

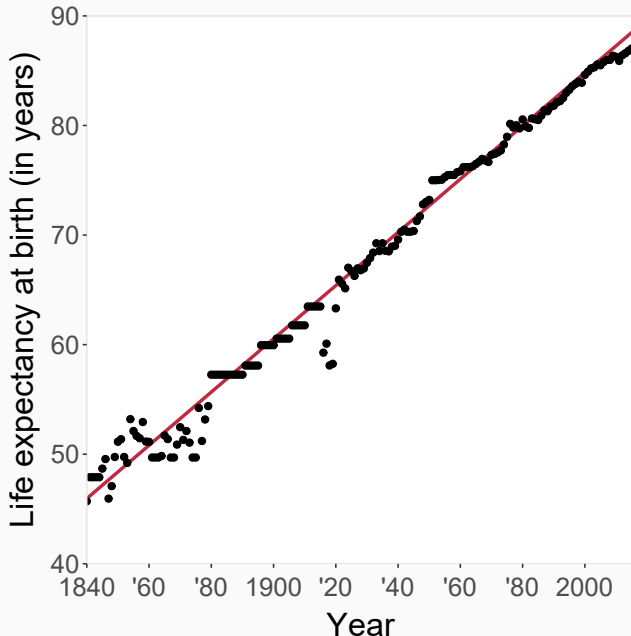
SOME CONSEQUENCES OF LIVING LONGER

Jesús-Adrián Álvarez

alvarez@sdu.dk

Interdisciplinary Centre on Population Dynamics
University of Southern Denmark

BEST PRACTICE LIFE EXPECTANCY AT BIRTH



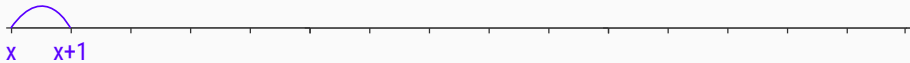
so what?

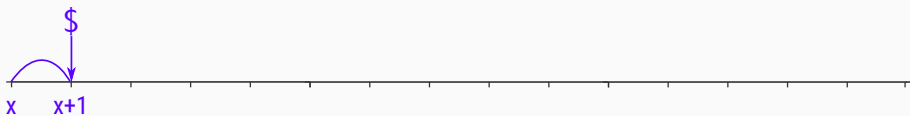
Challenges for pension systems

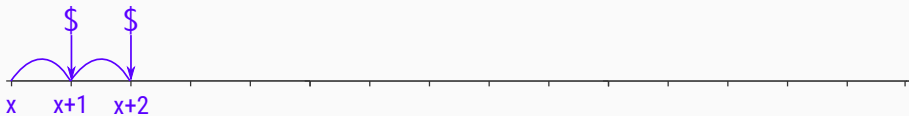


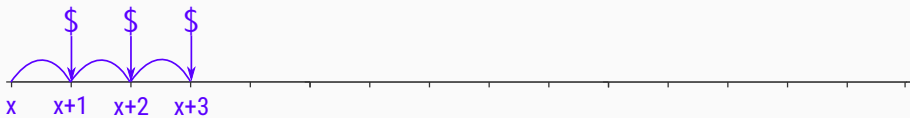
X





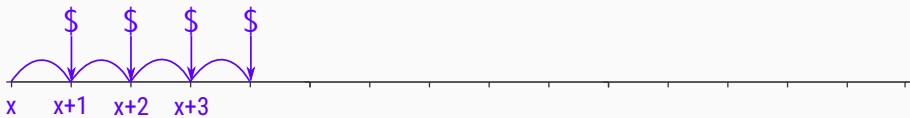




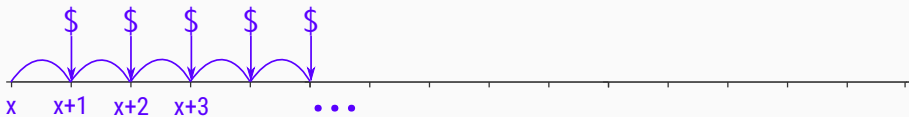




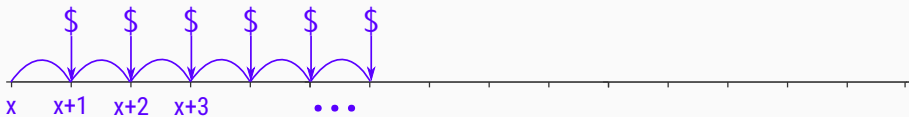
Acumulation phase



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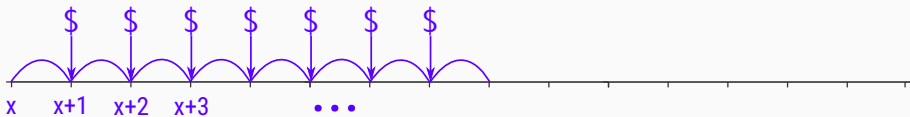
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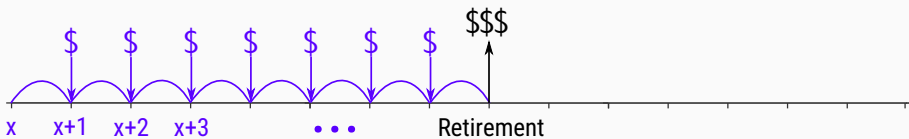
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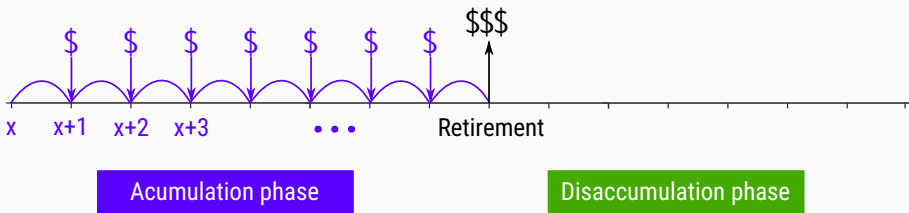
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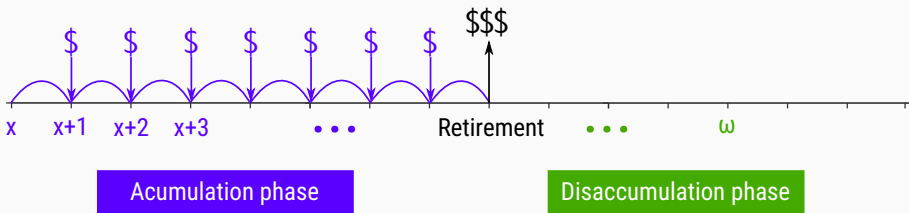


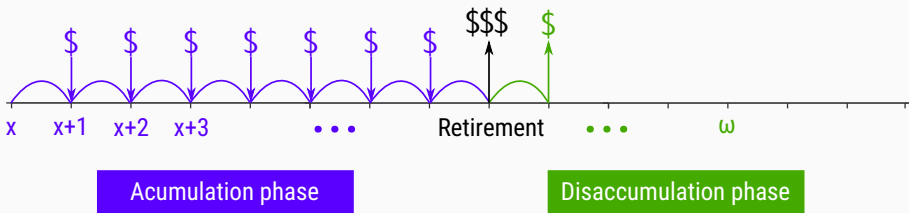
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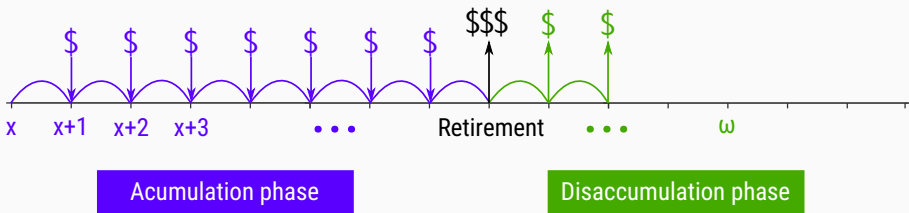


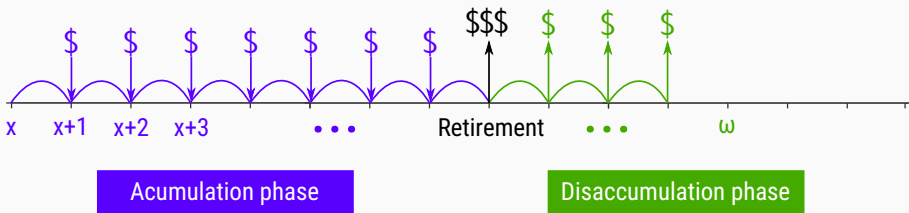
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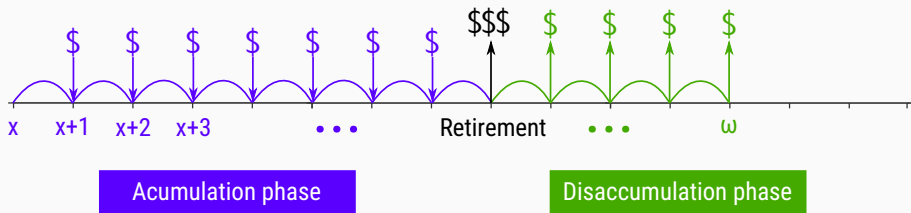


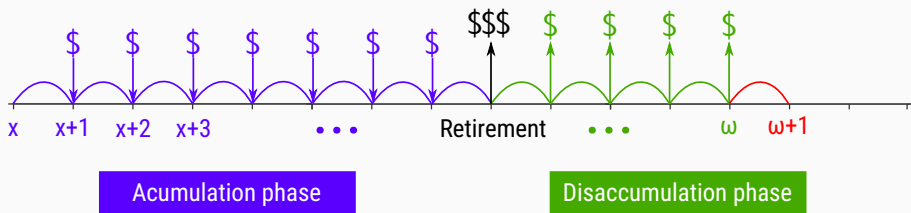


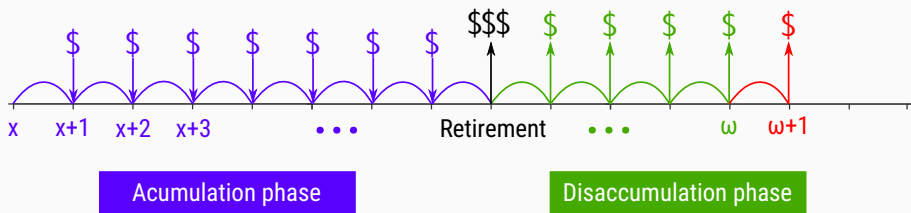


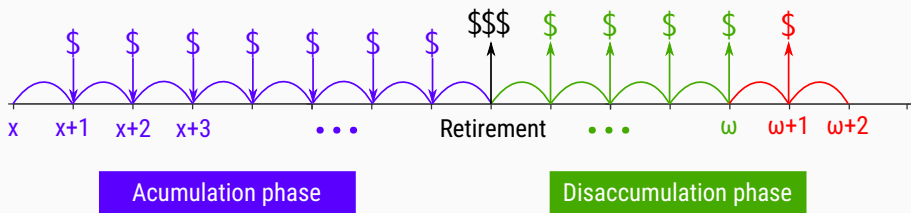


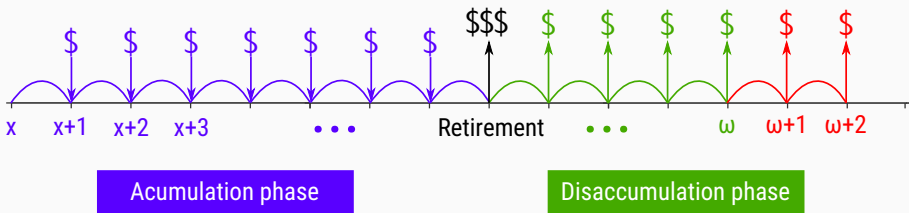


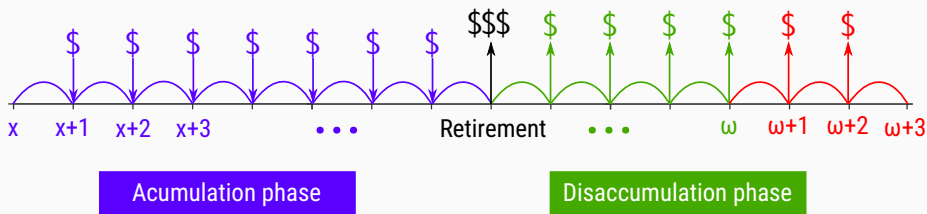


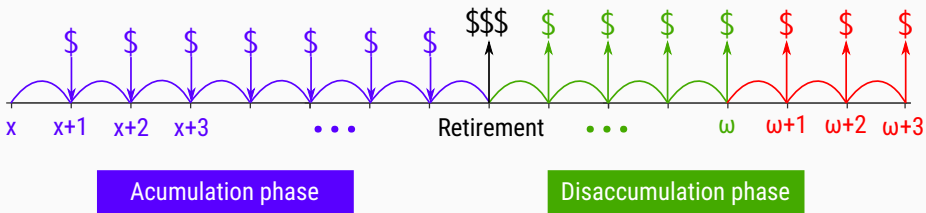


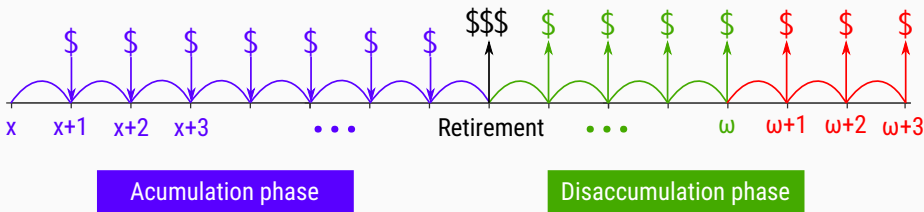












Defined benefit

- sponsor(employer) promises a specific pension payment
- based on a formula to calculate the benefit at retirement

Defined contribution

- employer, employee make contributions to a fund
- % of your salary

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As **people live for longer once retired**, there is an increased burden on pension objectives (Chomik and Whitehouse, 2006)

Financial sustainability

Financial sustainability

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Financial sustainability

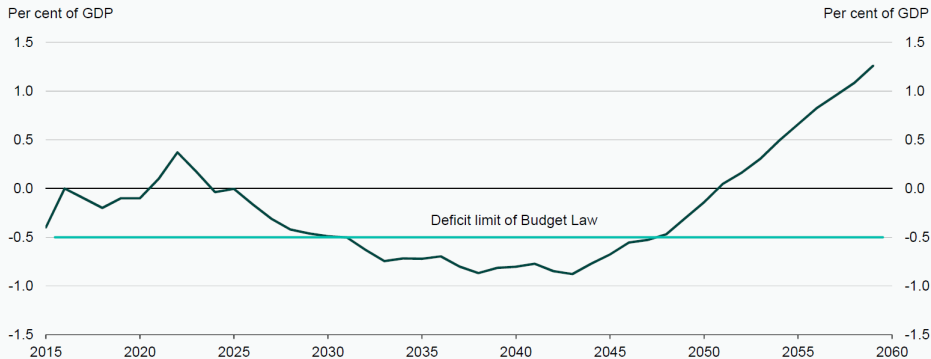
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Financial sustainability

- More and more people survive to **retirement** ages,
- Individuals from more recent cohorts **spend more time in retirement** than those from previous cohorts,
- Put pressure on **national finances**.

THE HAMMOCK CHALLENGE IN DENMARK

With unchanged policy public deficits will be excessive around 2030-2050



Danish Ministry of Economic Affairs and Interior (2018)

What to do?

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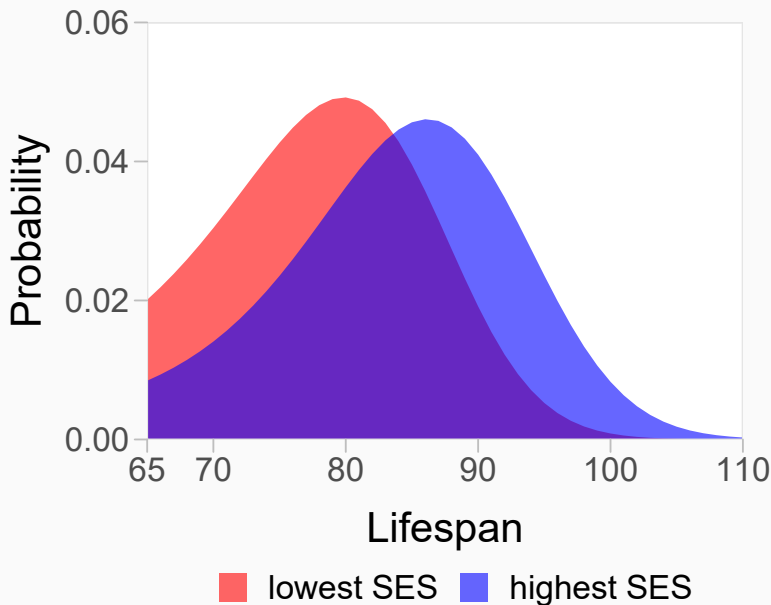
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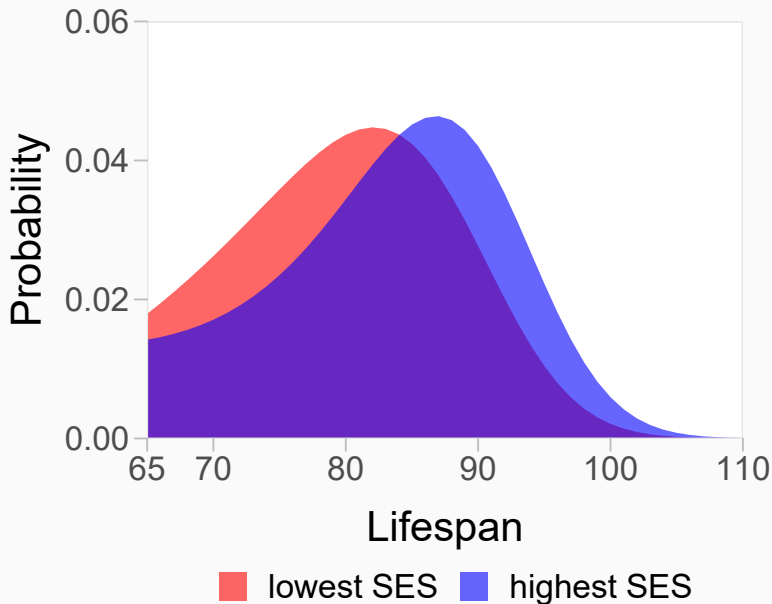
in the long run, it is expected that the indexation rule will **alleviate the burden of increased longevity**.

**Not everyone lives the same number
of years**

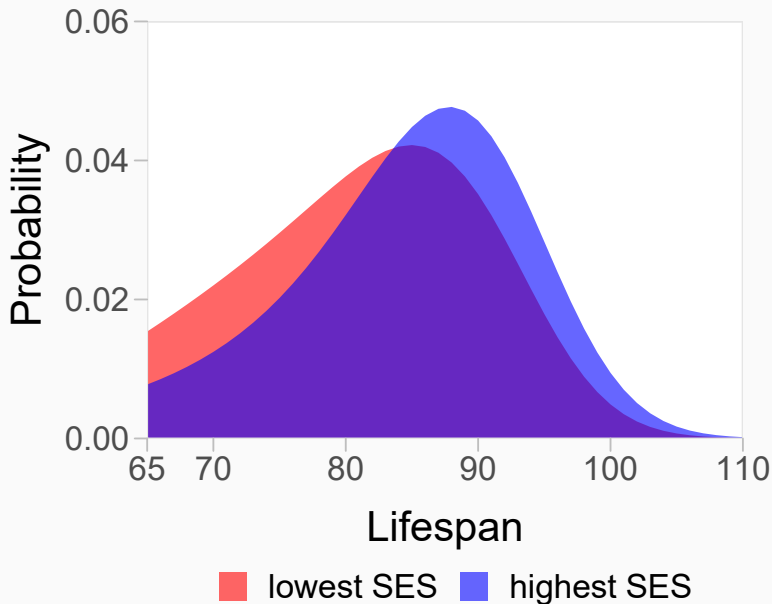
DISTRIBUTION OF LIFESPANS FOR DANISH FEMALES, 1985



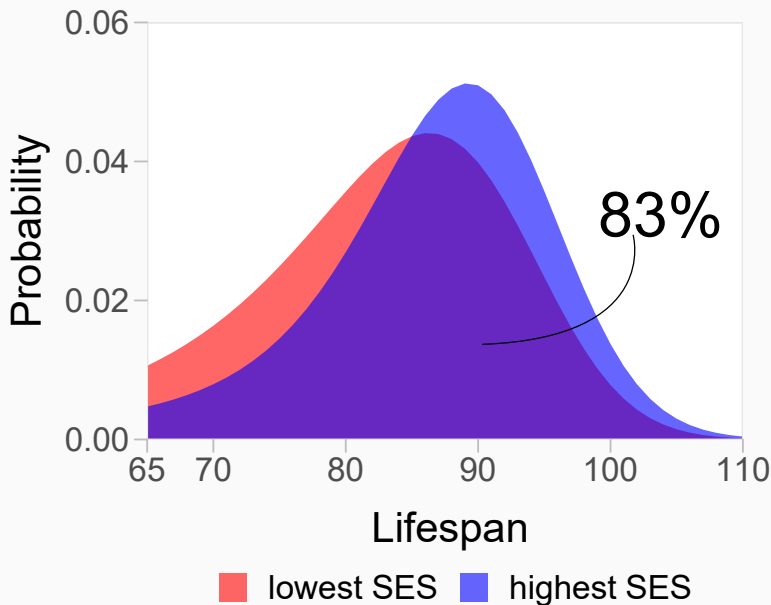
DISTRIBUTION OF LIFESPANS FOR DANISH FEMALES, 1995



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DISTRIBUTION OF LIFESPANS FOR DANISH FEMALES, 2016



Inequalities in lifespans after retirement

Individual perspective

- Lower socio-economic groups

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Measuring the implications of

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- Compare both settings **retrospectively**.

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 - Lock-down at age 67,
 - 5 equally sized groups (quintiles) over time.

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If $H(x) = 0.4$, then a uniform reduction of one percent in the force of mortality at all ages above x will yield an increase of 0.4 percent in $e(x)$.

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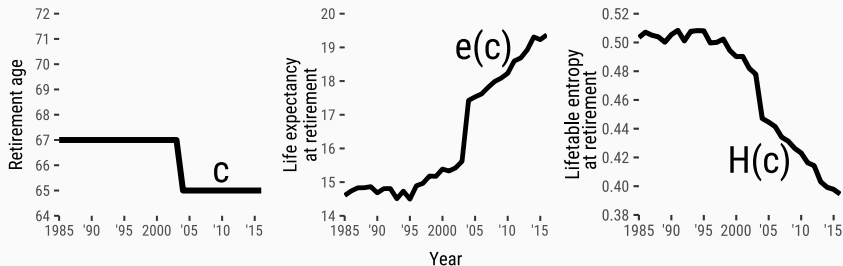
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If $\delta = 0$, then $\bar{a}(x) = e(x)$ and $\bar{H}(x, \delta = 0) = H(x)$

Demographic panorama after retirement, $\delta = 0\%$

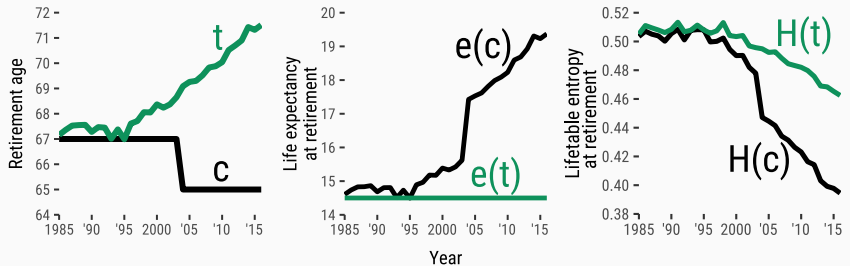
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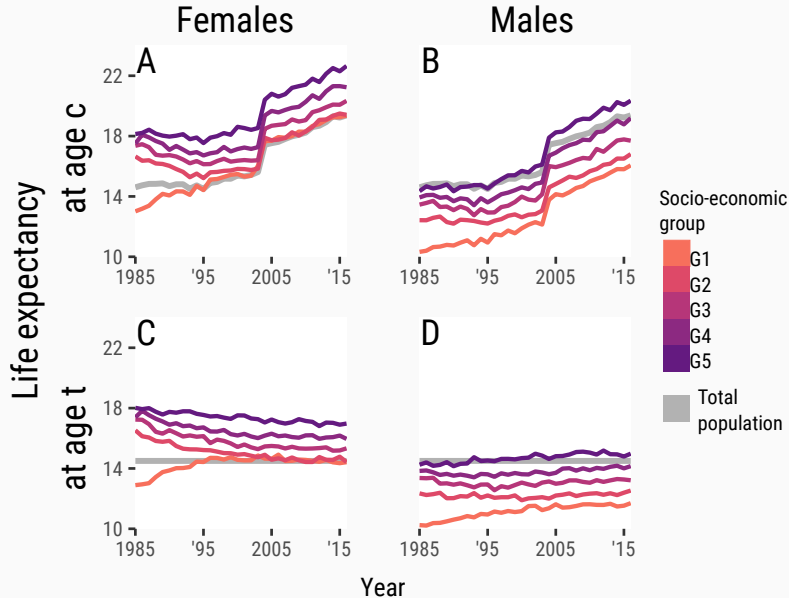
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Demographic panorama by socio-economic groups

LIFE EXPECTANCY BY SOCIO-ECONOMIC GROUPS



LIFETABLE ENTROPY BY SOCIO-ECONOMIC GROUPS



Actuarial perspective on socio-economic differences, $\delta > 0\%$

ACTUARIAL PERSPECTIVE ON SOCIO-ECONOMIC DIFFERENCES



To sum up

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Socio-economic disparities in lifespans **prevail** regardless of the age at which individuals retire.

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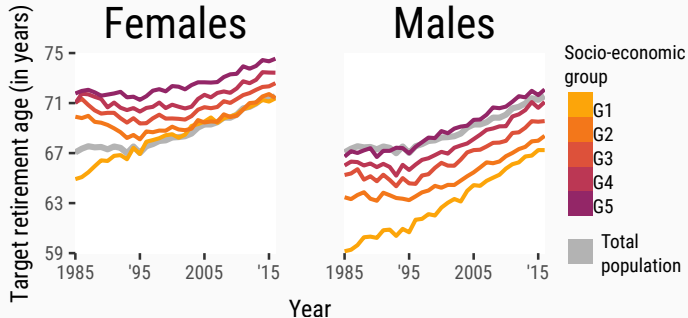
Linking retirement age to life expectancy has detrimental implications for lower socio-economic groups.

It might affect other pension objectives:

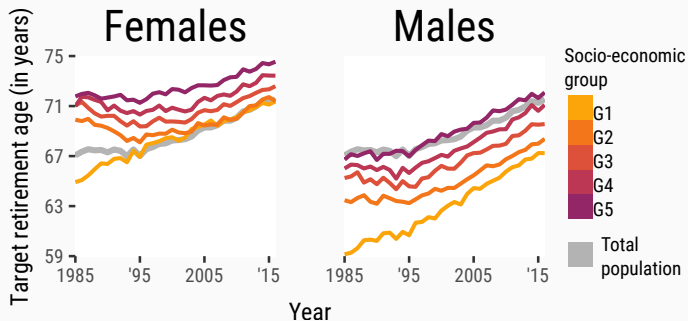
- redistribution of income from the poor to the rich,
- distortions on actuarial fairness,
- lower replacement rates,

How to set retirement ages?

HOW TO SET RETIREMENT AGES?

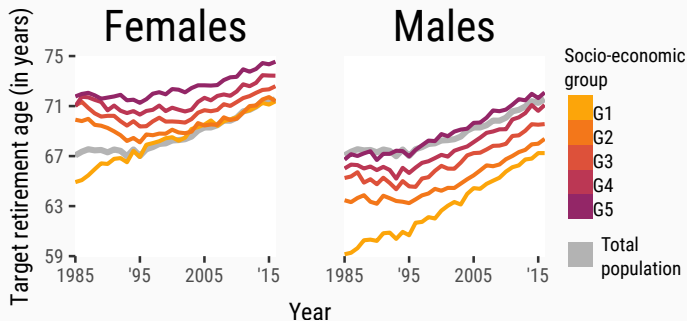


HOW TO SET RETIREMENT AGES?



Not really...

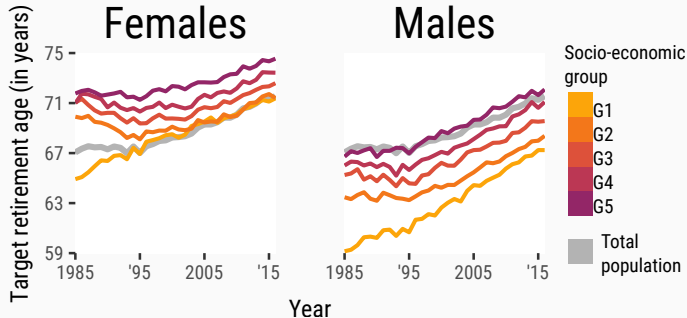
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Not really...

Take into account number of years in the labour market:

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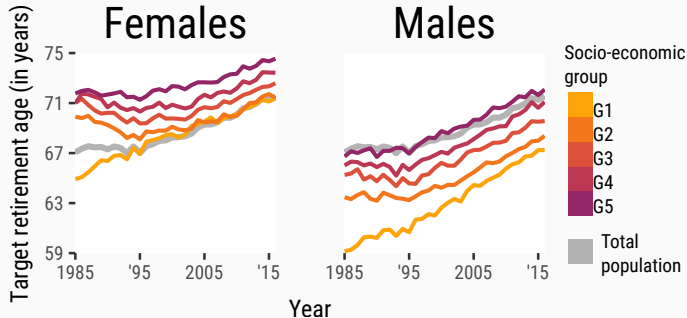


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Not really...

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Retirement ages should be defined as a **trade-off between constant life expectancies and low lifespan inequality.**

Questions?