Public policy implications of changing longevity.

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October 2016

The purpose of this contribution is to provide an overview of the effects that changing longevity may have on a number of public policies designed for unchanged longevity.

Outline:

- Introduction
- Key stylized facts about longevity increase
- Simple lifecycle model with risky lifetime
- Normative foundations
- Effects of changing longevity on public policy

Introductory remarks.

- Longevity is increasing but longevity slacks remain.
- Half of girls born today will live to 100 in France
- Longevity increase and aging are two different things.
- Longevity in good health and standard longevity.
  - France: F: 85.3 (63.5); M: 78.3 (61.8)
  - Sweden: F: 83.8 (70.2); M: 79.9 (71.1)

- Longevity increase: a curse or a blessing
- My concern: our concepts and our tools are not well adapted to longevity increase and variability in longevity.
- Focus on theory and normative concepts of justice, fairness, and equity.
- Countries from the OECD.

Some evidence

- Rise in life expectancy at birth
- Convergence across countries
- Increasing differences across individuals: genders, income, education
- Rectangularization first increasing and then stalling
- Individual responsibility: 30%
- Underestimation of longevity.

Period life expectancy at birth

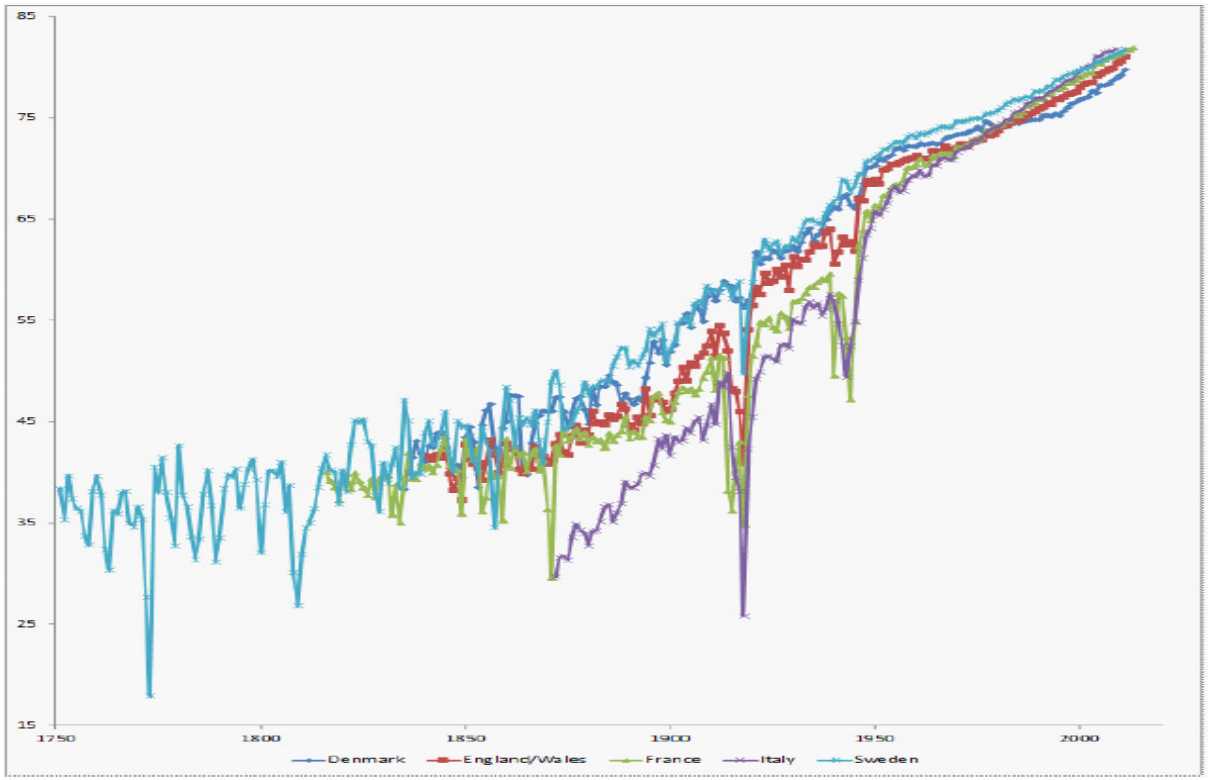


Figure 1: Life expectancy at birth (period) in several European countries, 1750-2013 (Sources: Human Mortality Database)

Period versus cohort life expectancy

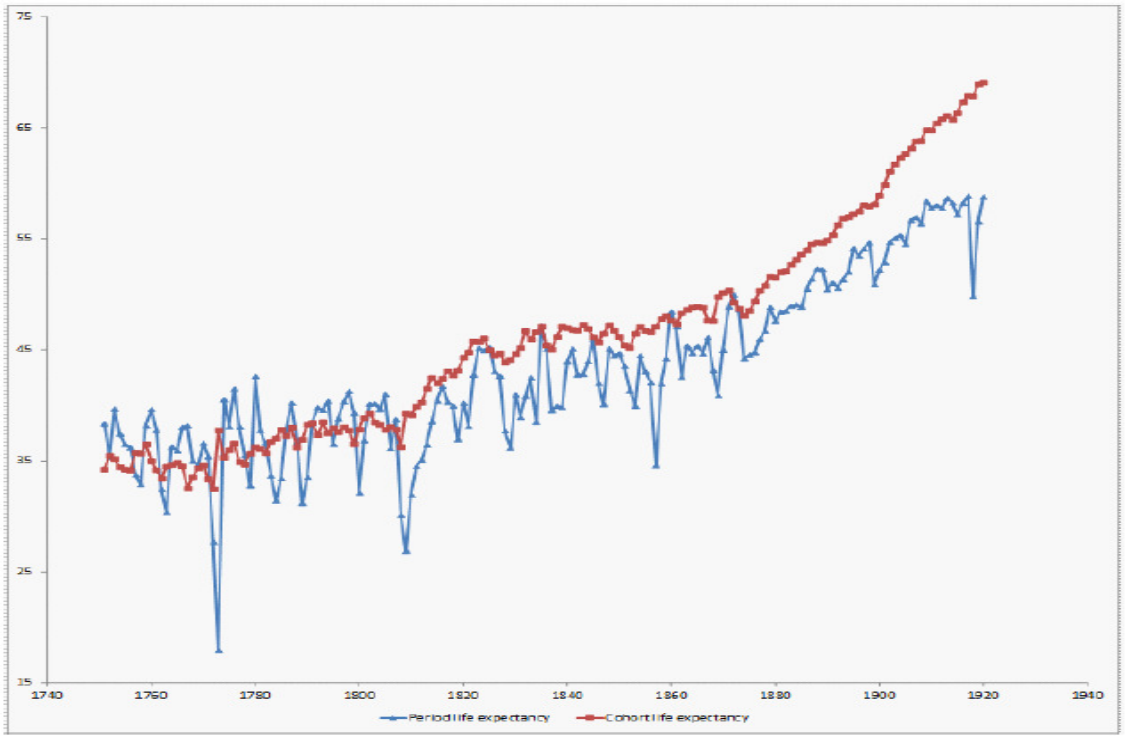


Figure 2: Period life expectancy at birth and cohort life expectancy at birth, Sweden, 1751-1920. (Source: Human Mortality Database)

Rectangularization

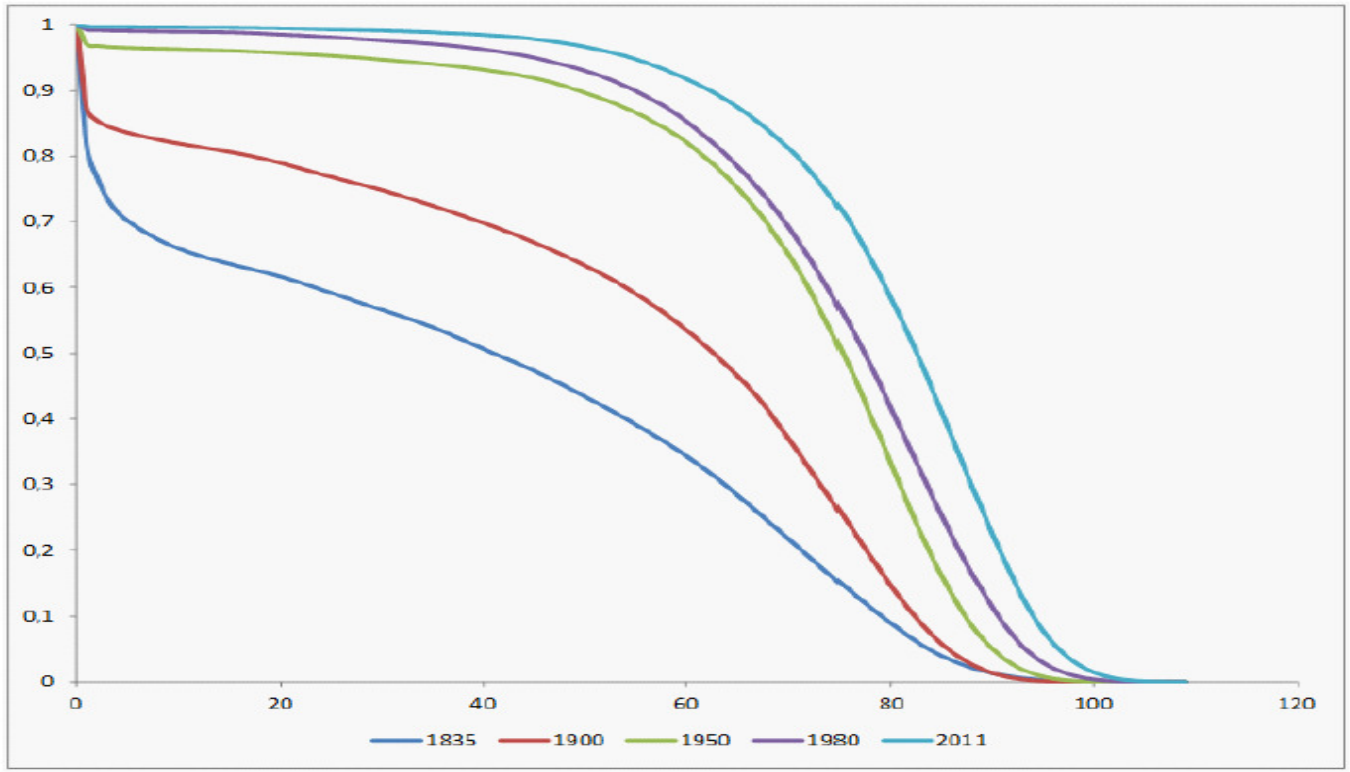


Figure 3: Survival curves (period), total population, Denmark. (Source: Human Mortality Database).

Inequalities: gender

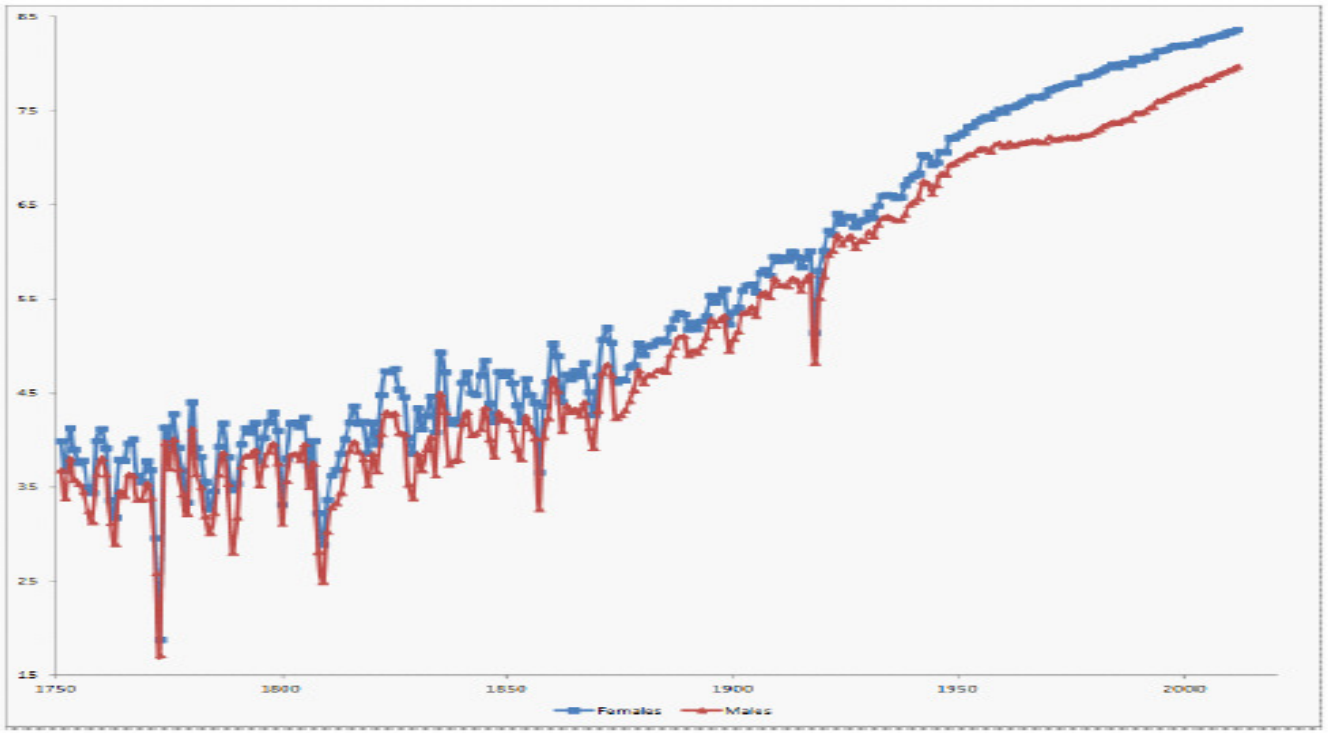


Figure 4: Life expectancy at birth (period) for females and males, Sweden (1751-2012). (Source: Human Mortality Database).

Inequalities: education

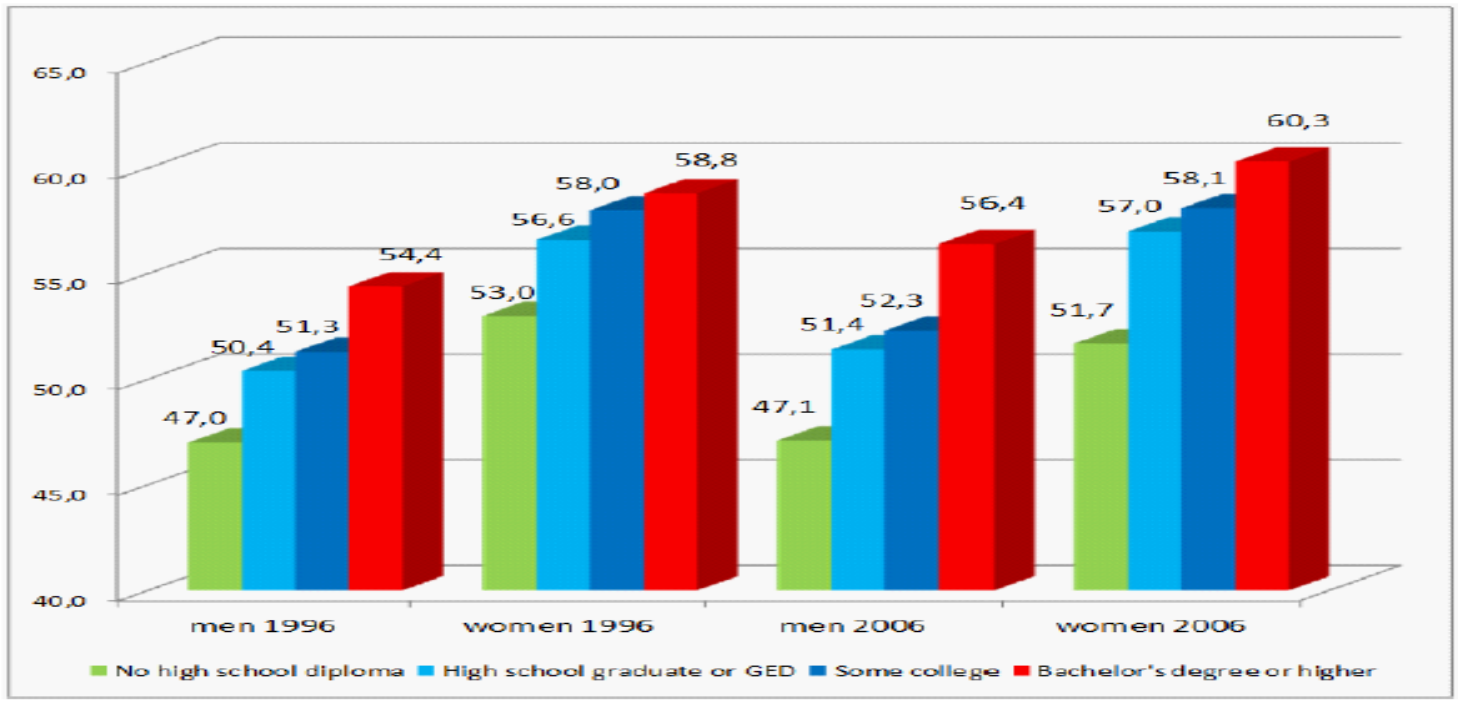


Figure 6: Life expectancy at age 25 by education level, males and females, United States, 1996 and 2006. (Source: U.S. Department of Health and Human Services, 2014).

Individual preferences.

- Life cycle: 2 periods of length 1 and $l < 1$ with survival probability π
- Life Expectancy: $1+\pi l$
- Both π and l can be explained by 3 variables: genes, effort (collective or individual) and myopia (ignorance, self control,)
- Importance of complementarity between genes and effort
  - Complement: efficacy of effort increases with the genetic endowment
  - Substitute: efficacy decreases

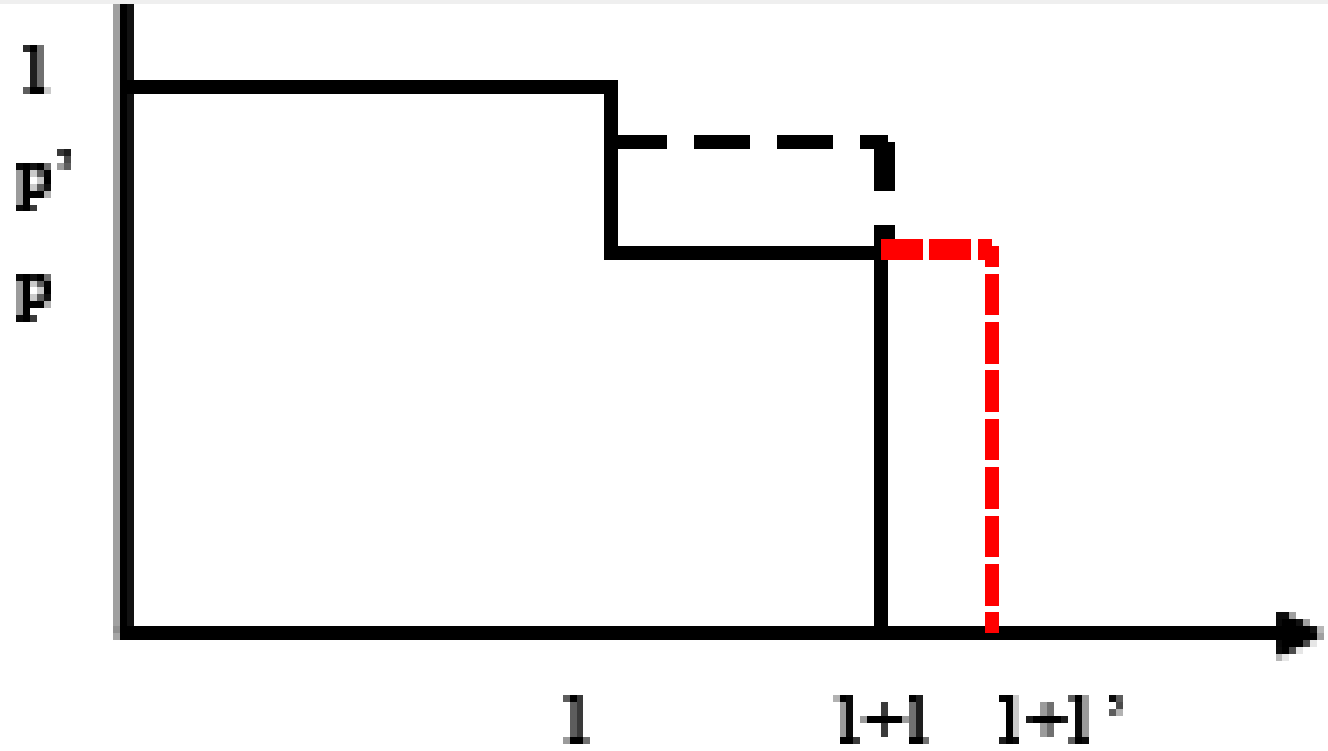
- Longevity depends on l and π. Preferences additive:

$$U=u(c)+\pi lu(d)$$

- Neutrality towards longevity dispersion. Changes in π or l have identical implications.
- Remedy: concavification of lifetime utility:

$$U=\pi V(u(c)+lu(d))+(1-\pi)V(u(c))$$

2 ways of increasing longevity: π and l



However if one uses a concave transform of lifetime utility in case of early death and in case of survival, the effects are different.

We then have risk aversion with respect to the length of life. An increase in π has more value than an increase in l.

- Those two sources of life expectancy gains are no longer equivalent once risk-aversion with respect to the length of life is introduced. This appear clearly when looking at the effect of longevity increase on saving, education and retirement.
- With risk **neutrality**, an increase in the survival probability π or in life horizon l has the **same** positive effect. With risk **aversion** the effects are **different** and ambiguous.

Normative foundations.

Aversion for inequality

- Traditional utilitarian approach: bias towards long-lived individuals
- Example: two types of individuals: short (l=0) and long-lived (l=π=1).
- Identical utilities. Same per period consumption implies that long-lived consume twice
- Not with risk aversion.

Responsibility and luck.

Hot topic; different attitude across countries and political spectrum. Part of longevity is our responsibility and part results from genes or environment (social responsibility). For the responsibility part: no government intervention; for the exogenous part, compensation is desirable.

Ex ante versus ex post

Ex post implies less saving and later retirement. Emphasis on those dying early.

Implications for social policy.

Endogenous longevity.

1. Free-riding on longevity enhancing effort.

Should the government subsidize longevity?

Yes for some different reasons but no if increased longevity implies a lower return of annuities or a higher cost of PAYG pensions.

2.Heterogeneity in genes and productivity.

Asymmetric information. Optimal policy can imply taxing health spending so as to induce the well to do to reveal their type.

Assumption: complementarity between genes and effort.

3. Preventive and curative health care.

Case of sin goods or preventive effort (first period) along with myopia. Curative care in the second period. Tax sin goods; subsidize saving; free choice of curative care.

Implications for social policy.

Exogenous longevity.

1. Retirement policy and harsh occupations

Policy question: given that longevity is lower in some occupations, should they be granted special pension provisions.

Problem: what about the long lived in those harsh occupations and the short lived in safe occupations?

Design a pension scheme that takes those cases into account.

What about occupations that turn from harsh to safe?

2. Long-term care and social insurance

Dependence occurs in very old age and mainly well to do individuals reach old old age. Is there thus a case for social insurance for long-term care?

Desirability of social insurance depends on:

- the existence of private insurance
- the correlation between π and w
- the optimality of income taxation

3. Poverty and longevity.

Policy issue: choice between fighting poverty and increasing the longevity of poor. This depends on the objective of the State: reducing the poverty rate or increasing social welfare.

Mortality paradox: the poor having a shorter life, standard poverty measures underestimate the level of poverty, particularly at the old age.

4. Education and longevity. Ben Porath effect.

Increased longevity would foster education under certain assumptions on retirement age and human capital decay.

Concluding comments

- Caution in forecasts
- Longevity increase and acquired rights. Political economy issue.
- Importance of annuitization
- Increasing demand for long term care