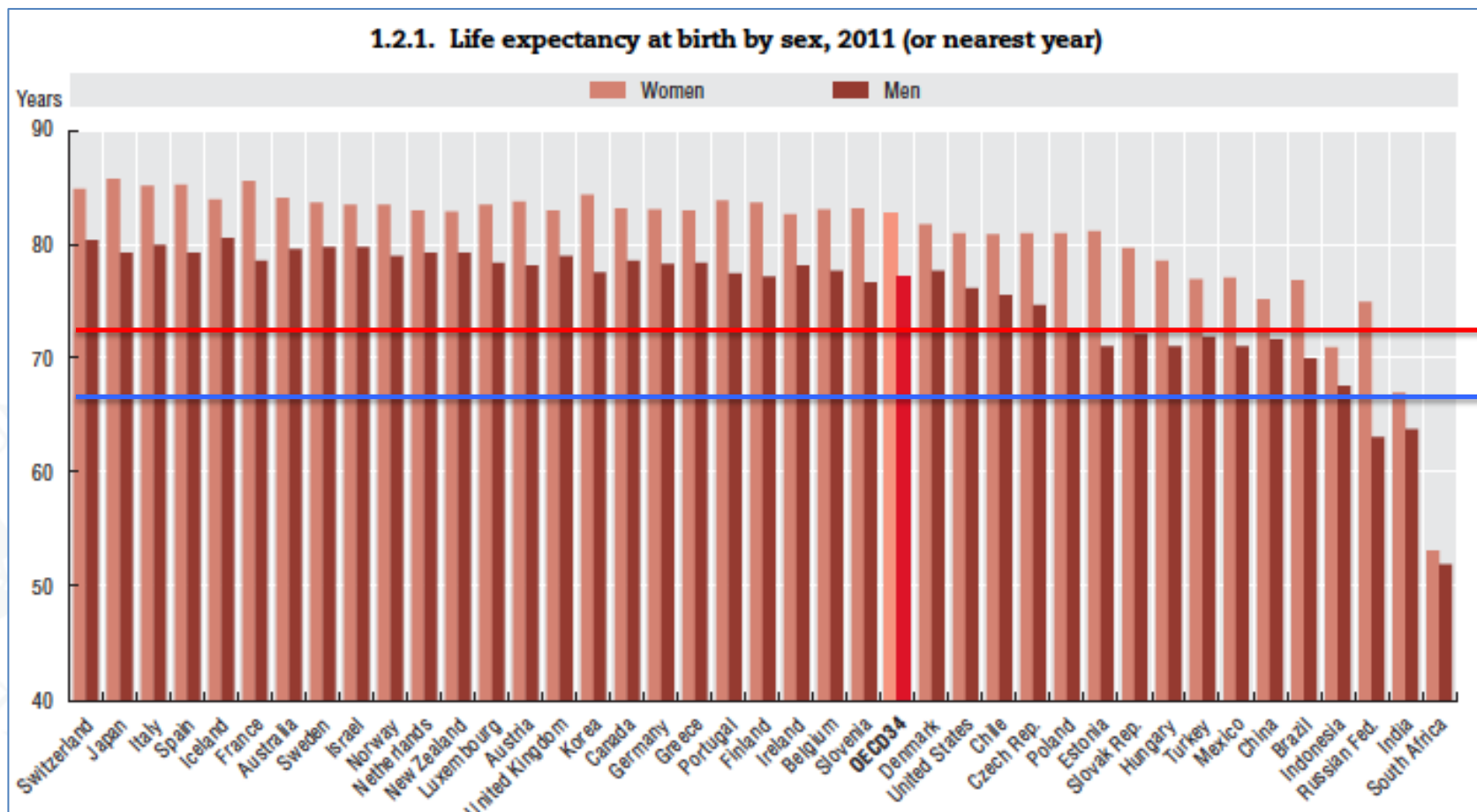
Thank you





Comparative facts

- Life expectancy at birth for Inuit men and women in Greenland in 2010 were 66.7 and 72.4 years, respectively.

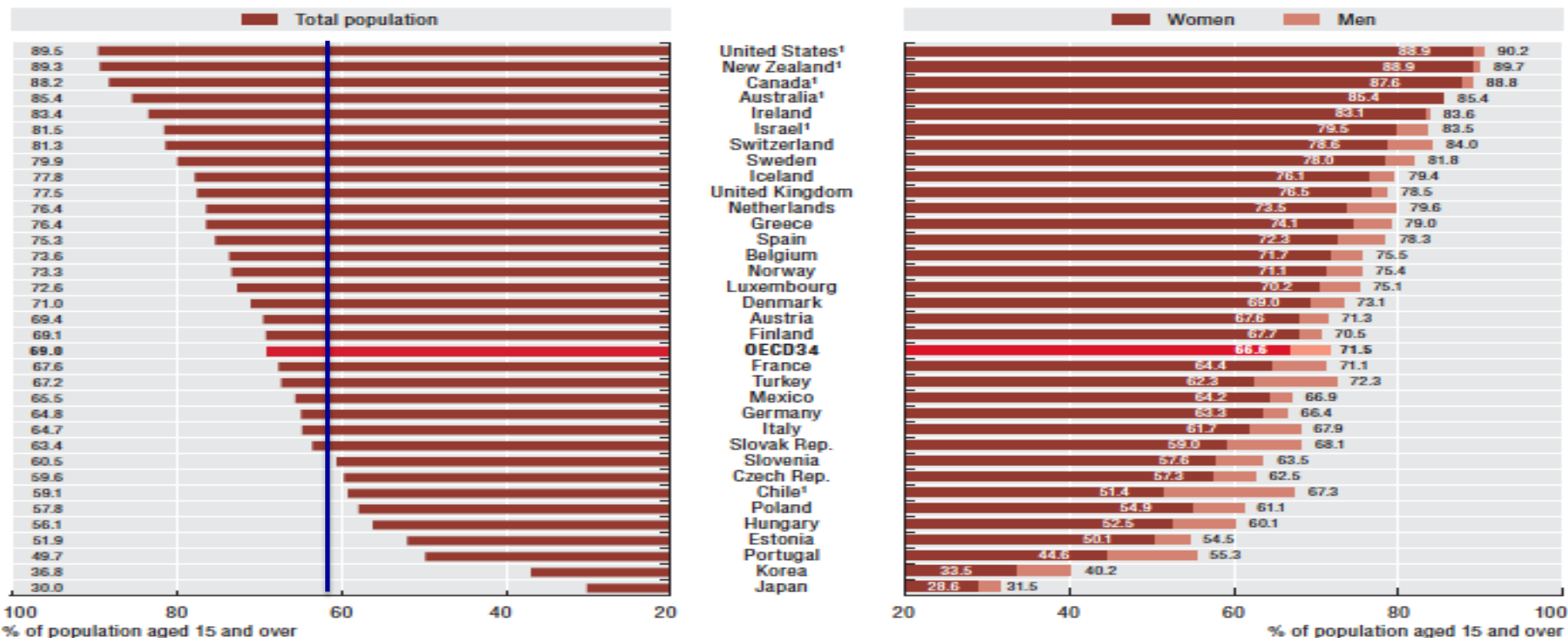




Comparative facts

- The total proportion of the 20 to 65 year old Inuit men and women in Greenland who reported having a self-rated good health fell from 77.6% in 1993/1994 to 62.7% in 2006-2010.

1.9.1. Percentage of adults reporting to be in good health, 2011 (or nearest year)



1. Results for these countries are not directly comparable with those for other countries, due to methodological differences in the survey questionnaire resulting in an upward bias.

Source: OECD Health Statistics 2013 (EU-SILC for European countries), <http://dx.doi.org/10.1787/health-data-en>.