

Trends in Regional Survival Inequalities

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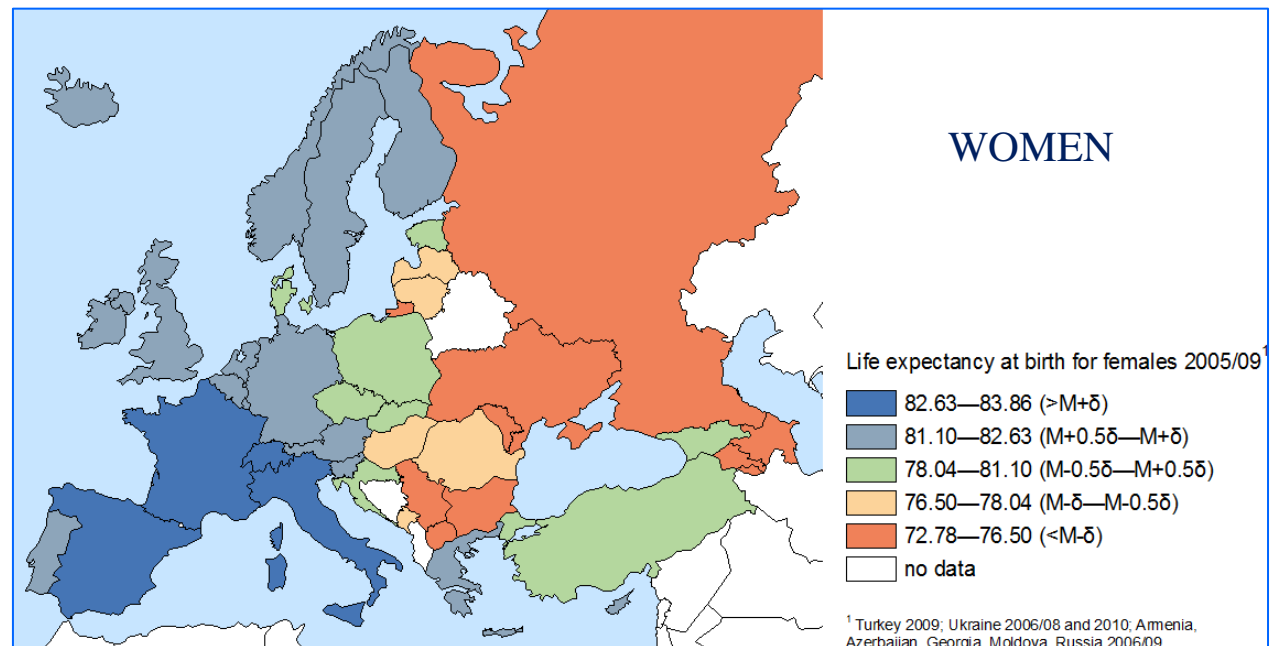
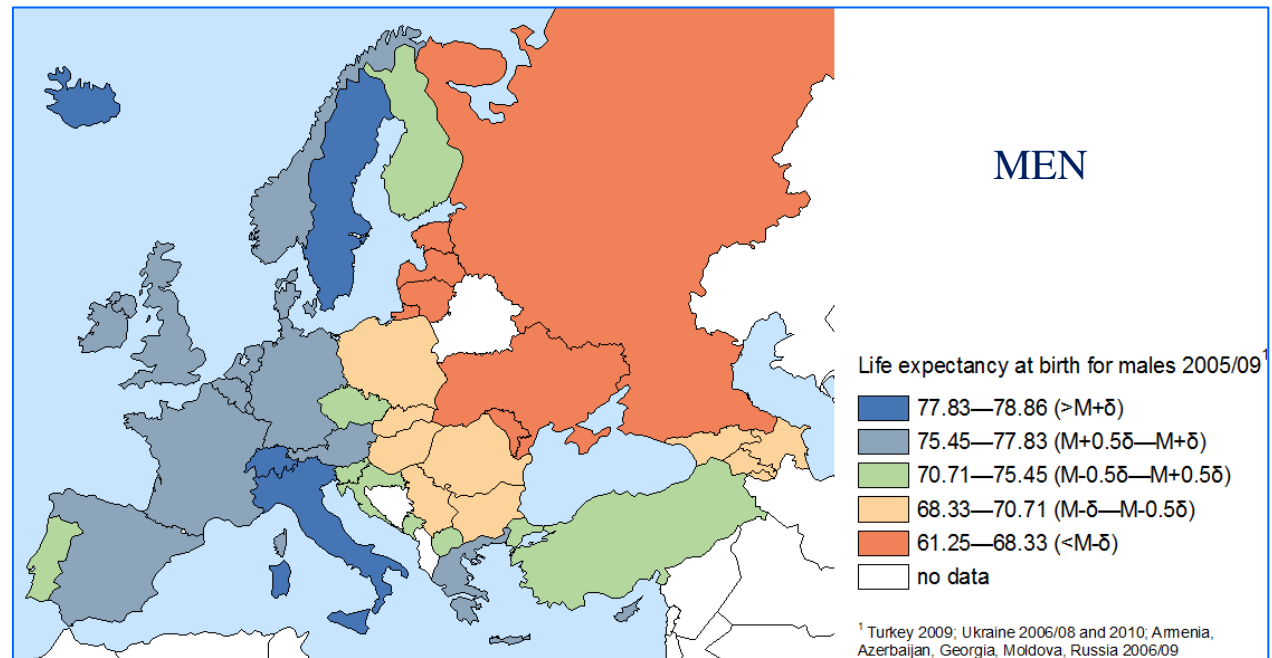
**LONG-LIVE EUROPE: DEMOGRAPHIC PROSPECTS FOR EUROPE
IN THE NEXT DECADES**
(Prague, 1 June 2012)

Outline

1. The Geography of European Life Expectancy at birth
 2. Divergence-Convergence-Divergence in Life-Expectancy changes
 3. Convergence or Divergence in the next decades?
 4. Increasing Life Expectancy at 65 and 80 years
 5. The impact of increasing longevity on pension systems
 6. Discussion
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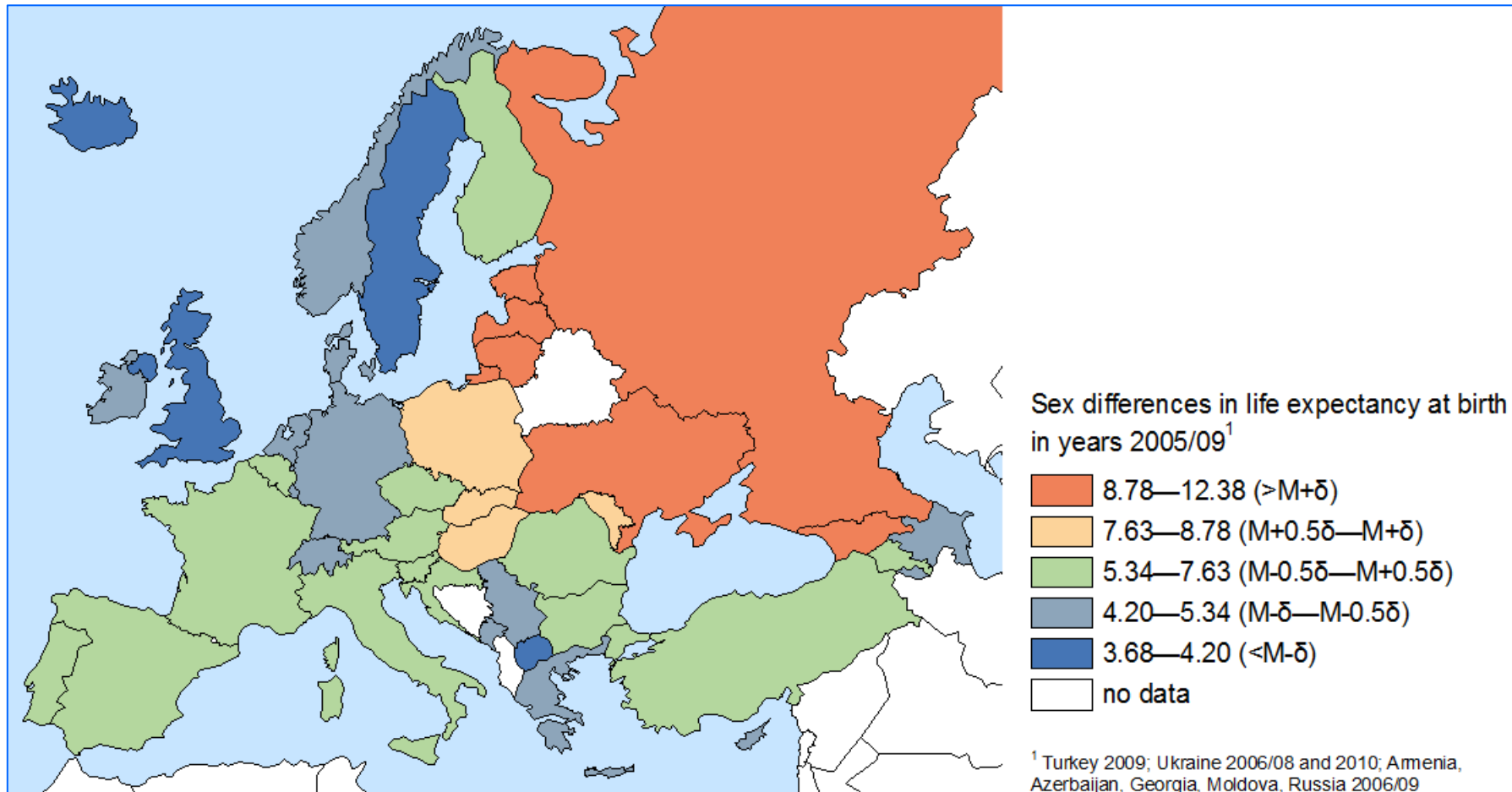
1. The geography of European Life Expectancy at birth

Regional disparities in Life Expectancy at birth in Europe. Years 2005/2009



Source: Elaboration on UN data
by Christian Wagner, VID
Vienna Institute of Demography

Differences in Life Expectancy at birth between Women and Men in Europe. Years 2005/2009

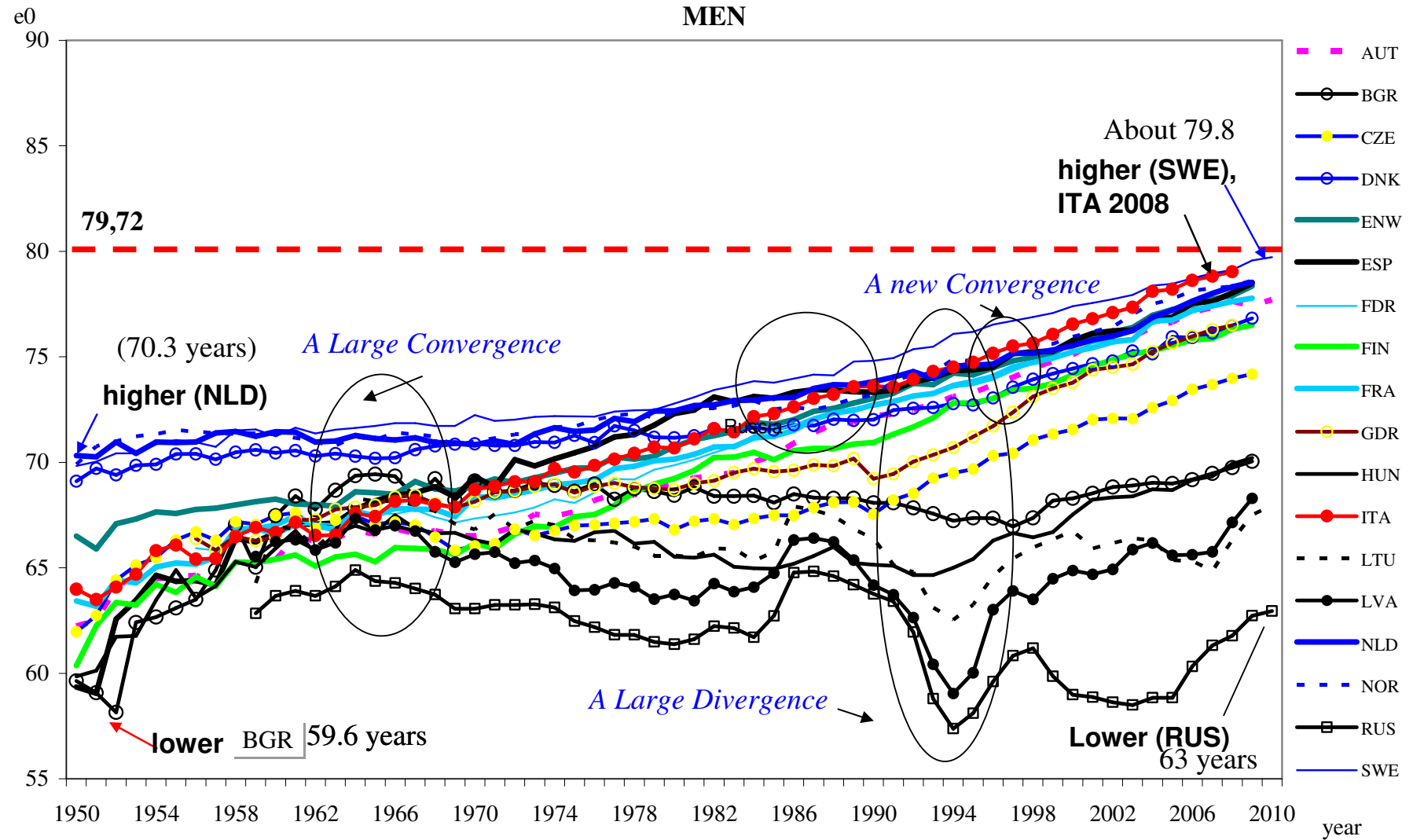


Source: Elaboration on UN data by Christian Wagner, VID-Vienna Institute of Demography

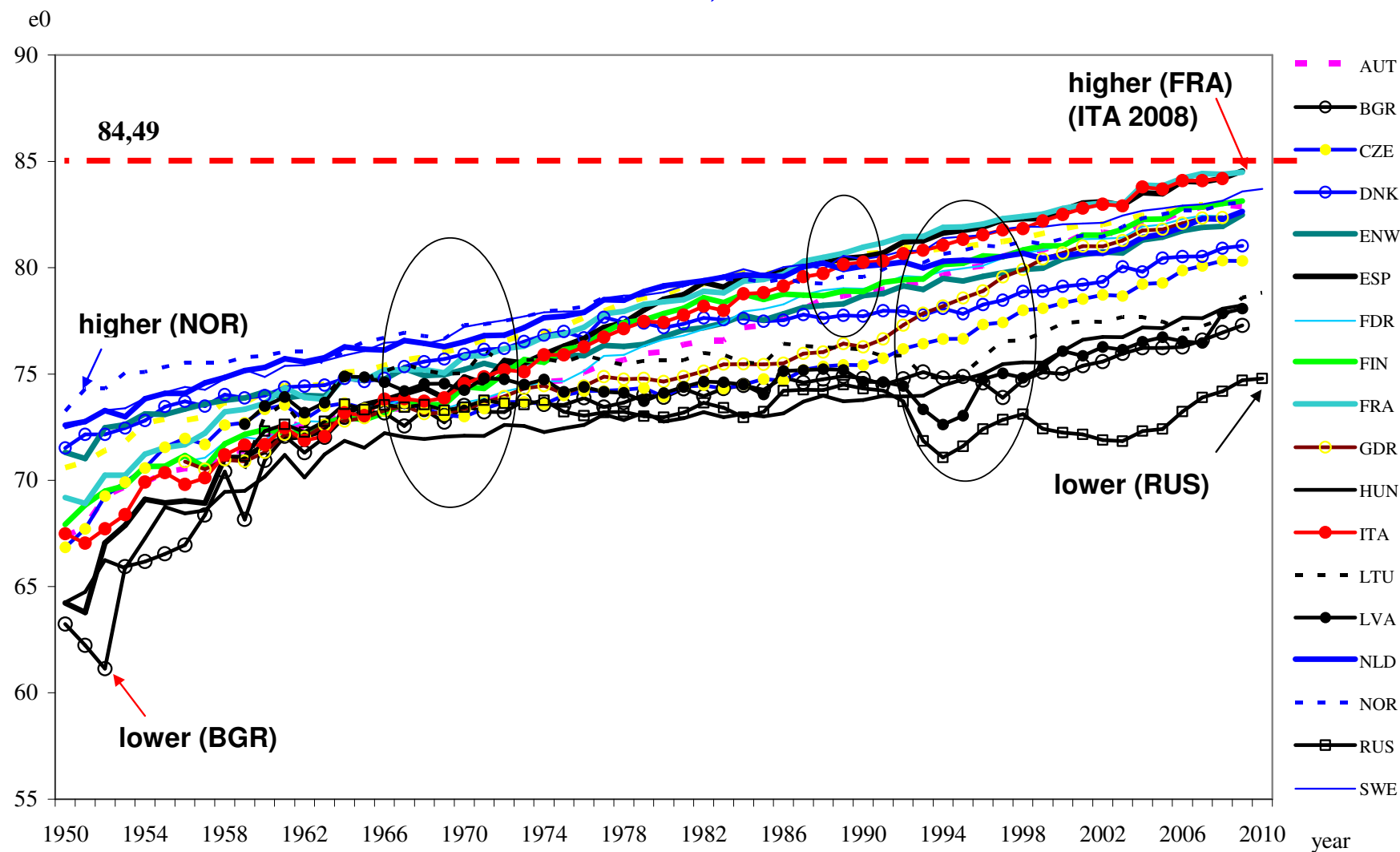
2. Divergence-Convergence-Divergence in Life-Expectancy changes

Trends in life expectancy at birth in 18 selected European Countries from 1950 to 2009-2010

(Sources: Rosa Lipsi, PhD Thesis. Data from Human Mortality Database- MPIDR)

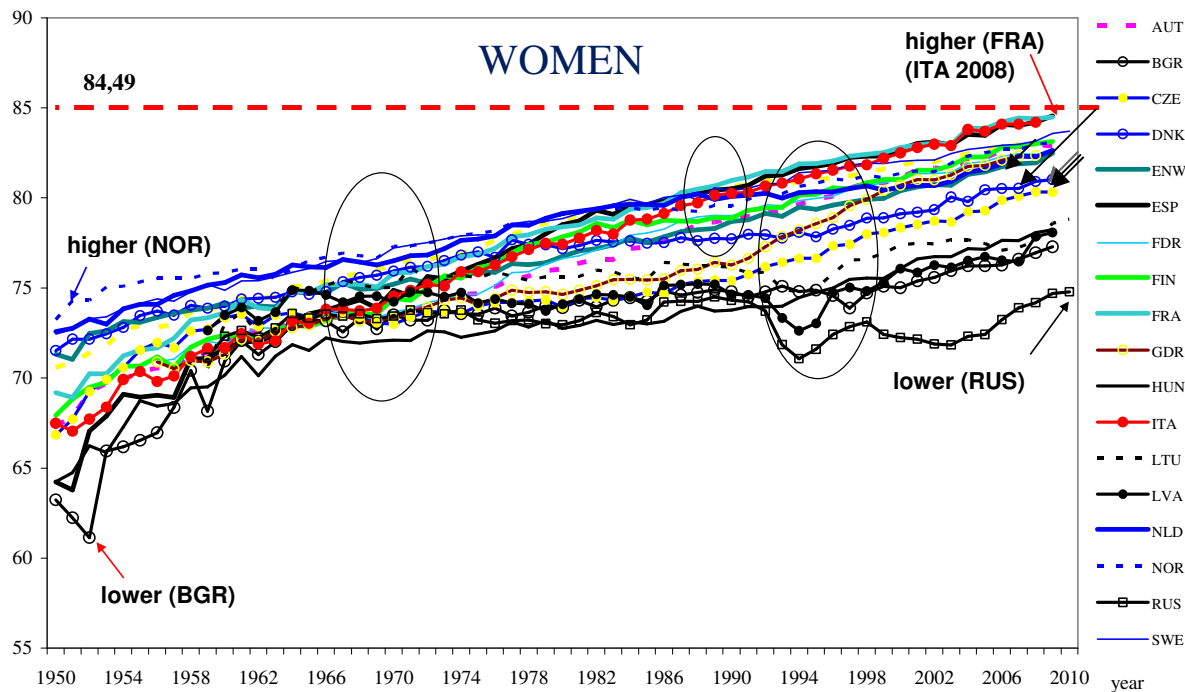
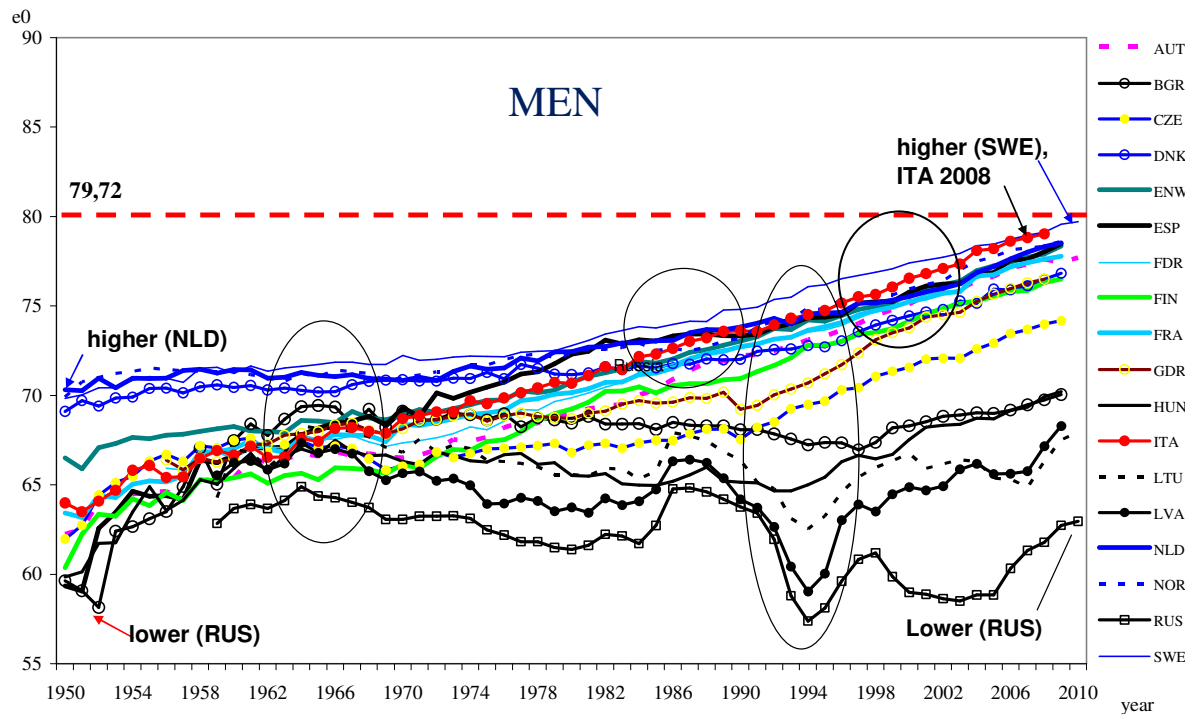


Trends of Life Expectancy at birth in 18 selected European countries. Female, 1950-2009/2010



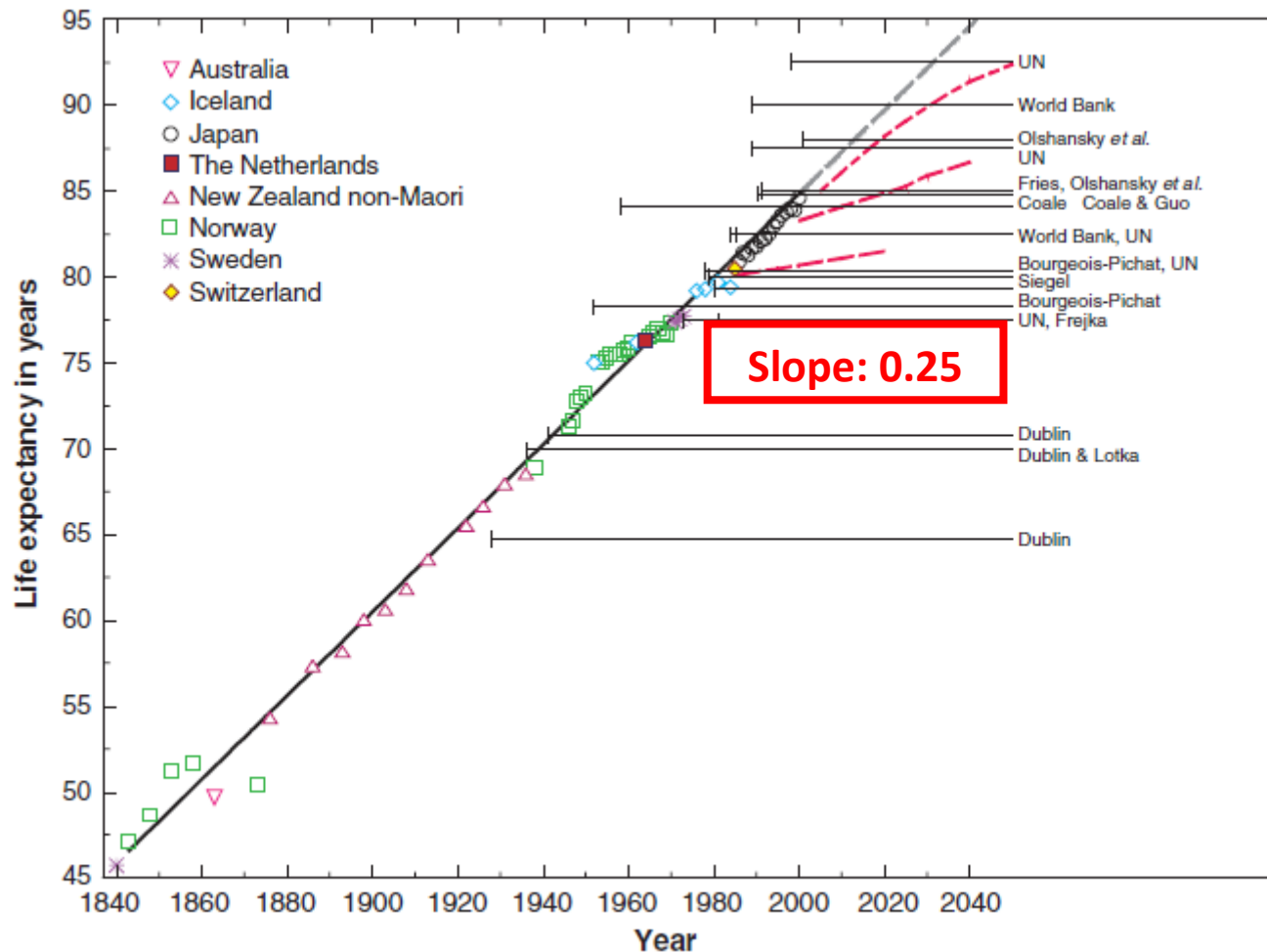
Source: Elaboration on Human Mortality Database –MPIDR by Rosa Lipsi, PhD Thesis

Trends of Life Expectancy at birth in Europe: Comparison between Men and Women



3. Convergence or Divergence in the next decades?

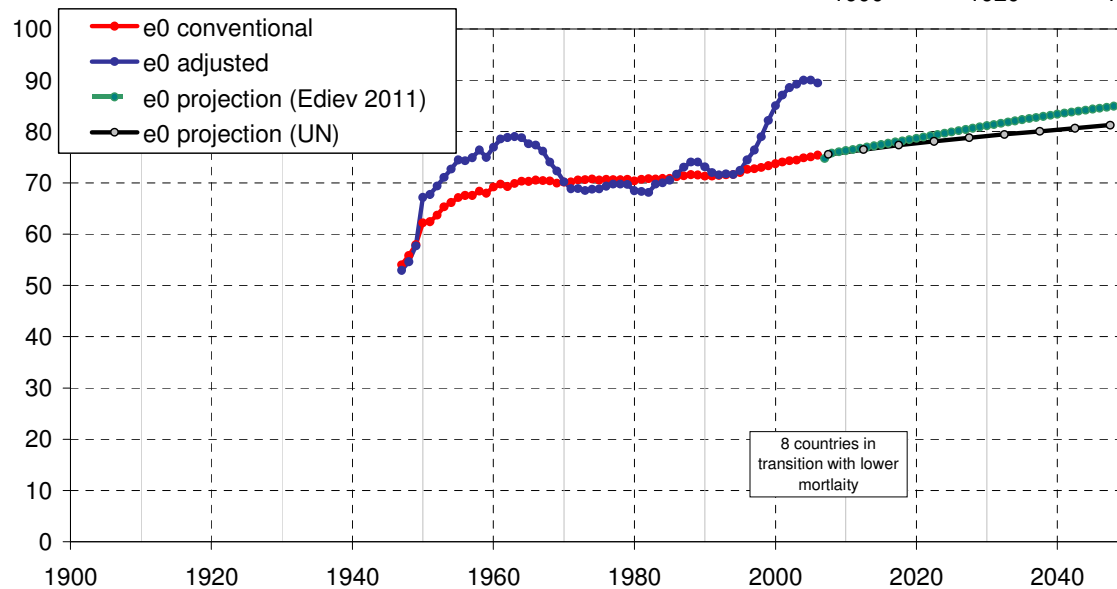
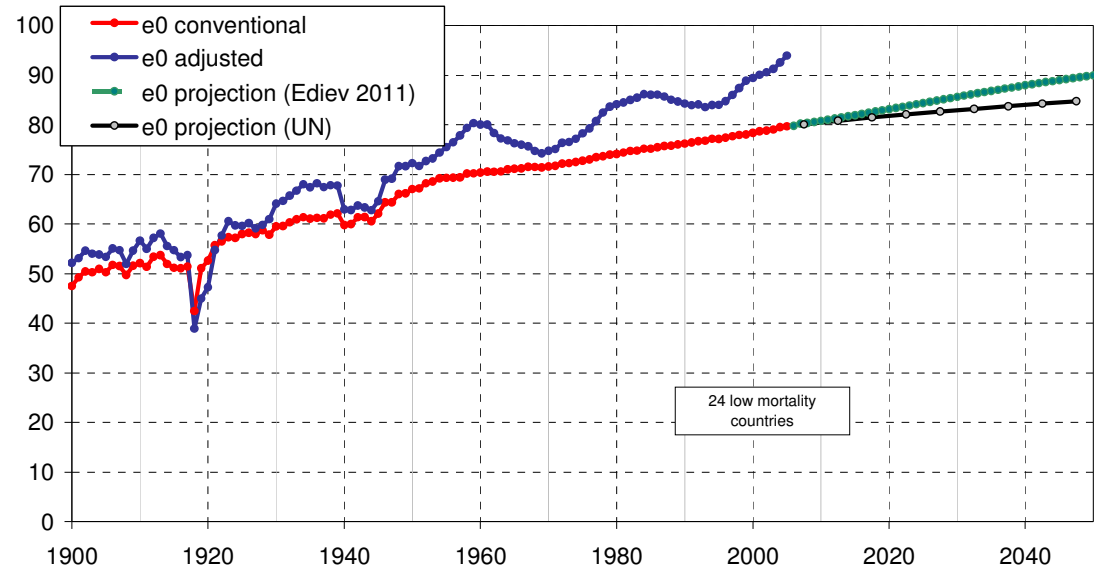
The conventional extrapolation of mortality (as e.g. UN projections) tends to underestimate the nearly linear growth of life expectancy in the past as Oeppen and Vaupel have demonstrated



Source: Jim Oeppen , James W. Vaupel (2002), *Broken limits to life expectancy*, page 64

Conventional and exposure-adjusted LE at birth (years) and extrapolations of the conventional LE at birth assuming time-invariant mortality conditions after the last observation year¹ as compared to the UN official forecasts

¹ Last observation years available from the Human Mortality Database vary from 2006 to 2009 depending on country

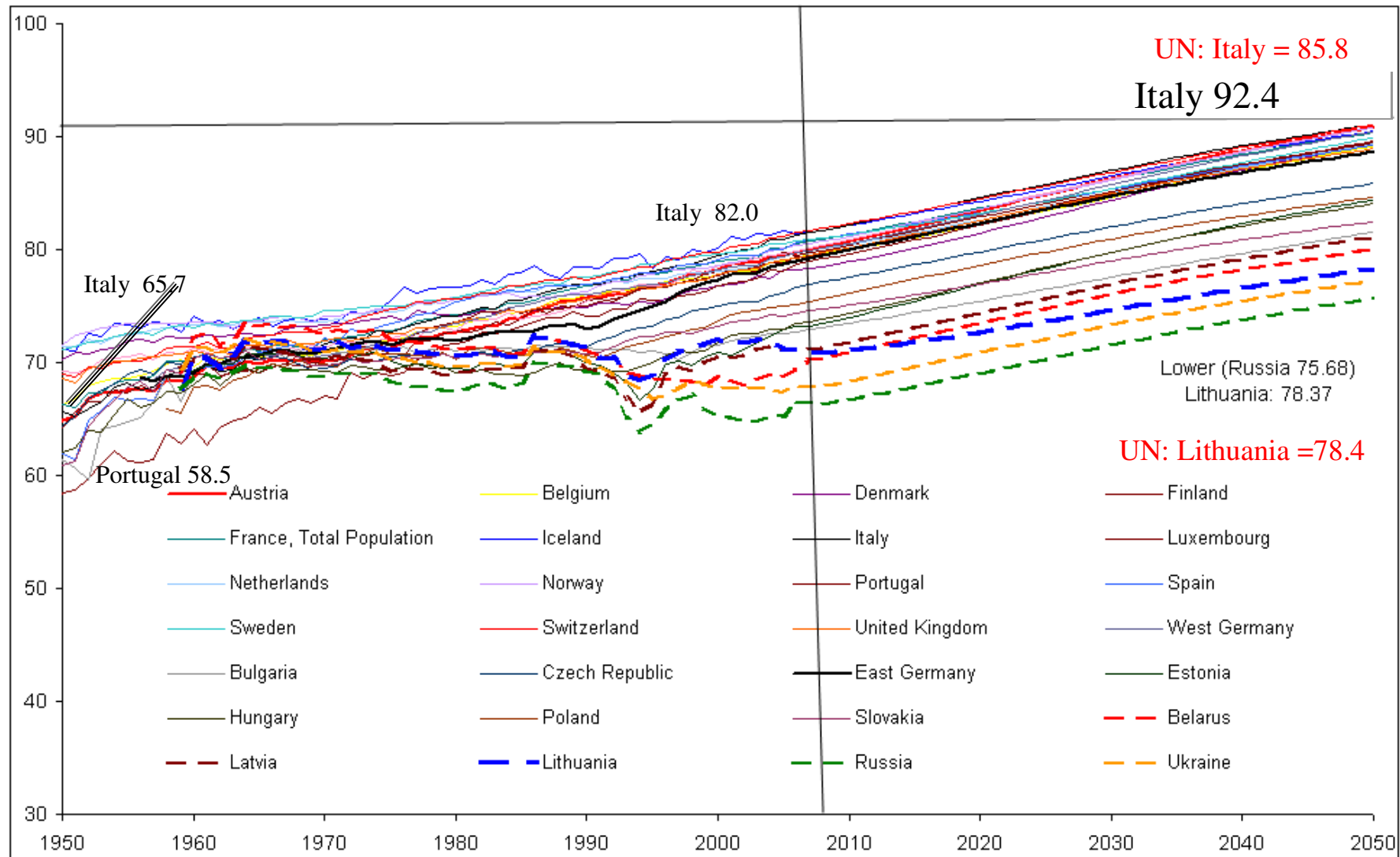


Source: D.M. Ediev (2011), Population Ageing, 4:5-32

Life expectancy at birth (M+W) at 2050 for selected European countries:
 Comparison between Ediev's projections, UN projections and own calculation
 based on Oeppen/Vaupel' proposal

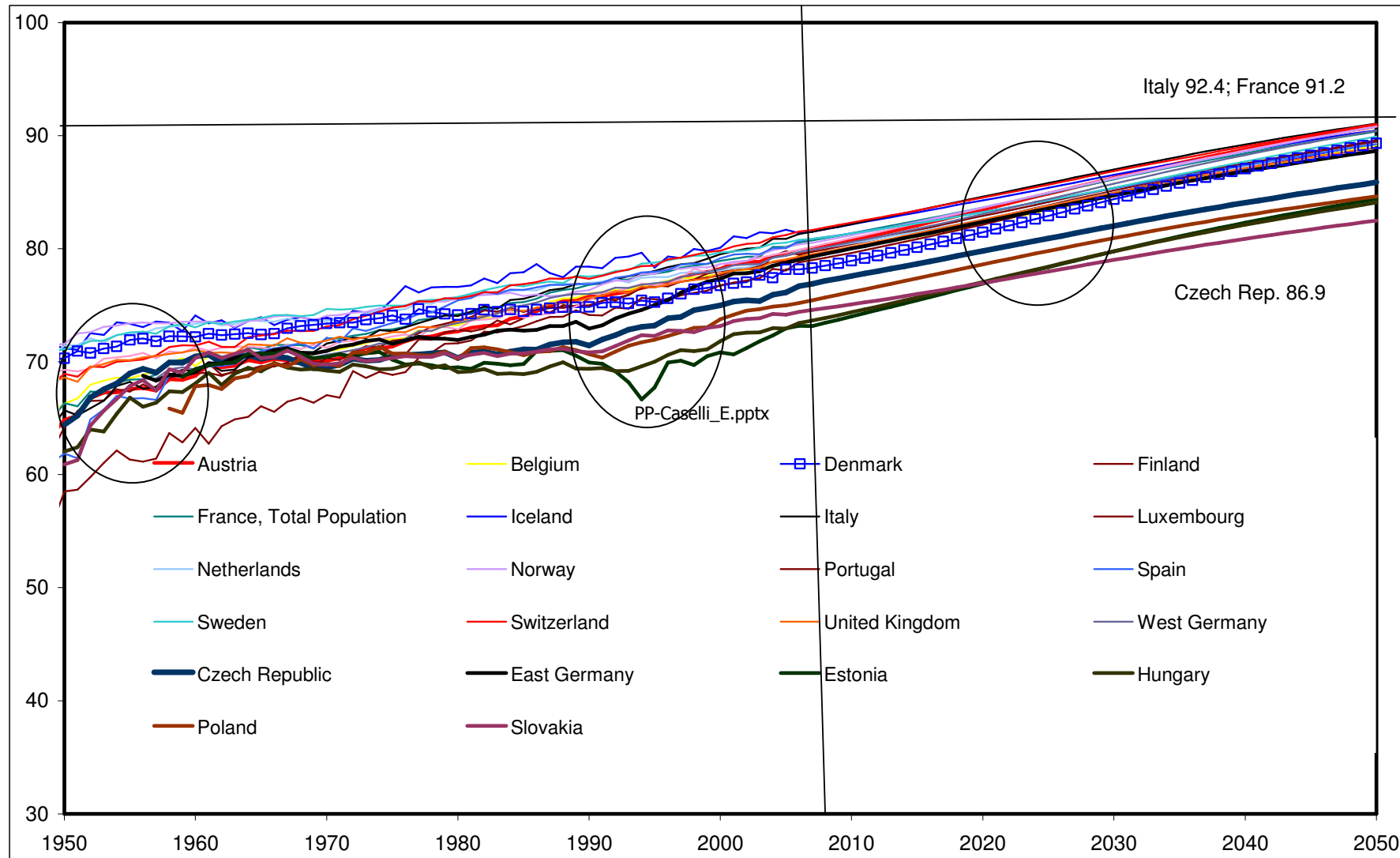
Countries	Base year	Ediev's projections 2050	UN projections 2045-50	O/V Slope 0.25 2050
Italy	2006	92.4	85.7	92.9
France	2007	91.2	86.0	92.0
Germany	2008	90.6	84.8	90.7
Sweden	2007	90.1	85.6	91.6
Finland	2008	89.0	84.5	90.6
Netherlands	2006	88.8	84.7	90.8
Denmark	2008	88.7	83.3	89.5
Spain	2006	88.7	85.5	91.6
Portugal	2009	89.5	83.2	90.1
Czech Rep.	2008	86.9	83.4	88.1
Hungary	2006	83.8	79.9	84.8

Life Expectancy at birth (M+W) in Europe from 1950 to 2050: past, present and Ediev's projections



Source: For Years 1950-2009: *Elaboration on Human Mortality Database*; for Projections: *D.M. Ediev (2011), Population Ageing, 4:5-32*

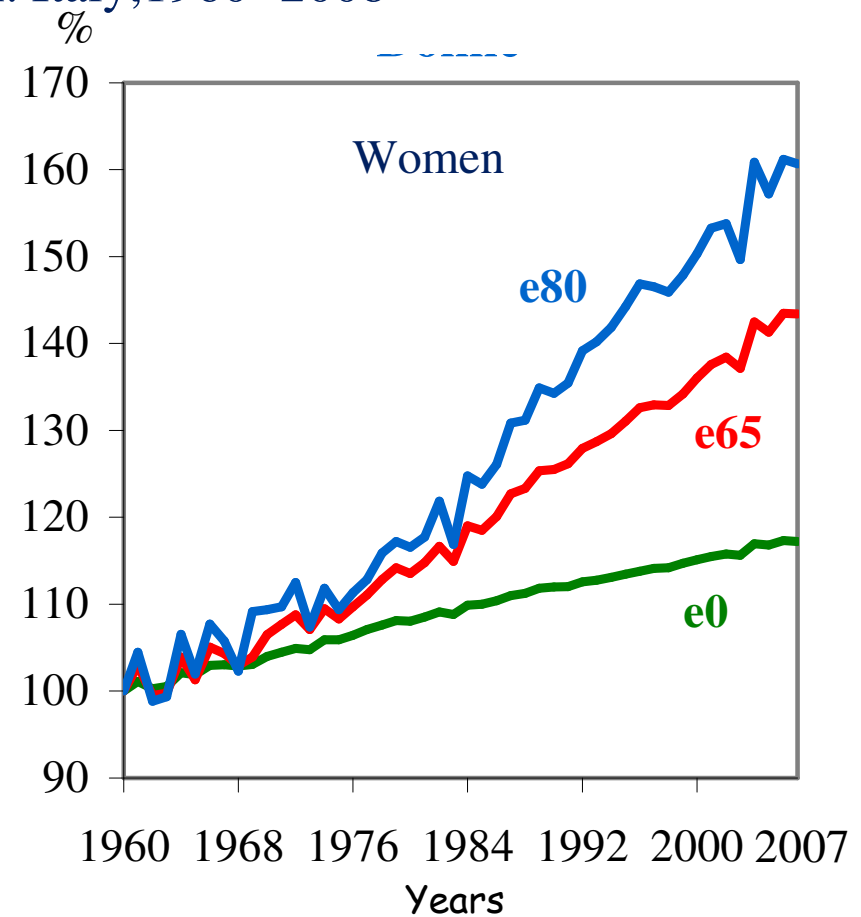
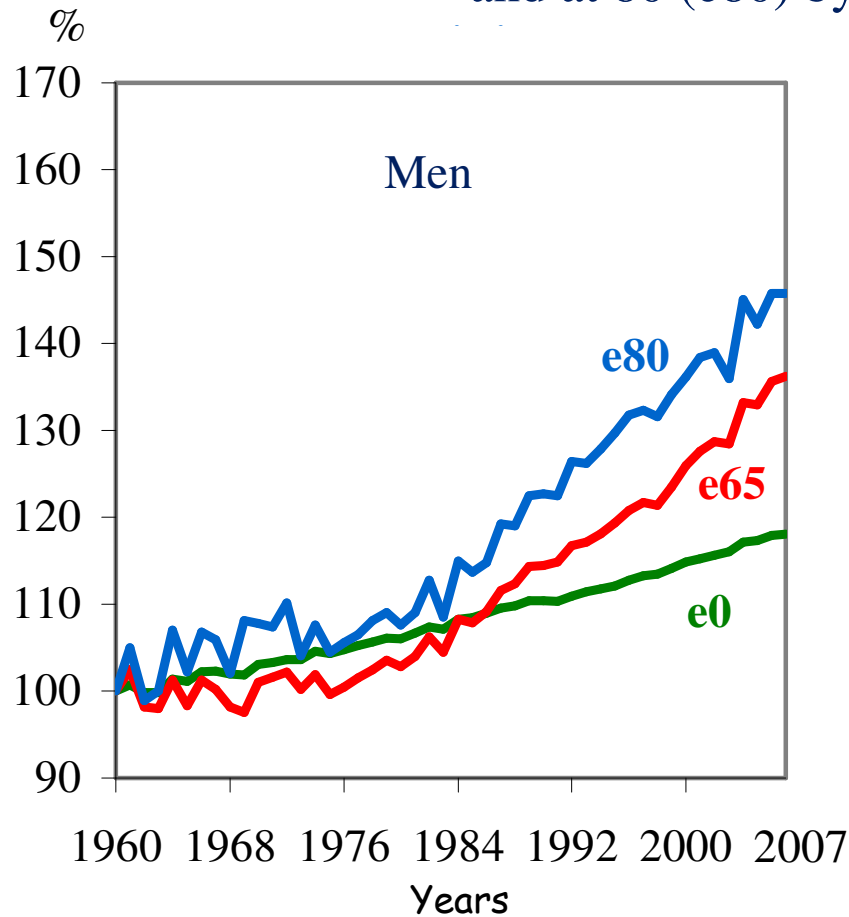
Life Expectancy at birth (M+W) in Western and Central European countries from 1950 to 2050: past, present and Ediev's projections



Source: For Years 1950-2009: Elaboration on Human Mortality Database; for Projections: D.M. Ediev (2011), *Population Ageing*, 4:5-32

4. Increasing Life Expectancy at 65 and 80 years

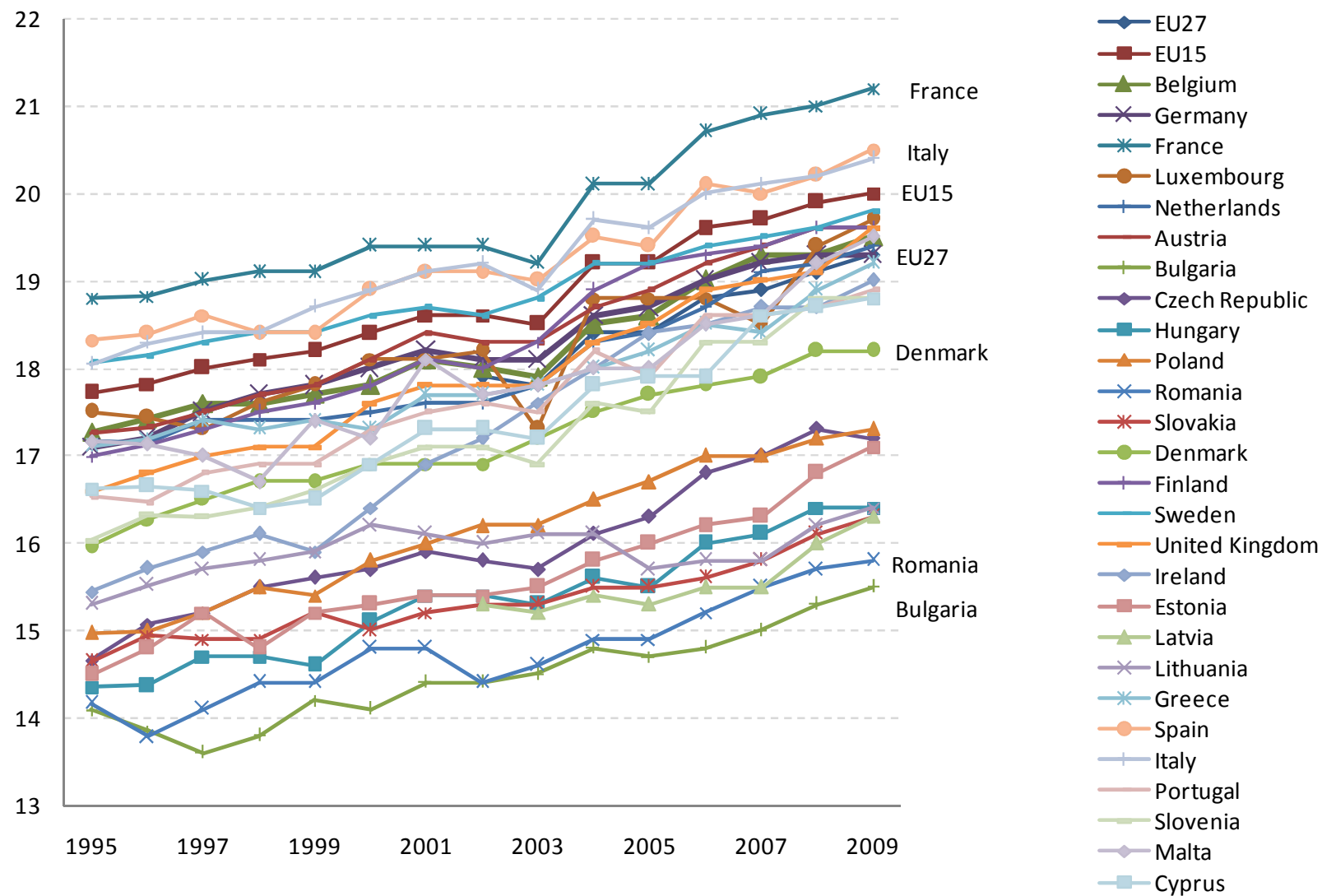
Index number (1960 = 100) of life expectancy at birth (e0), at 65 (e65) and at 80 (e80) by sex. Italy, 1960 -2008



Mortality decline at older ages has the greatest impact on longevity increase

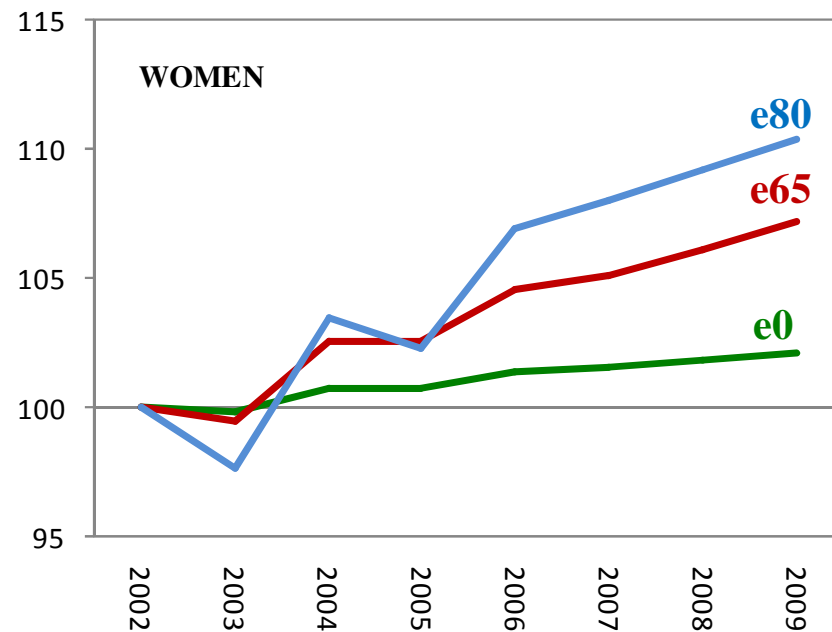
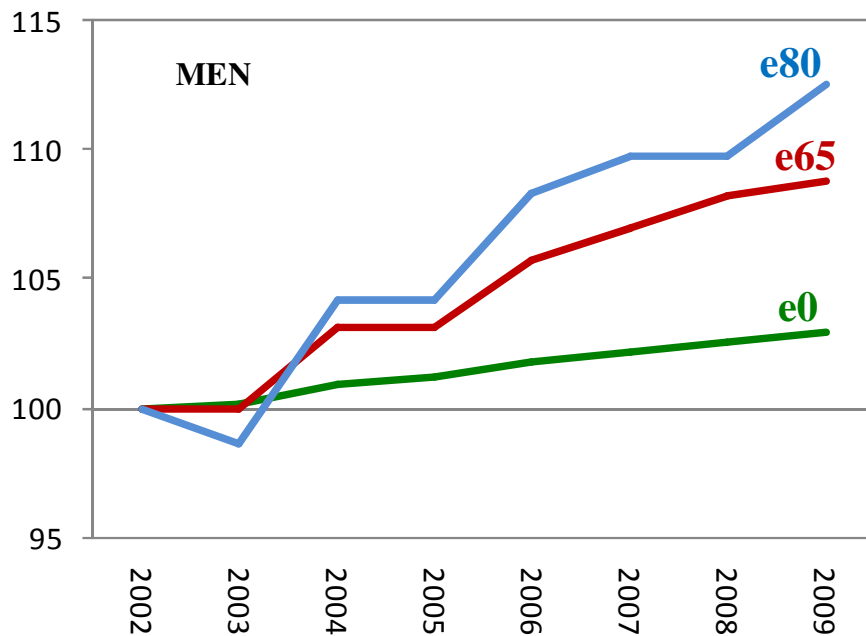
Source: own Elaboration on Human Mortality Database and ISTAT, 2011

Trends in Life Expectancy at 65 (M+W). EU27, 1995-2009



Source: Eurostat database, 2011

Index number (2002 = 100) of Life Expectancy at birth (e0),
at 65 (e65) and at 80 (e80) by sex. EU27, 2002-2009



Source: own Elaboration on Eurostat database, 2011

**If the mortality decline at older ages
continues.....**

Following Ediev's hypotheses

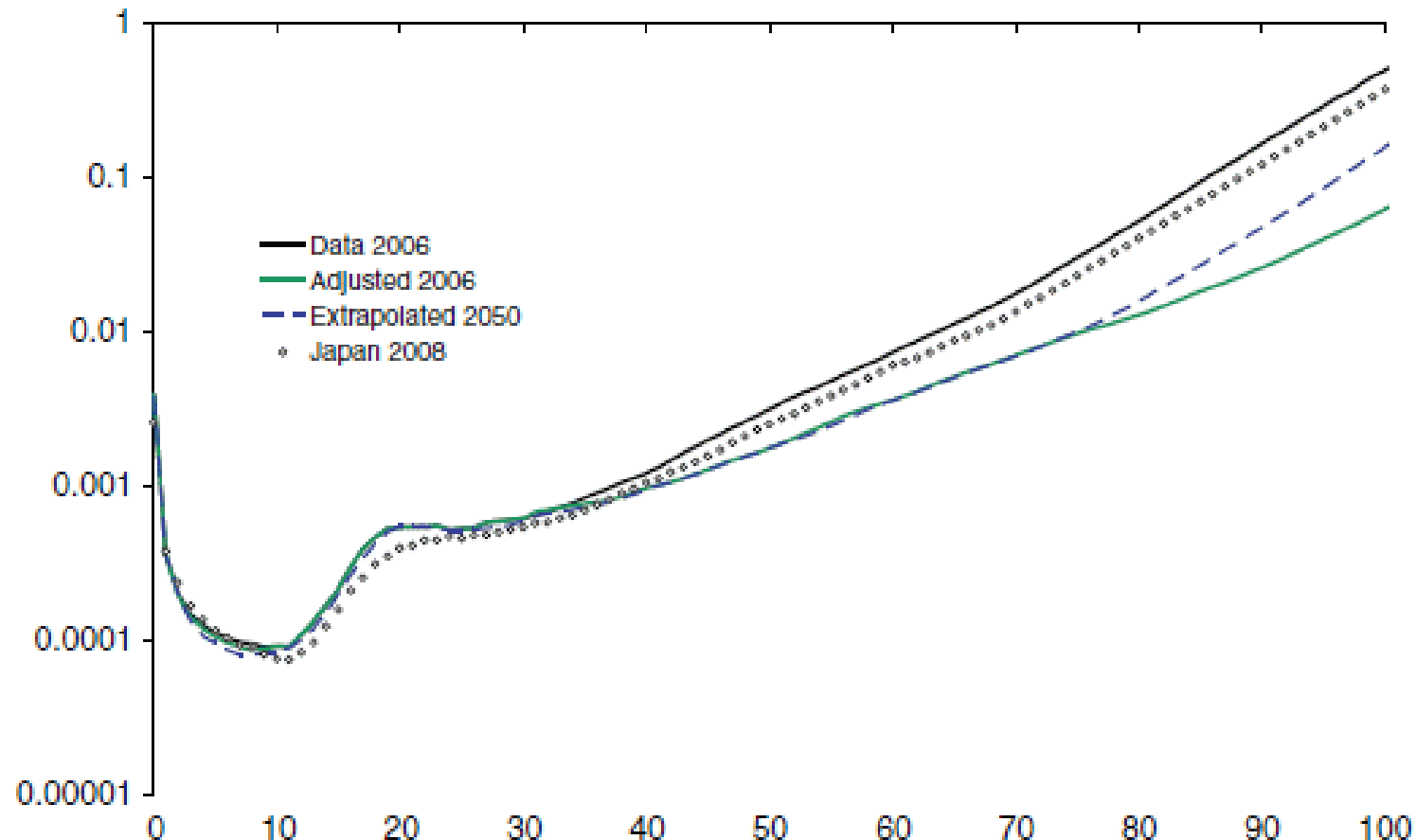


Fig. 10 Age profiles of mortality rate (logarithmic scale) averaged over 23 low mortality countries with data available since 1980: observed in 2006, exposure-adjusted in 2006 and extrapolated under constant mortality conditions since the last observation (Last observation years available from the Human Mortality Database (Univ. of California & Berkeley (USA) & Max Planck Inst. for Dem. Res. (Germany) 2010) vary from 2006 to 2009 depending on country (those years are presented in Table 5 of the Appendix))

Source: D.M. Ediev (2011), Population Ageing, 4:5-32, p.22

Life Expectancy at age 65 (M+W) for selected European countries.
Years 2009 and 2050

Countries	2009	Ediev's projections 2050	$\Delta_{2009-2050}$
Italy	20.4	30.9	10.5
France	21.2	29.6	8.4
Germany	19.3	28.1	8.8
Sweden	19.8	27.3	7.5
Finland	19.6	27.6	8.0
Netherlands	19.4	26.7	7.3
Denmark	18.7	26.8	8.1
Spain	20.5	27.4	6.9
Portugal	18.9	28.3	9.4
Czech Rep.	17.2	25.5	8.3
Hungary	16.4	23.7	7.3

Source: Eurostat, 2009 and D.M. Ediev, 2011

5. The impact of increasing longevity on pension systems

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- ✓ In many EU countries, **the steady increase of life expectancy at old ages** (and, of course, the increase of the number of elderly people) occurred during the last decade **has caused alarm for its consequences on public finances**
 - ✓ **In most cases, this necessitated a reorganization of welfare legislation** including a reduction of benefits and the restriction of access to social security and health care
 - ✓ In some countries, **for the first time, the role played by demographic processes and changes was critical in reforming the welfare system**
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As a whole, **pension benefits largely depend on retirement age, the latter depending in part on the average number of years spent in retirement (*)**

It will be interesting to compare the retirement ages as defined by EU Member States (now and in the immediate future) for both men and women **with the years of life expectancy remaining at this age**

This comparison will allow **to see whether divergences or convergences towards the principles of actuarial fairness are observed**. In the light of this comparison we can also speculate on the strengths and weaknesses of the welfare policies in some EU countries.

(* **In Italy, pension benefits depend: ON the age at retirement, and ON the capitalized value of lifetime social security contributions (this is converted into a real pension annuity using a set of Coefficients (named Conversion Factors) computed by taking into account, among other things, average survival probabilities at age at retirement.**

How pensions are changing in Europe: Age at retirement in 2009 and in 2020

Italy in comparison to some EU countries with the lowest and the highest age at retirement in 2009

Countries	ARx 2009		ARx 2020	
	MEN	WOMEN	MEN	WOMEN
With the lowest age at retirement in 2009				
Italy	65	60	66+11 months	66+11 months
France*	60-65	60-65	62-67	62-67
Sweden*	61-67	61-67	61-67	61-67
Check Repub.	62	60	63+10 months	63+8 months
Hungary	62	62	64	64
With the highest age at retirement in 2009				
Spain	65	65	66+4 months	66+4 months
Germany	65	65	65+9 months	65+9 months
Denmark	65	65	66	66
Finland	65	65	65	65
Netherlands	65	65	65	65
Portugal	65	65	65	65

* In these countries, those who retire at the minimum age will be penalized while those who retire at the maximum age will take benefit.

Comparison between Age at retirement (ARx), Life Expectancy at that age (Ex) and Life Expectancy at 65 in selected European countries. Year 2009

Countries	Men		Women		M+W
	ARx 2009	Ex 2009	ARx 2009	Ex 2009	E65 2009
France*	60-65	22.5-18.7	60-65	27.5-23.2	21.2
Sweden*	61-67	21.5-16.7	61-67	24.6-19.5	19.8
Check Rep.	62	17.2	60	22.9	17.2
Hungary	62	15.7	62	20.5	16.4
Italy	65	18.3	60	26.5	20.4
Spain	65	18.3	65	22.4	20.5
Germany	65	17.6	65	20.8	19.3
Denmark	65	16.8	65	19.5	19.2
Finland	65	17.3	65	21.5	19.6
Netherlands	65	17.6	65	21.0	19.4
Portugal	65	17.1	65	20.5	18.9

* In these countries, those who retire at the minimum age will be penalized while those who retire at the maximum age will take benefit

Source: La Repubblica, 5 March 2012 and Eurostat, 2009

Last news by Poland: AR67 with LE65= 14.8 years !!!

How to reduce the effects of expenditure on GDP? (and – following Brussels suggestions – how to help the new generations?)

The philosophy of the more recent reforms

- ✓ Introducing a “contributive system” for all and extending the retirement age according to the increase of life expectancy at old ages (generally at 65).
 - ✓ Reducing early retirement.
 - ✓ Equalizing the retirement age of men and women
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Comparison between Countries' ranking by E65 Countries' ranking by ARx. Ediev's projection at 2020

Countries	E65 Ediev's projections at 2020
Italy	23.1
France	23.1
Spain	22.0
Finland	22.0
Portugal	21.2
Sweden	21.2
Germany	21.1
Netherlands	21.0
Denmark	20.3
Check Rep.	19.4
Hungary	18.1

Countries	ARx at 2020
Italy	66+11 m.
Spain	66+4 m.
Denmark	66
Germany	65+9 m.
Finland	65
Netherlands	65
Portugal	65
France	62-67
Sweden	61-67
Hungary	64
Check Rep.	63+10m.

- ARx It seems to be in accordance with their E65
- ARx lower than their E65
- ARx higher than their E65

New reform in Poland: AR=67 years! When LE65= 14.8 (ARx in 2009= M65 and W60)

Concluding remarks

In this presentation we tried to highlight:

- ✓ the differences in past, present and future trends of survival between European Countries

and

- ✓ the strategic role played by longevity changes on pension system by comparing the retirement age as define by selected EU Member States (now and in the immediate future) for men and women with the years of life expectancy remaining at this age.
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✓ through this comparison we found evidence that divergences exist and will persist towards the equity [“principles of actuarial fairness”]

both between sexes and countries.

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- ✓ Generally, we must recognize that the actuarial fairness of the system for each country can only be guaranteed on average and that, in the presence of a heterogeneous population of individuals that differ considerably in their mortality prospects, the system implies a substantial degree of redistribution from high-mortality groups (typically characterized by low income and low wealth) to low-mortality groups (typically characterized by high income and high wealth).
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