

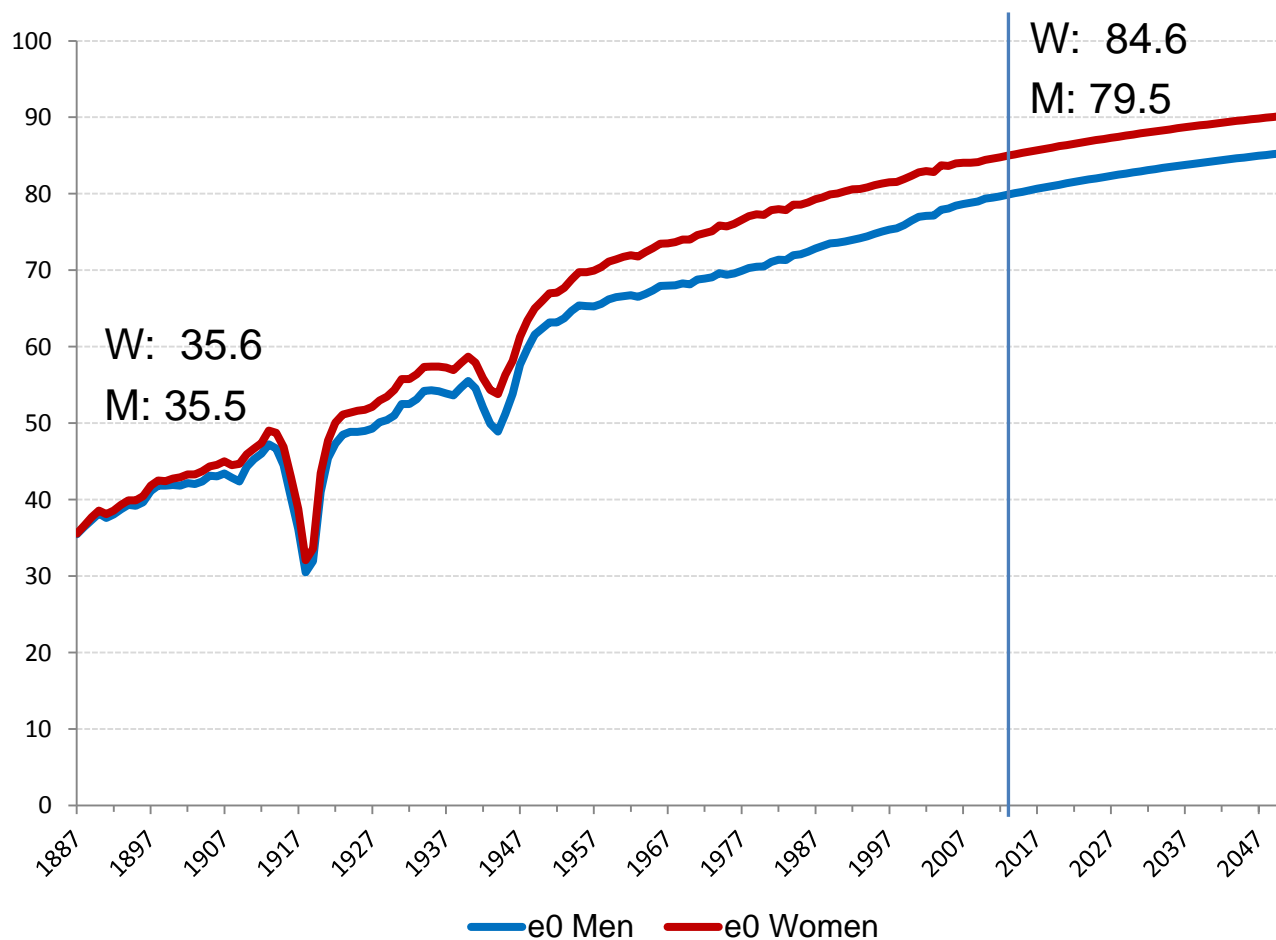


**Controlling prospective age by health status:
how to rejuvenate the population
by improving health**

Elena Demuru and Viviana Egidi



The “longevity revolution”

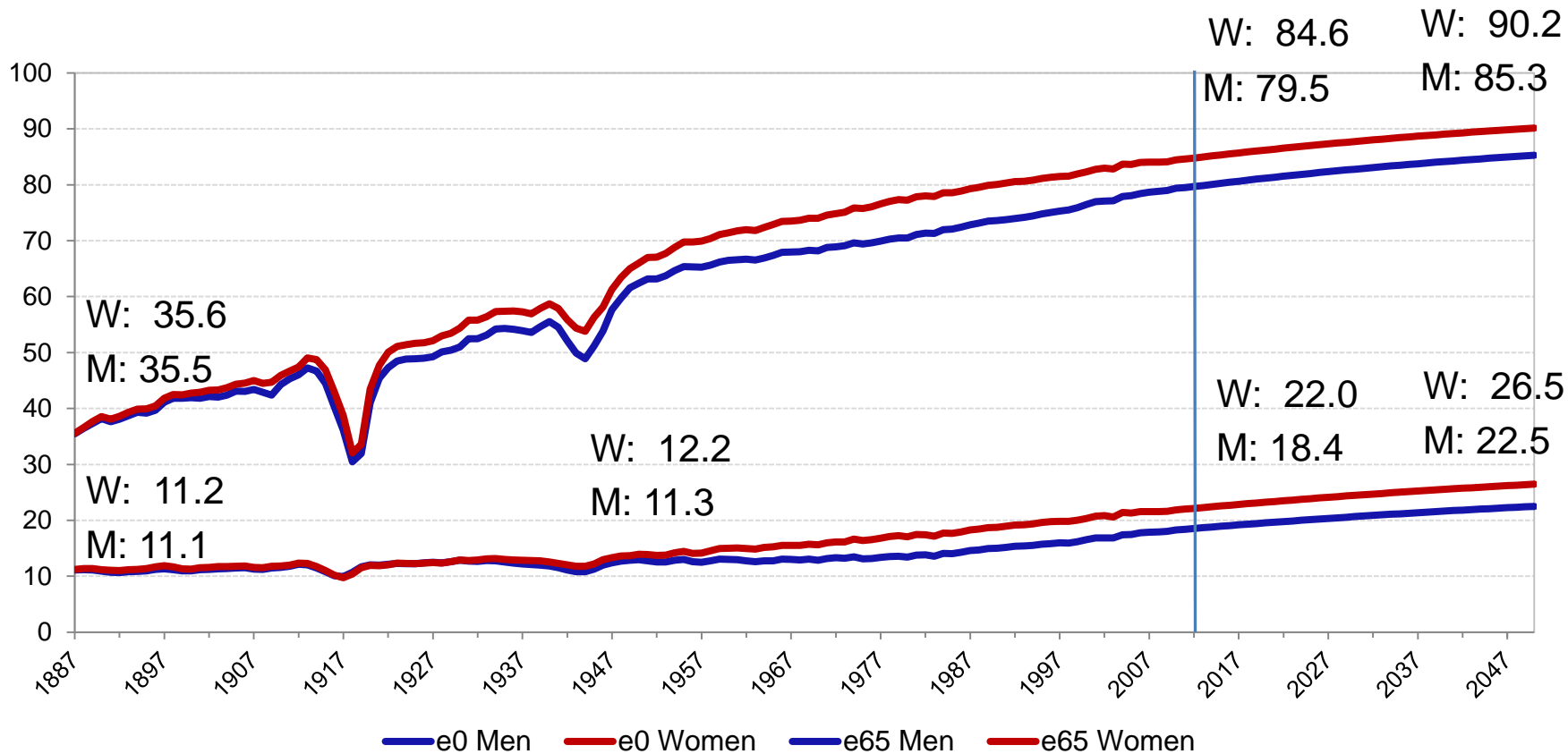


Survival probability

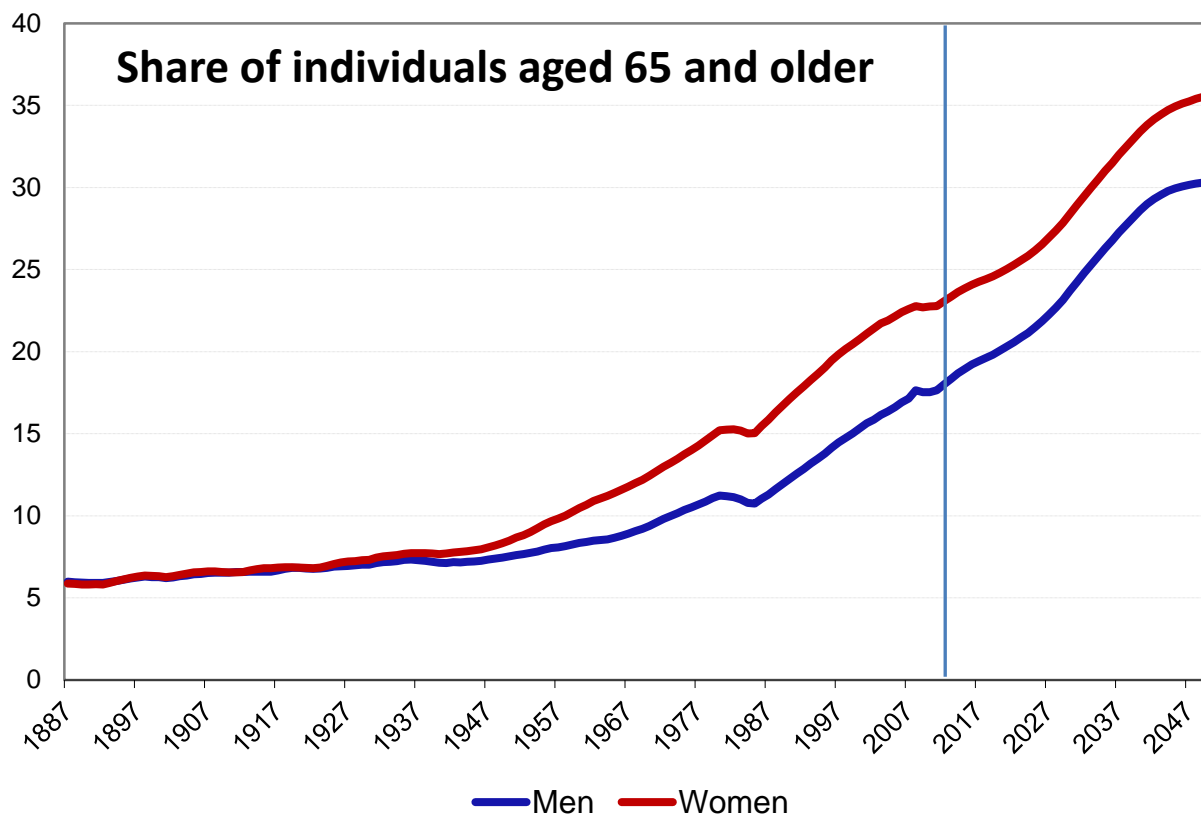
	M	W
<u>1887</u>		
age 65	0.29	0.29
age 75	0.15	0.15
age 85 and over	0.03	0.03
<u>2011</u>		
age 65	0.88	0.93
age 75	0.72	0.85
age 85 and over	0.40	0.59
<u>2050</u>		
age 65	0.94	0.97
age 75	0.85	0.92
age 85 and over	0.61	0.78



The “longevity revolution”



An unprecedented phenomenon...



Calendar Years	>=65 years old (%)	
	M	W
1887	6	6
1900	7	7
1950	8	10
2000	18	23
2013	18	23
2050	30	36

...which affects in many ways the Italian social and economic structure



Challenge or opportunity?

- Micro success, macro failure?
- Is longevity sustainable?
- Can we assure well-being for all currently coexisting generations (4-5)?

- Are we able to see **the positive sides**?
- Can we **find new equilibria** to adapt the social and economic organization to an ageing population structure?

A first step:

A “correct” quantification of the magnitude of population ageing...



Towards new measures of ageing

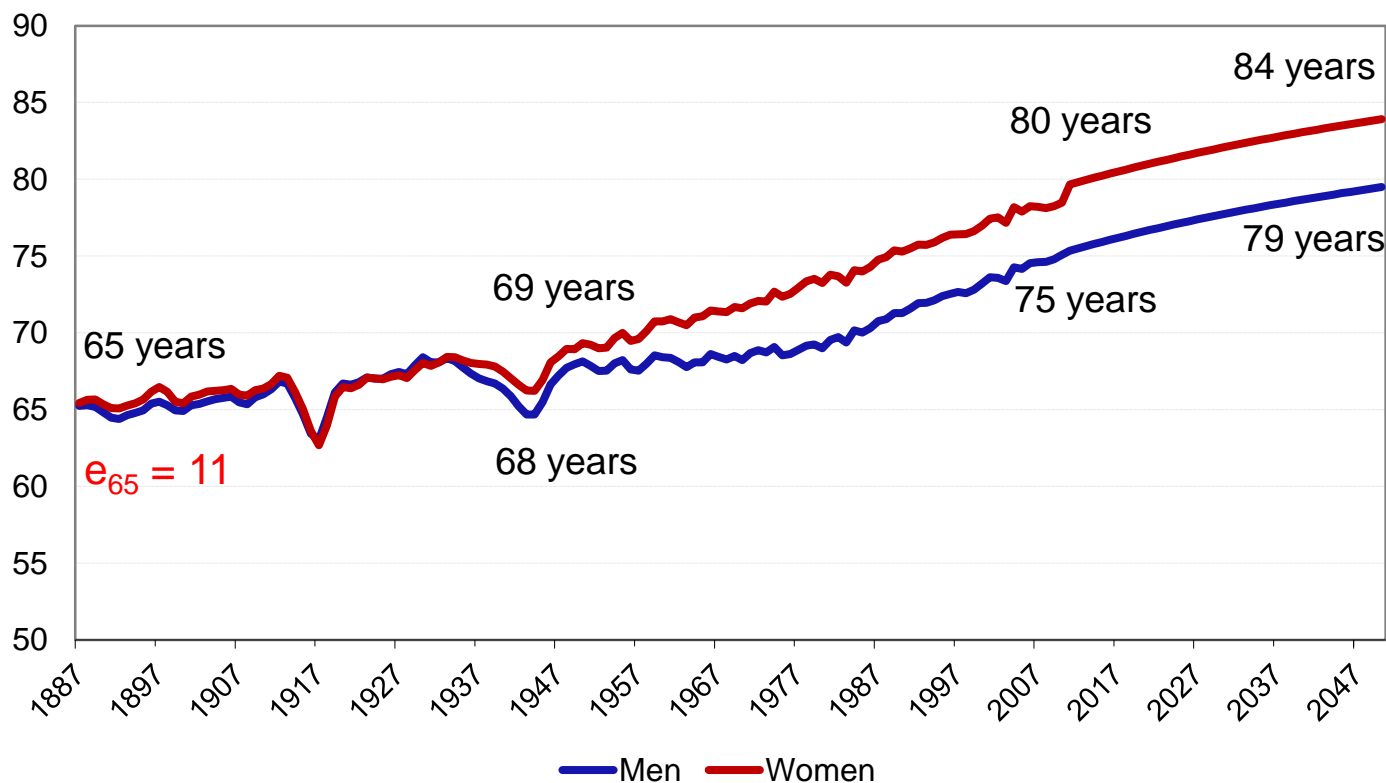
- Measures of population ageing based on chronological age assume constant conditions over time within each age group
- Prospective age rather than retrospective age should be used to define the threshold of old age

Due to the “longevity revolution” and the “stretching” of the life course, nowadays older and older individuals can be compared (in terms of remaining life expectancy) to a person living at the end of the XIX century

- **Prospective old-age thresholds could be further enhanced by including information on the population’s health status...**



Prospective age: age corresponding to 65 years in 1887



Age at which the **remaining life expectancy** equals that observed for people aged 65 years old in 1887 (i.e. 11 years):

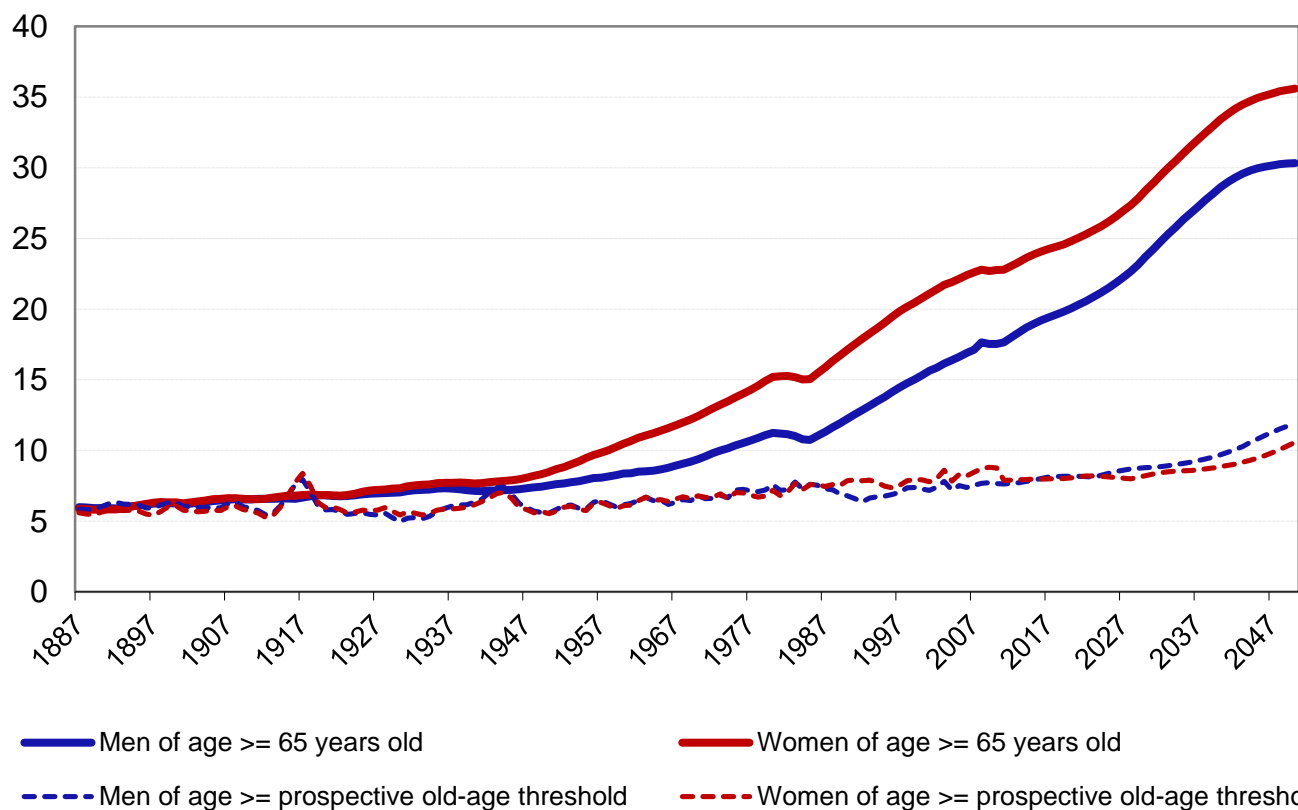
75 for men and 80 for women in 2013

79 for men and 84 for women in 2050

- increase of **10-15 years** in 125 years (1 month per year)
- increase of **7-11** years only in the last 60 years (2 months per year)
- expected increase of **14-19** years up to 2050

Different measures of population ageing

*Share of the elderly (%):
a comparison between chronological age and prospective age (ref. year: 1887)*



Years	% \geq prospective old-age threshold (ex= 11 years)	
	M	W
1887	6	6
1900	6	6
1950	6	6
2000	7	8
2013	8	8
2050	12	11



Changing health conditions over age 65: disability

	MEN					WOMEN				
	1991	1994	2000	2005	2012	1991	1994	2000	2005	2012
65 years										
LE	15.2	15.5	16.5	17.5	18.3	19.0	19.4	20.4	21.3	21.8
DFLE	12.1	12.7	13.7	14.6	15.5	13.8	14.1	14.9	15.6	16.0
DLE	3.0	2.8	2.8	2.8	2.9	5.1	5.2	5.4	5.6	5.7
HR (*100)	80.1	81.9	83.1	83.7	84.4	72.9	73.0	73.3	73.5	73.7
70 years										
LE	12.0	12.3	13.0	13.7	14.5	15.0	15.3	16.2	17.1	17.5
DFLE	9.0	9.5	10.3	10.9	11.7	10.0	10.3	10.9	11.5	11.8
DLE	3.0	2.8	2.8	2.9	2.8	5.0	5.1	5.3	5.5	5.7
HR (*100)	75.2	77.2	78.8	79.2	80.5	66.7	66.9	67.3	67.5	67.6
75 years										
LE	9.1	9.3	10.0	10.5	11.0	11.3	11.6	12.4	13.1	13.5
DFLE	6.1	6.6	7.2	7.6	8.2	6.6	6.8	7.3	7.7	8.0
DLE	3.0	2.8	2.7	2.9	2.8	4.7	4.8	5.1	5.4	5.5
HR (*100)	67.4	70.5	72.5	72.4	74.4	58.5	58.5	59.0	59.1	59.5

Good health increases more than survival: **higher proportion of years lived without disability**

Much smaller increases for women, especially at older ages

Relative compression of disability



Changing health conditions over age 65: self-perceived health

	MEN				WOMEN			
	1994	2000	2005	2012	1994	2000	2005	2012
65 years								
LE	15.5	16.5	17.5	18.3	19.4	20.4	21.3	21.8
HLE	11.0	12.3	14.4	15.3	12.9	14.8	15.9	16.5
PHLE	4.5	4.3	3.0	3.0	6.5	5.6	5.3	5.3
HR (*100)	71.0	74.1	82.7	83.6	66.7	72.6	74.9	75.7
70 years								
LE	12.3	13.0	13.7	14.5	15.3	16.2	17.1	17.5
HLE	8.1	9.1	10.9	11.8	9.9	11.2	12.2	12.7
PHLE	4.2	3.9	2.8	2.7	5.5	5.0	4.8	4.8
HR (*100)	66.2	70.2	79.6	81.1	64.4	69.0	71.8	72.4
75 years								
LE	9.3	10.0	10.5	11.0	11.6	12.4	13.1	13.5
HLE	5.7	6.6	8.0	8.6	7.2	8.1	8.9	9.2
PHLE	3.6	3.3	2.5	2.4	4.4	4.3	4.2	4.2
HR (*100)	61.2	66.4	76.0	77.9	61.8	65.6	68.2	68.7

Improvements are notable among men...

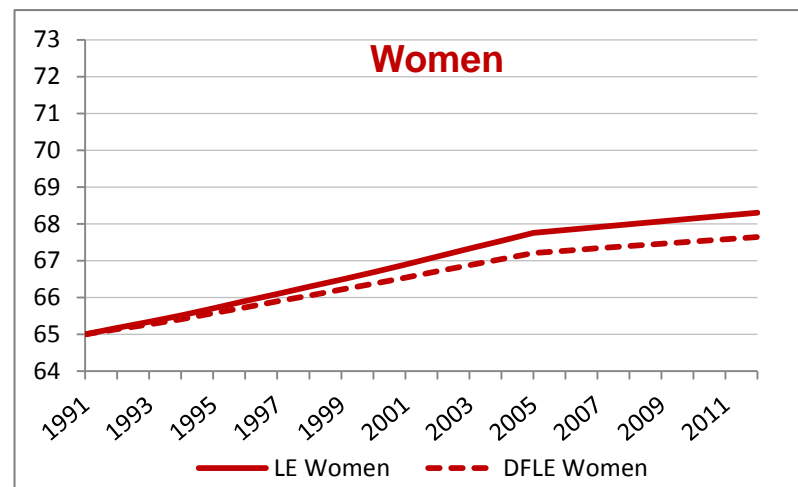
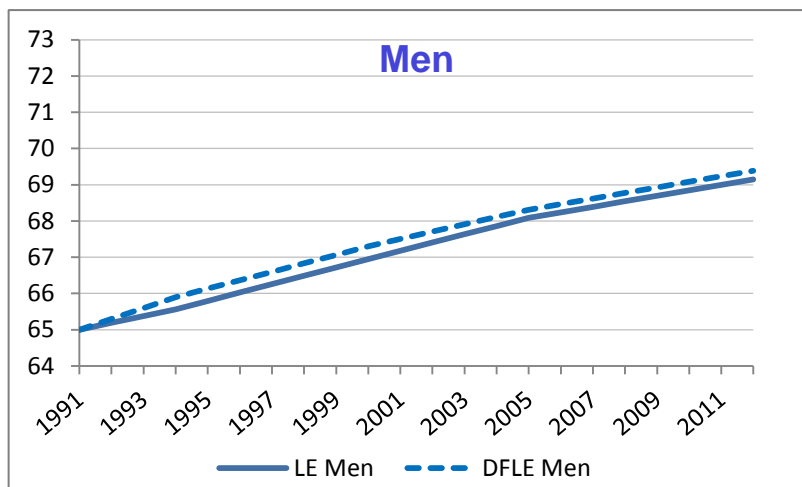
... and among women (but smaller in respect to men)

Absolute compression of poor self-perceived health

Towards a prospective age which takes into account health conditions: disability (ref. year 1991)

Assuming the same survival at age 65 among men and women,
prospective age without disability increased...

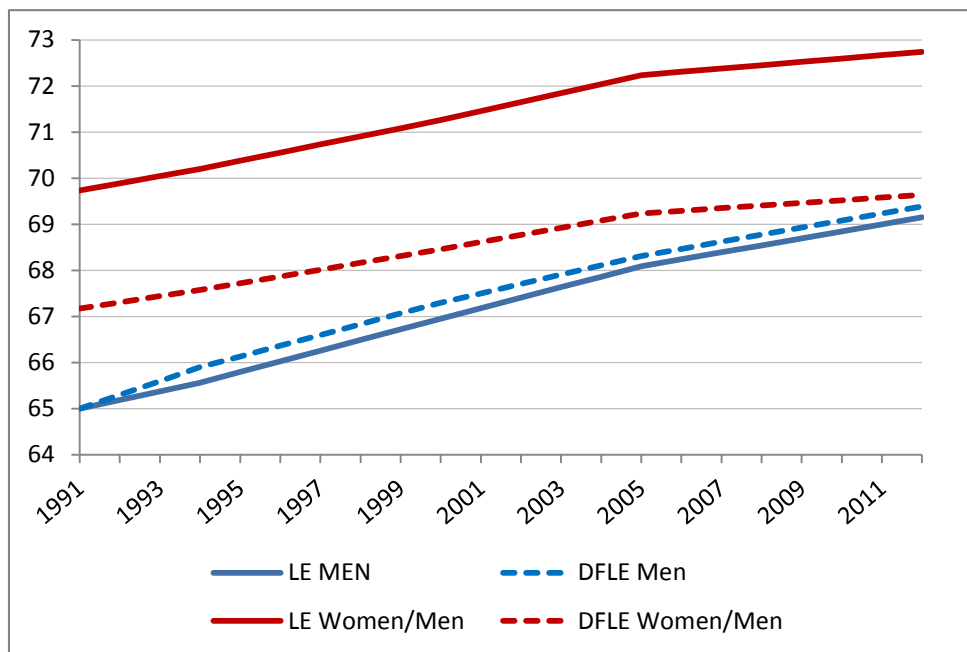
Prospective age without disability	MEN					WOMEN					M	W
	1991	1994	2000	2005	2012	1991	1994	2000	2005	2012		
LE	<u>65</u>	65.6	67.0	68.1	<u>69.1</u>	<u>65</u>	65.5	66.7	67.8	<u>68.3</u>	+4.1	+3.3
DFLE	<u>65</u>	65.9	67.3	68.3	<u>69.4</u>	<u>65</u>	65.4	66.4	67.2	<u>67.6</u>	+4.4	+2.6



...more than total prospective age among men ...less than total prospective age among women

Towards a prospective age which takes into account health conditions: disability (ref. year 1991)

Prospective age without disability	MEN					WOMEN					WOMEN/MEN				
	1991	1994	2000	2005	2012	1991	1994	2000	2005	2012	1991	1994	2000	2005	2012
LE	<u>65</u>	65.6	67.0	68.1	<u>69.1</u>	65	65.5	66.7	67.8	68.3	<u>69.7</u>	70.2	71.3	72.2	<u>72.7</u>
DFLE	<u>65</u>	65.9	67.3	68.3	<u>69.4</u>	65	65.4	66.4	67.2	67.6	<u>67.2</u>	67.6	68.5	69.2	<u>69.6</u>



PROSPECTIVE COMPARATIVE AGE OF WOMEN IN RESPECT TO MEN:
women still grow old later than men but the gap is strongly reduced (almost eliminated) when considering disability free life expectancy



Towards a prospective age which takes into account health conditions: disability (ref. year 1991)

Prospective age without disability	MEN					WOMEN					WOMEN/MEN				
	1991	1994	2000	2005	2012	1991	1994	2000	2005	2012	1991	1994	2000	2005	2012
LE	<u>65</u>	65.6	67.0	68.1	<u>69.1</u>	65	65.5	66.7	67.8	68.3	<u>69.7</u>	70.2	71.3	72.2	<u>72.7</u>
DFLE	<u>65</u>	65.9	67.3	68.3	<u>69.4</u>	65	65.4	66.4	67.2	67.6	<u>67.2</u>	67.6	68.5	69.2	<u>69.6</u>

Calendar years	% >= prospective old-age threshold for men without disability 1991	
	M	W
1991	13	15
2005	13	18
2012	14	19

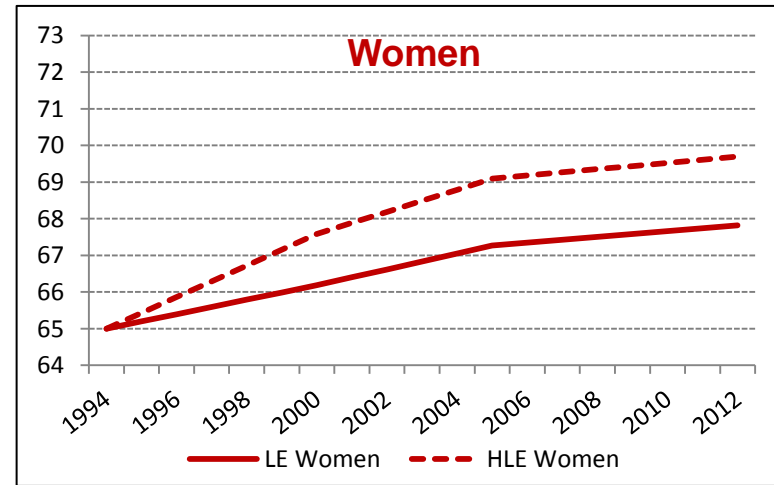
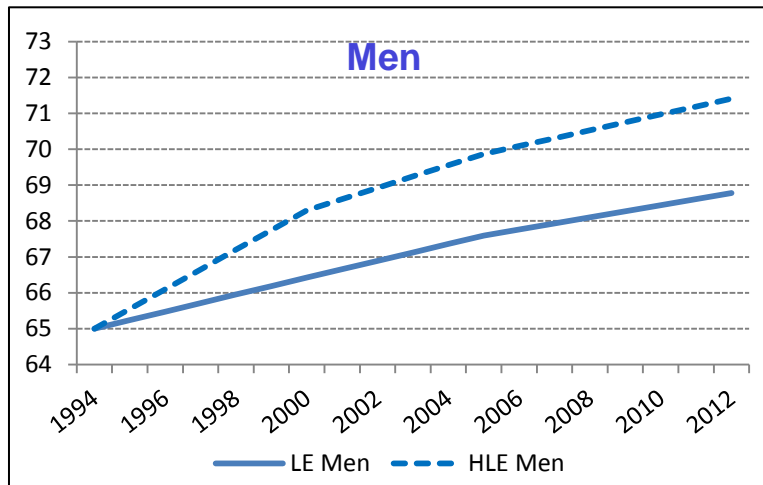
The share of the elderly in the population **increases slightly for men, more for women.**

For both men and women, population ageing is much less pronounced than if measured by chronological age



Towards a prospective age which takes into account health conditions: self-perceived health (ref. year 1994)

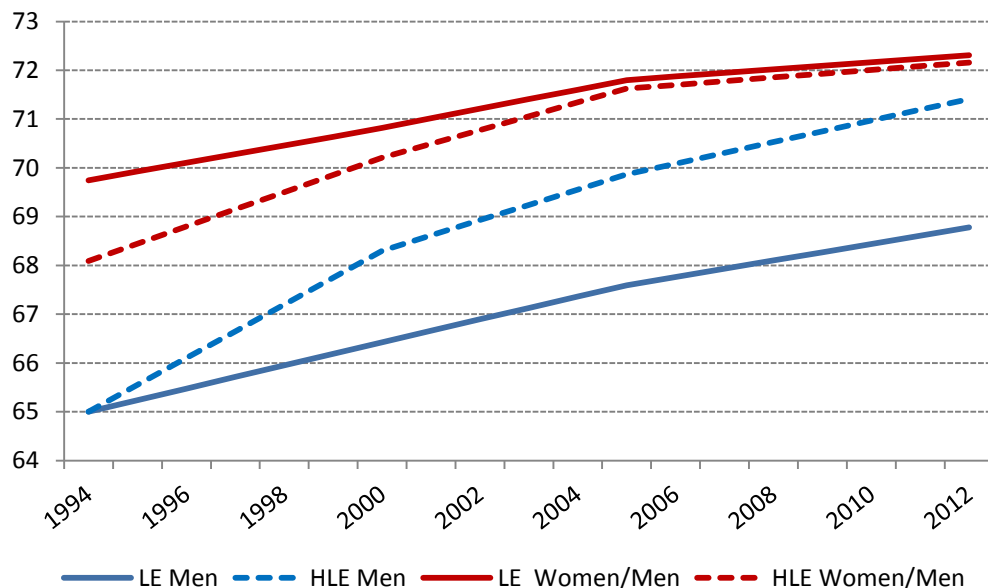
Prospective age in good self perceived health	MEN				WOMEN				M	W
	1994	2000	2005	2012	1994	2000	2005	2012		
LE	<u>65.0</u>	66.4	67.6	<u>68.8</u>	<u>65.0</u>	66.2	67.3	<u>67.8</u>	+ 2.6	+2.3
HLE	<u>65.0</u>	68.3	69.9	<u>71.4</u>	<u>65.0</u>	67.6	69.1	<u>69.7</u>	+ 4.9	+4.1



Prospective age **in good self-perceived health** increased **more** than total prospective age, but a **deceleration** can be observed since the year 2000

Towards a prospective age which takes into account health conditions: self-perceived health (ref. year 1994)

Prospective age in good self perceived health	MEN				WOMEN				WOMEN/MEN			
	1994	2000	2005	2012	1994	2000	2005	2012	1994	2000	2005	2012
LE	<u>65.0</u>	66.4	67.6	<u>68.8</u>	65.0	66.2	67.3	67.8	<u>69.7</u>	70.8	71.8	<u>72.3</u>
HLE	<u>65.0</u>	68.3	69.9	<u>71.4</u>	65.0	67.6	69.1	69.7	<u>68.1</u>	70.2	71.6	<u>72.2</u>



PROSPECTIVE COMPARATIVE AGE OF WOMEN IN RESPECT TO MEN:
A wide **gap** between men and women persists; however, it is **strongly reduced** when considering **healthy life expectancy**

Towards a prospective age which takes into account health conditions: self-perceived health (ref. year 1994)

Prospective age in good self perceived health	MEN				WOMEN				WOMEN/MEN			
	1994	2000	2005	2012	1994	2000	2005	2012	1994	2000	2005	2012
LE	<u>65.0</u>	66.4	67.6	<u>68.8</u>	65.0	66.2	67.3	67.8	<u>69.7</u>	70.8	71.8	<u>72.3</u>
HLE	<u>65.0</u>	68.3	69.9	<u>71.4</u>	65.0	67.6	69.1	69.7	<u>68.1</u>	70.2	71.6	<u>72.2</u>

Calendar years	% >= prospective old-age threshold for men in good self-perceived health 1994	
	M	W
1994	13	13
2012	12	16

Among women, the **increase** of prospective age in good self-perceived health alone **could not prevent** population ageing...

... which is however much less pronounced than if measured by chronological age



Conclusions (1)

- Population ageing: one of the biggest challenges, resulting from the conquest of longevity
- Is population ageing socially and economically sustainable?
 - **It depends on the future trends of health conditions among the elderly**
- Until now, improving health status in old age along with increasing survival:
 - the years gained are mostly in good self-perceived and without disability (especially severe disability)
 - Rejuvenation of men when considering thresholds based on healthy life expectancy and limited ageing when considering thresholds based on disability free life expectancy
 - **Some negative signs for older women**



Conclusions (2)

- **Strategy for Healthy Ageing : do not focus only on third age!!**
 - Prevention of diseases and disability is fundamental during all stages of life : Healthy ageing should become a goal for individuals, for societies, and for policy makers
 - Limiting health policies to old age implies a lengthening of the portion of life to be lived in poor health



Thank you for your attention!

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