FIRST DEMOGRAPHIC READINGS IN MEMORY OF ANATOLY VISHNEVSKY
"Demographic horizons of Russia and the world in the medium and long term prospective"

Health transition theory in the face of environmental and biological changes

France Meslé and Jacques Vallin

National Research University Higher School of Economics
9-11 November 2021

ined
INSTITUT NATIONAL
D'ÉTUDES DÉMOGRAPHIQUES

The general picture

- ✓ From the end of the 18th century for the forerunners, and from WW2 all over the world, life expectancy has been steadily increasing.
- ✓ But progress did not occur at the same pace everywhere
- ✓ Life expectancy stopped increasing and even decreased in some cases
- ✓ In most advanced countries, female life expectancy is now overpassing 85 years. How long will the progress go on ?

Is it possible to explain secular life expectancy trends with a general theory and to predict the future?

ined
INSTITUT NATIONAL
D'ÉTUDES DÉMOGRAPHIQUES

Theoretical background

- ✓ The *epidemiologic transition theory* (Omran, 1971) : from the age of "*pestilence and famine"* to the age of *"degenerative diseases and man made diseases",* through the *age of "pandemics receding"*
- ✓ Adding new ages:
  - ✓ age of *"delayed degenerative diseases"* (Olshansky & Ault 1986)
  - ✓ age of *"reemergence of infectious diseases"* (Olshansky *& al.,* 1998)
  - ✓ age of *"aspired quality of life with paradoxical longevity and persistent inequities"*
  - ✓ age *"towards equity and quality"* (Omran, 1998)
- ✓ Rethinking the whole perspective: the health transition

The health transition

- ✓ Change the concept by moving from "*epidemiologic*" to "*health*" transition (Frenk *et al.,* 1991) that includes not only epidemiological changes but also social and behavioural changes
- ✓ Consider several successive epidemiologic transitions (Horiuchi, 1999): at each technological era corresponds a dominant cause of death (close to the Grmek's concept of pathocenosis)
- ✓ A succession of phases of divergence-convergence (Vallin & Meslé, 2004, 2005)

A succession of divergence/convergence processes (Vallin and Meslé, 2004, 2005)

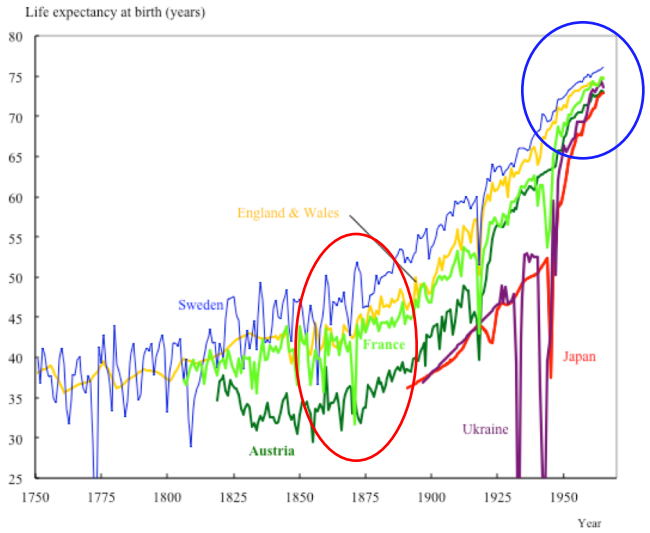
- ✓ Any major factor of improvement in life expectancy results in a phase of divergence
- ✓ After some time laggers catch up with the pioneers in a convergence phase
- ✓ New improvements cause new processes of divergence/convergence
- ✓ A new process can start even if the previous one has not ended
- ✓ Sub-national trends may follow the same rule

Where were we in the first decade of the 21st century ?

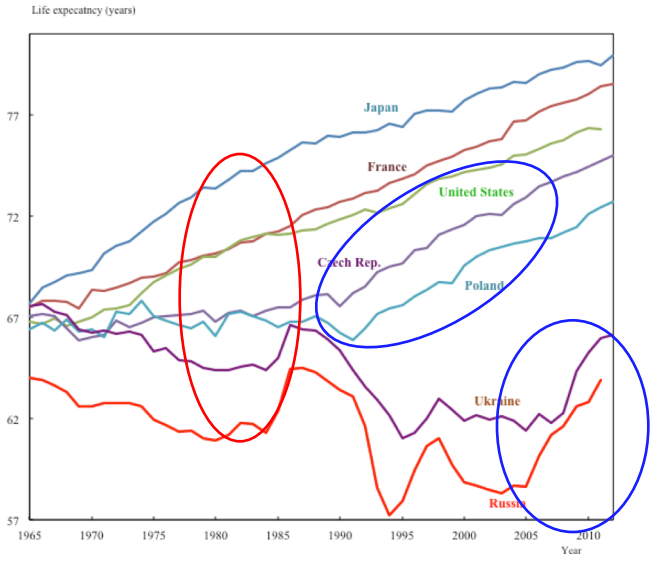
When comparing life expectancy trends in the most developed countries, it was possible to identify three main processes of divergence convergence:

- the epidemiologic transition
- the cardiovascular revolution
- the fight against ageing

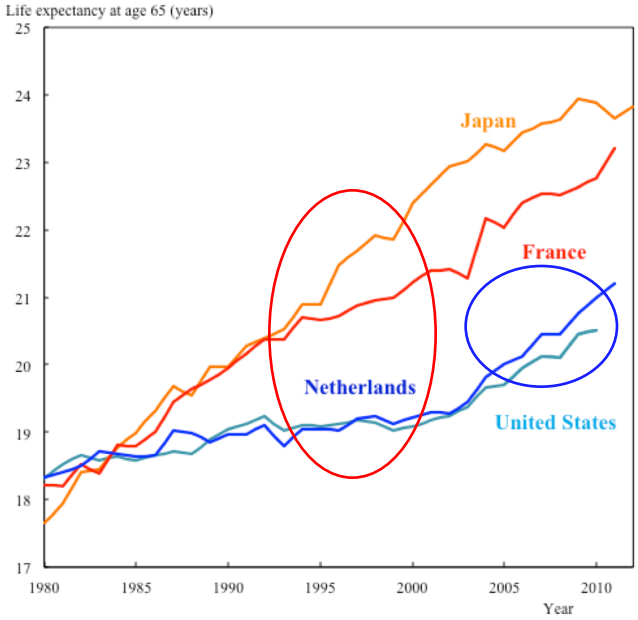
Process 1: Omran's epidemiologic transition



Process 2: The cardiovascular revolution



Process 3: The fight against ageing



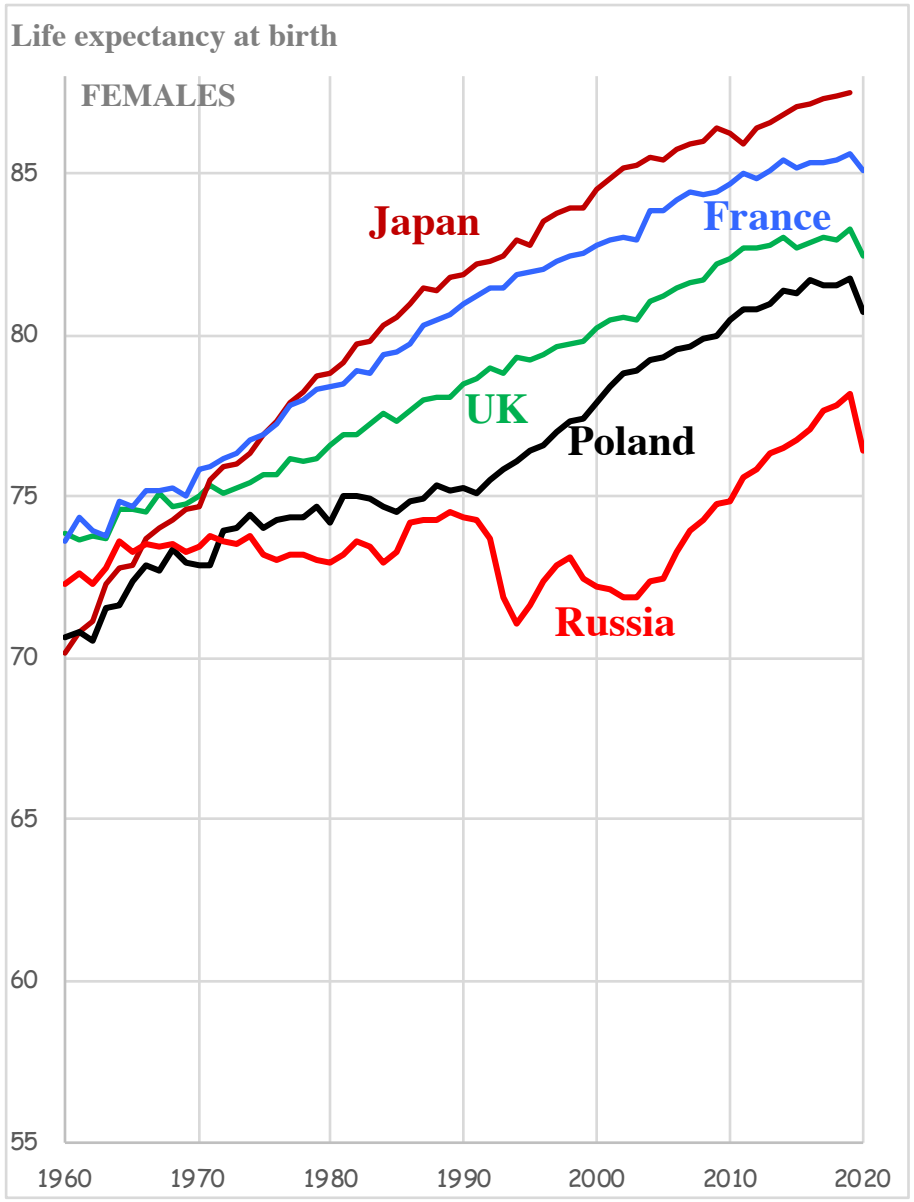
ined
INSTITUT NATIONAL
D'ÉTUDES DÉMOGRAPHIQUES

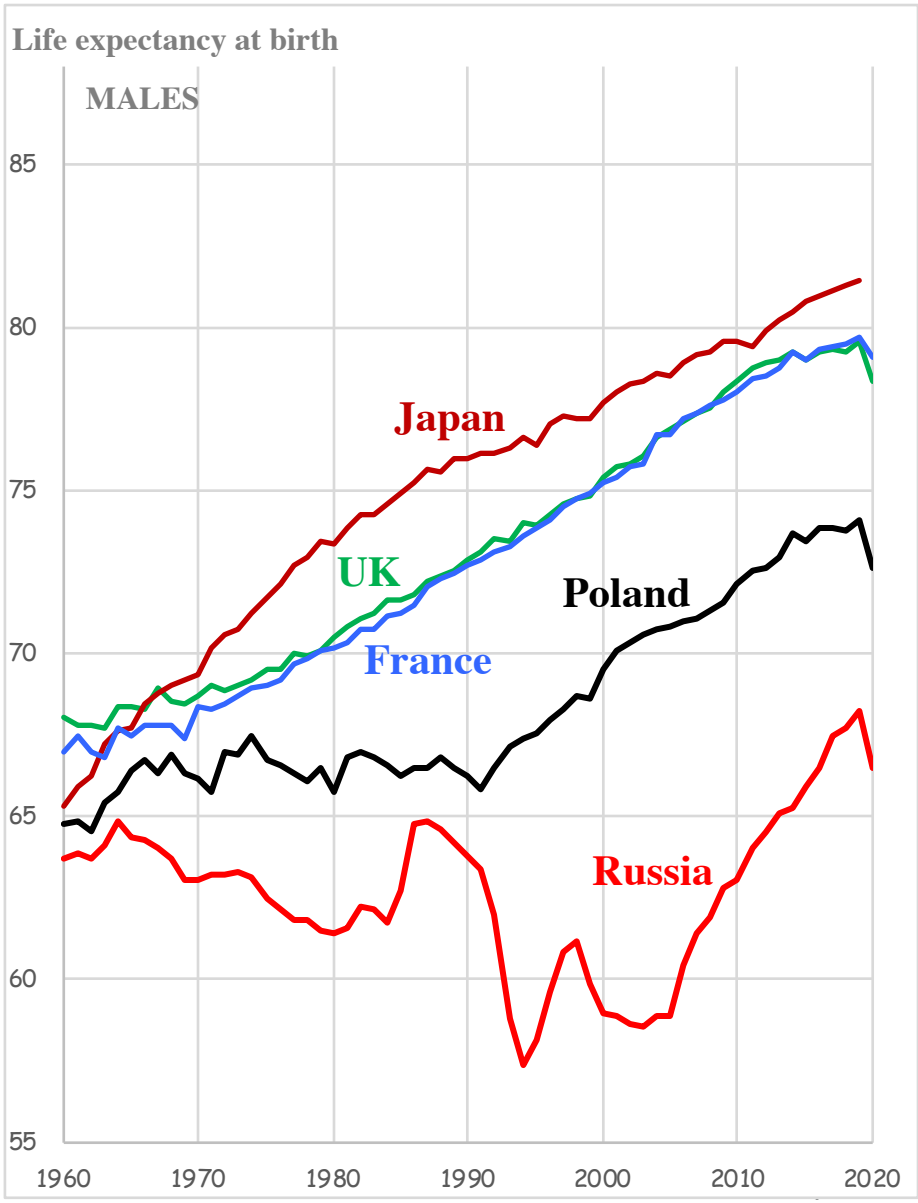
Where are we today?

Are some recent trends questioning the general theory or are they only temporary epiphenomena?

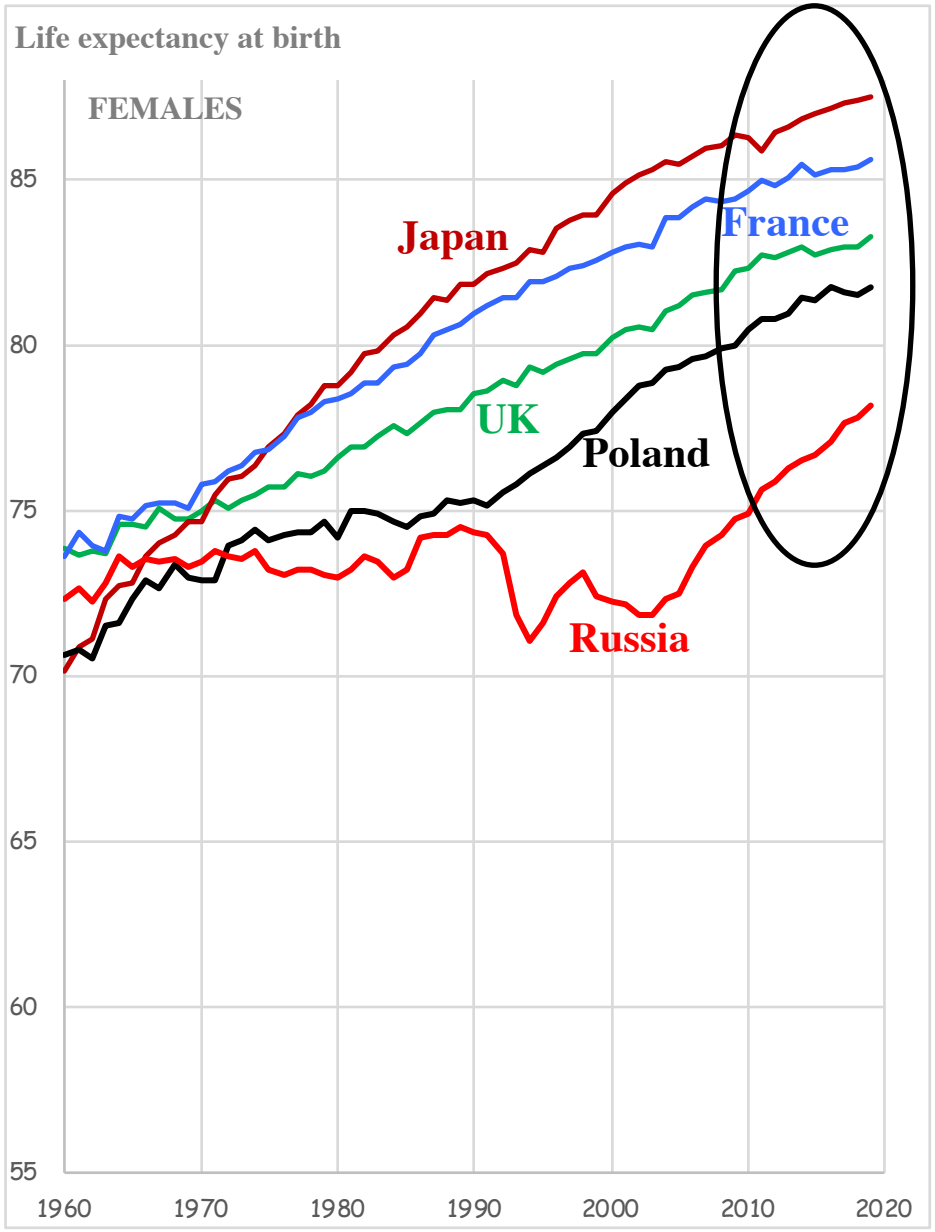
- ✓ AIDS epidemic:
  - ✓ a turn back to the first stage ?
  - ✓ with time, a historical misstep, rapidly cleared
- ✓ The rise of the diseases of despair in the US:
  - ✓ a full stop in the second stage ?
  - ✓ a temporary social and economic crisis
- ✓ The reappearance of deadly epidemics for the elderly:
  - ✓ the end of sustainable progress at older ages ?
  - ✓ simple fluctuations which don't question the positive trend

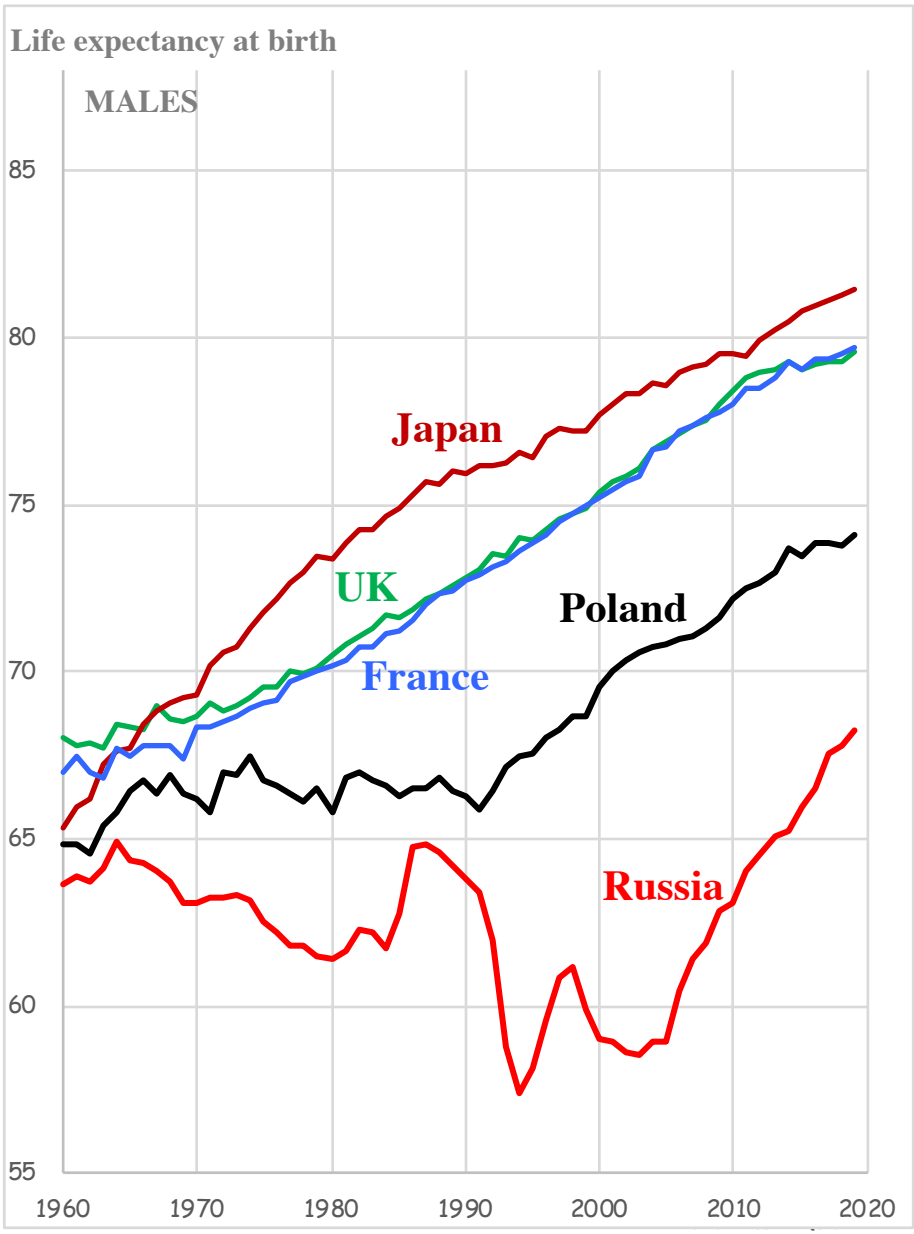
Life expectancy trends in five countries, since 1960



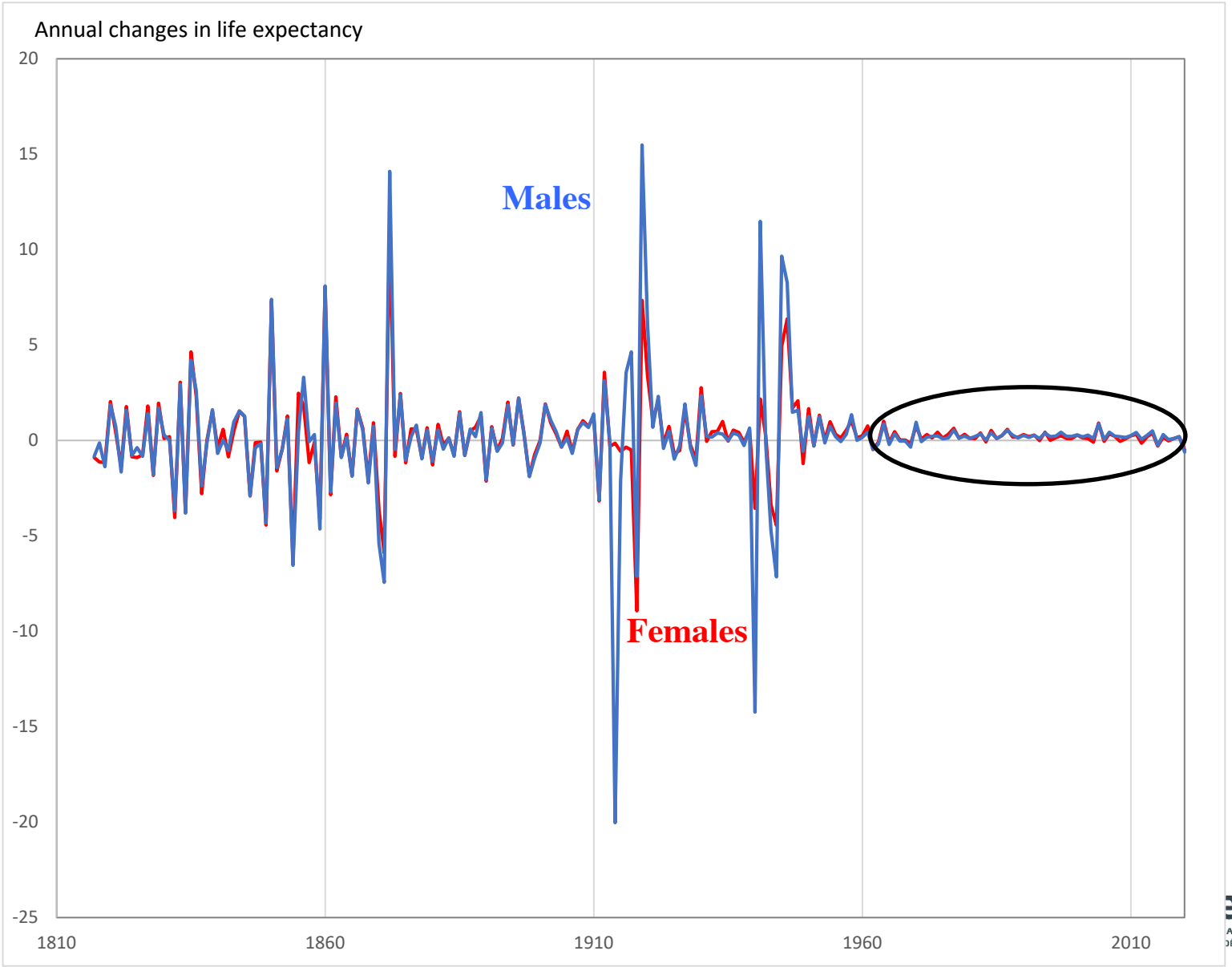


If omitting the year 2020

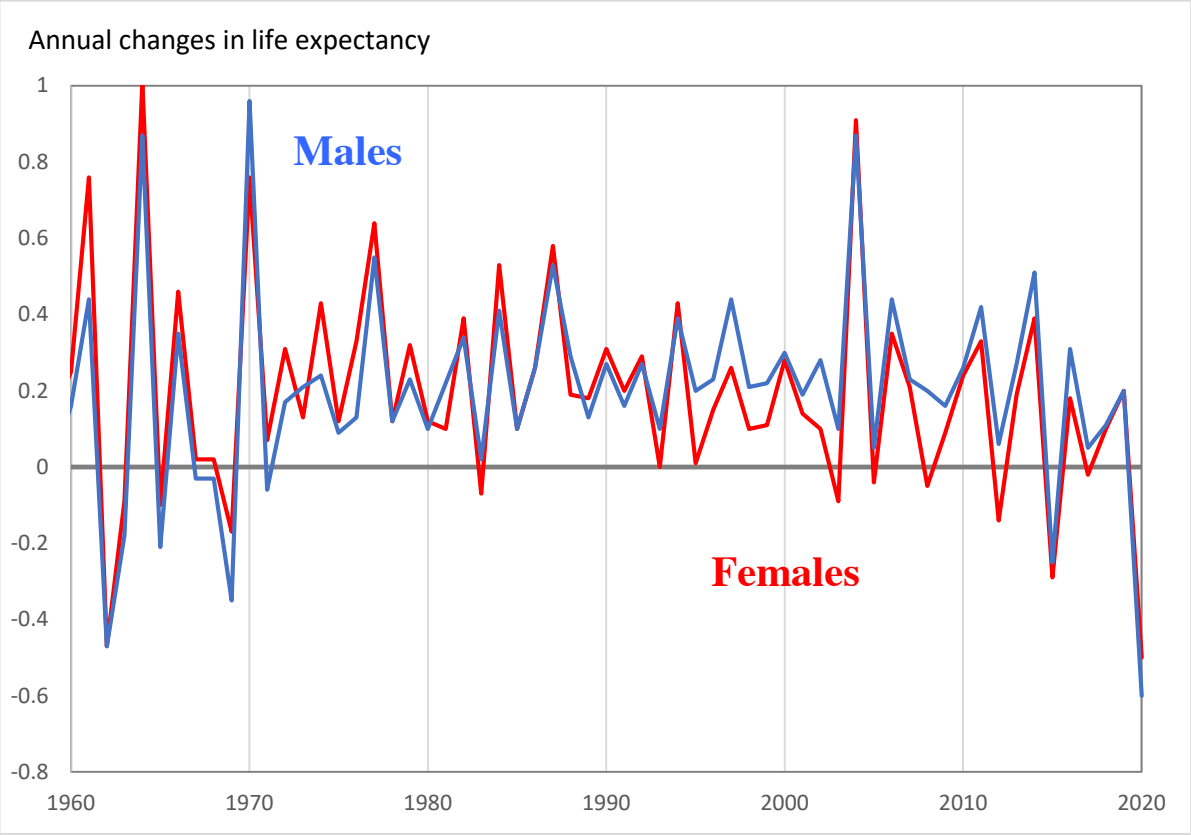




Have fluctuations increased actually?
In France, not really but…

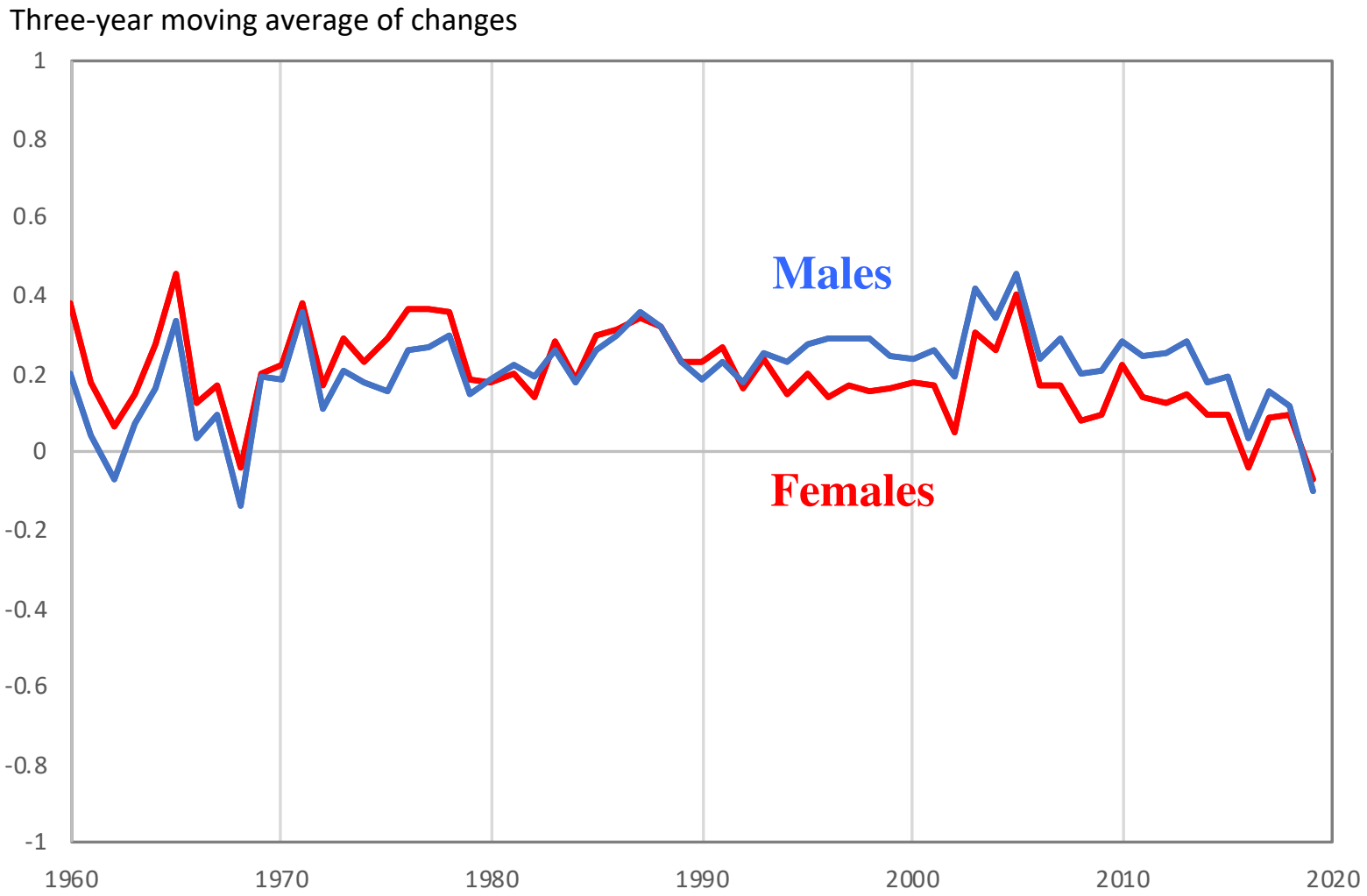


… quite recently, yes, with more and more negative changes



ined
INSTITUT NATIONAL
D'ÉTUDES DÉMOGRAPHIQUES

While gains are less and less

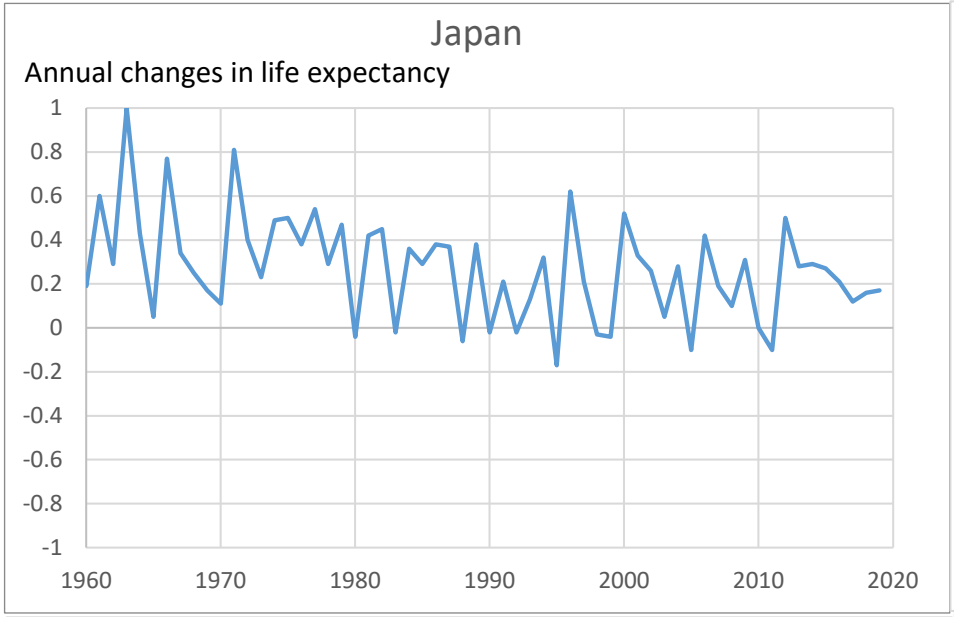


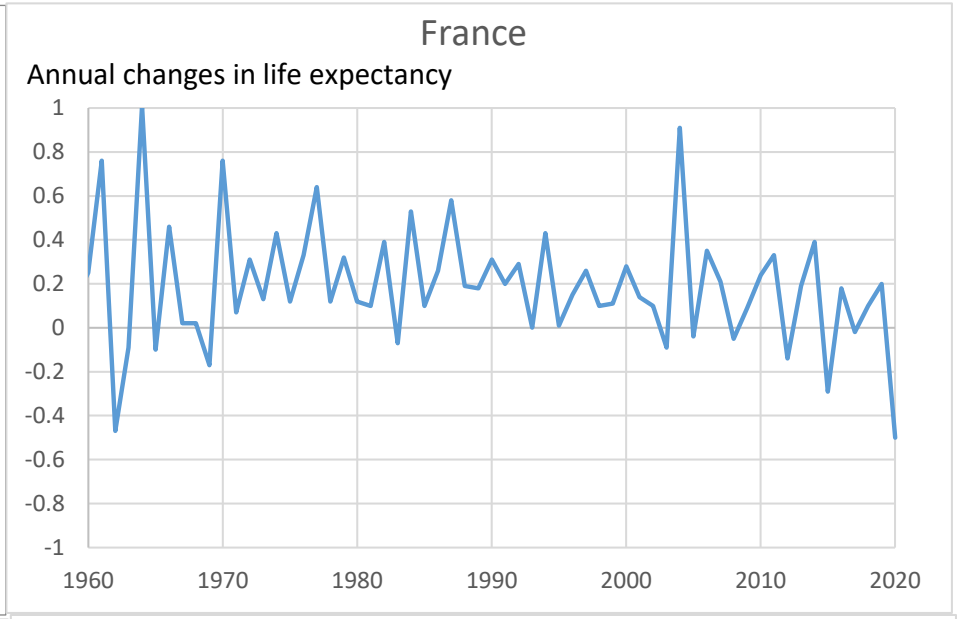
ined
INSTITUT NATIONAL
D'ÉTUDES DÉMOGRAPHIQUES

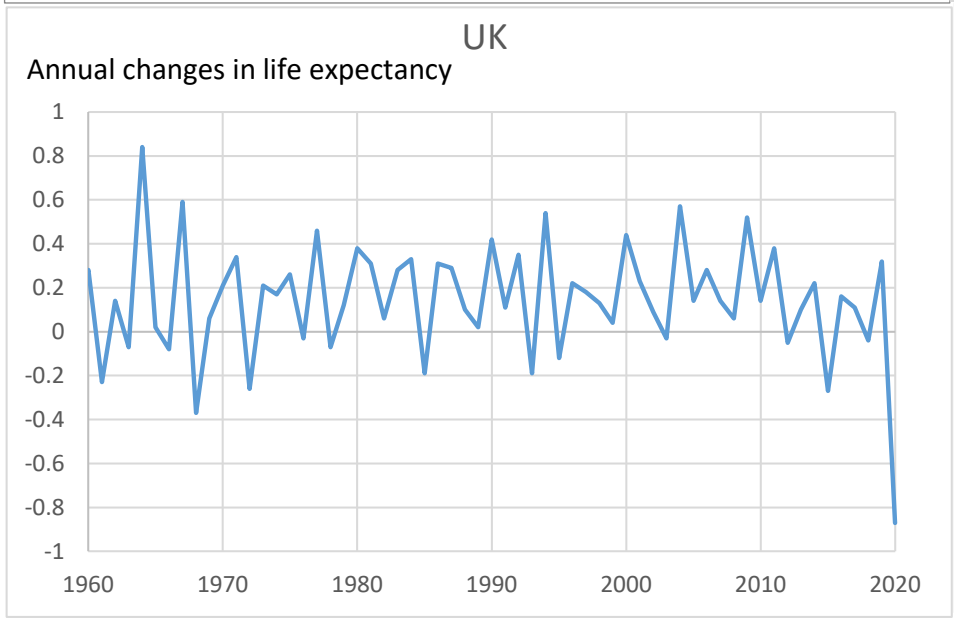
Focusing on women and selecting four countries for international comparison

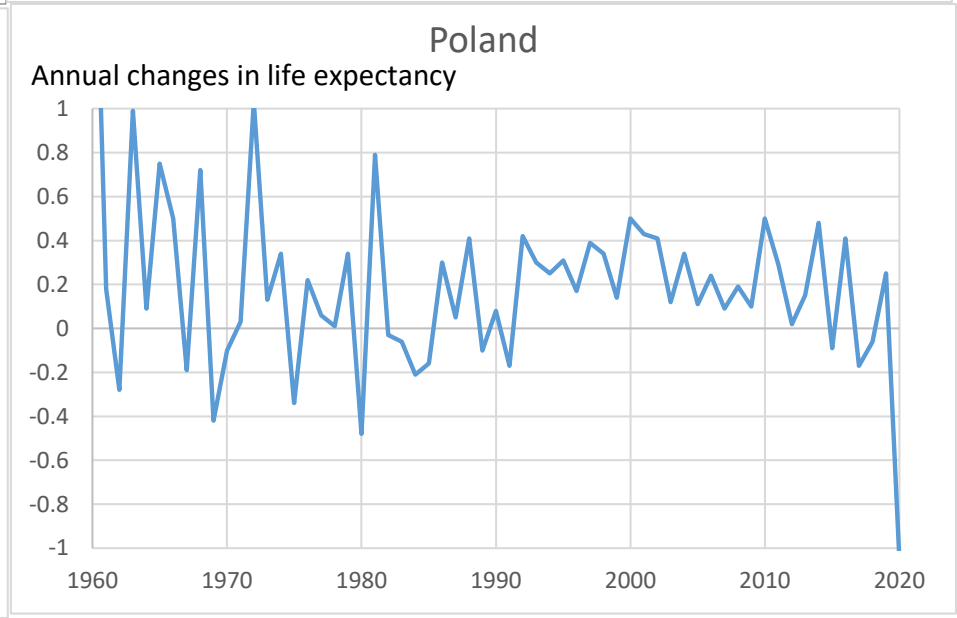
- ✓ Females are the most advanced in terms of longevity and old age survival
- ✓ A selection of countries which have completed the second cycle of divergence-convergence : Japan, France, the UK and Poland.

How does life expectancy fluctuate since 1960 ?

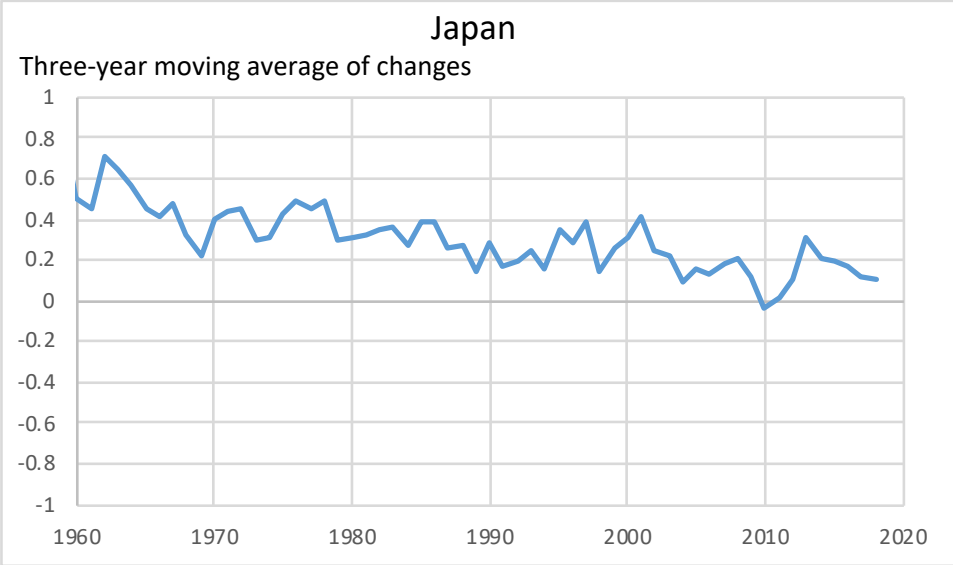


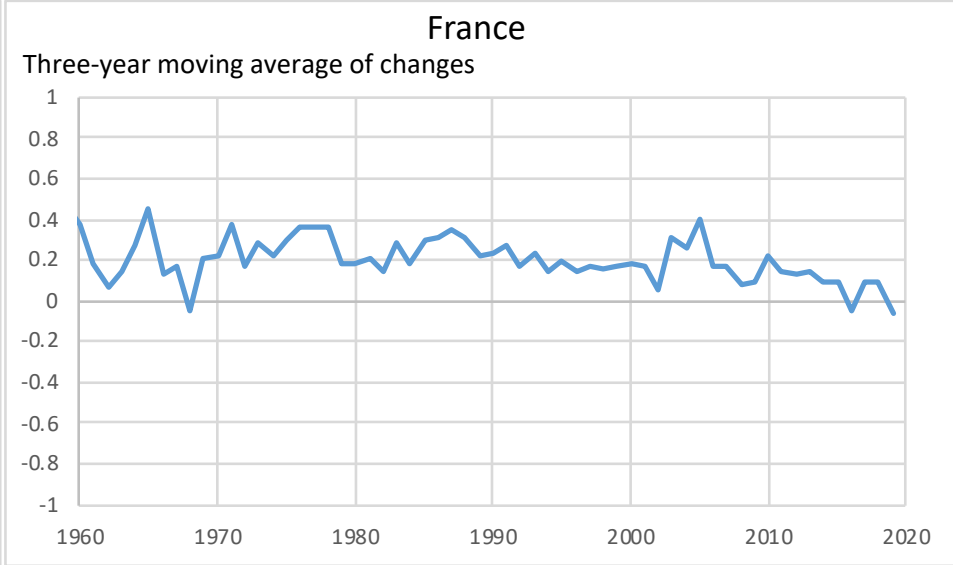


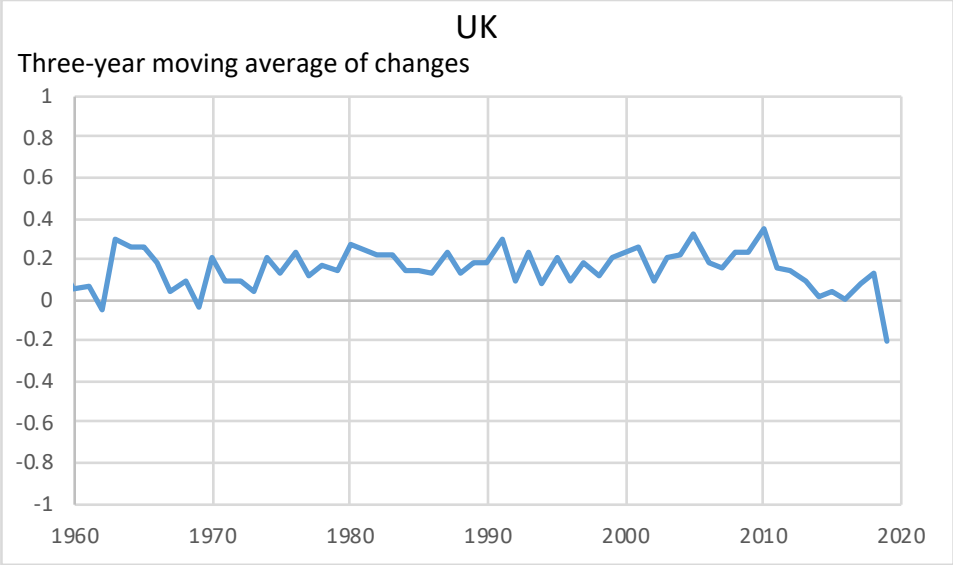


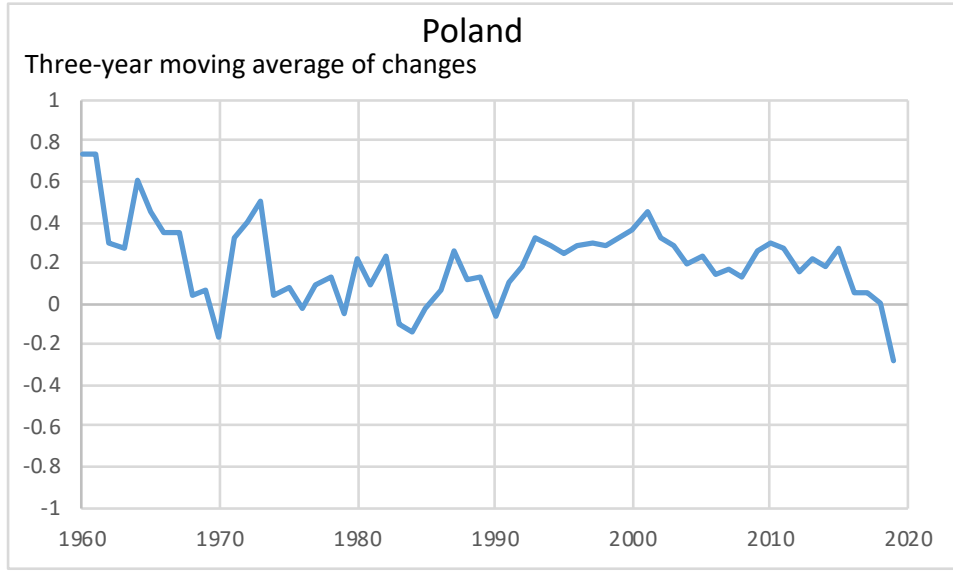


What about the trends in getting years of life expectancy: three-year moving averages





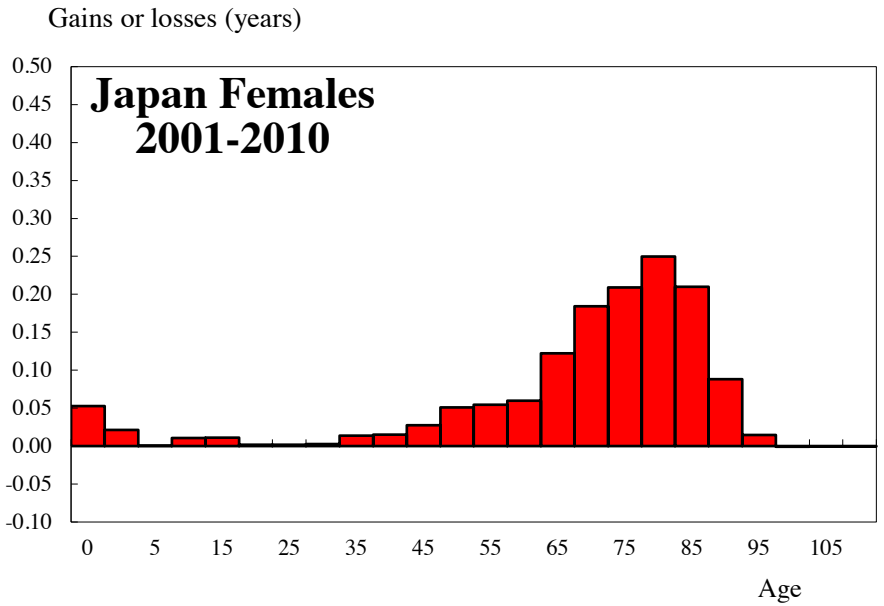


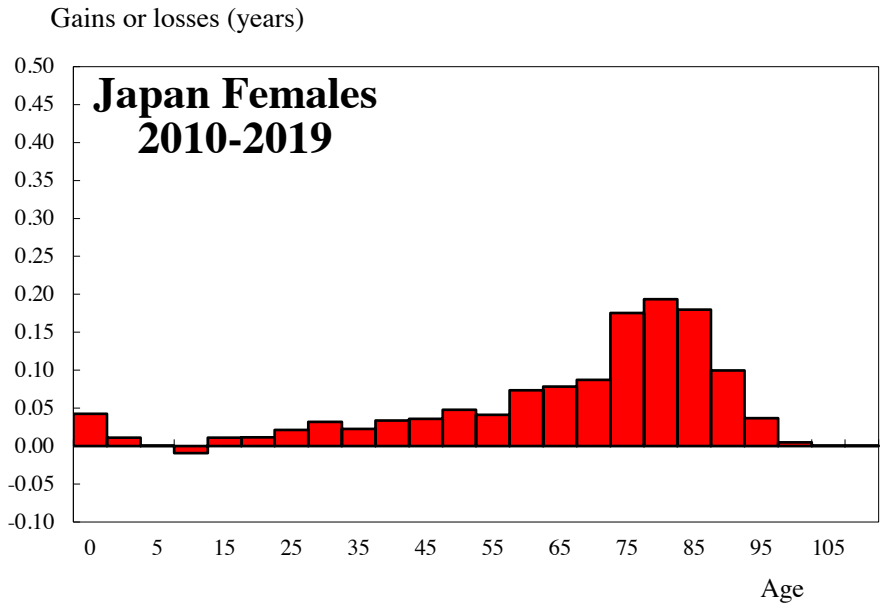


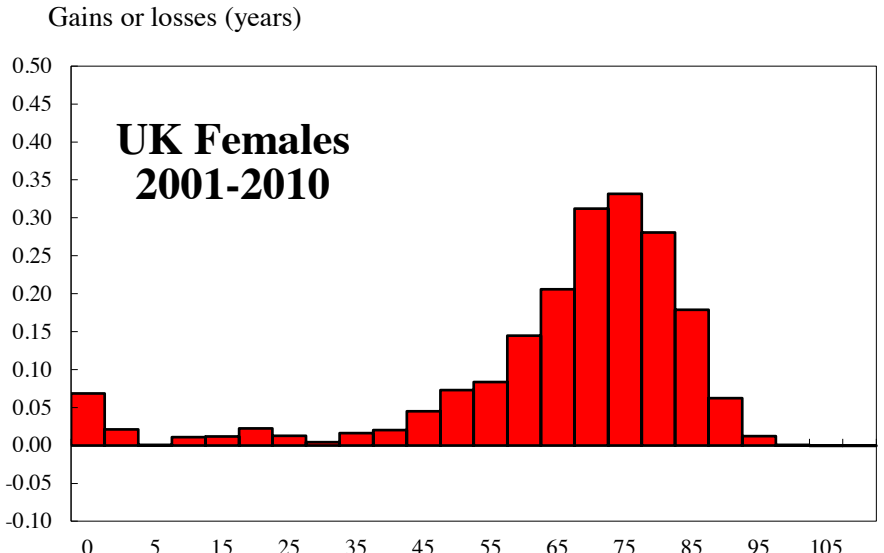
Recent changes

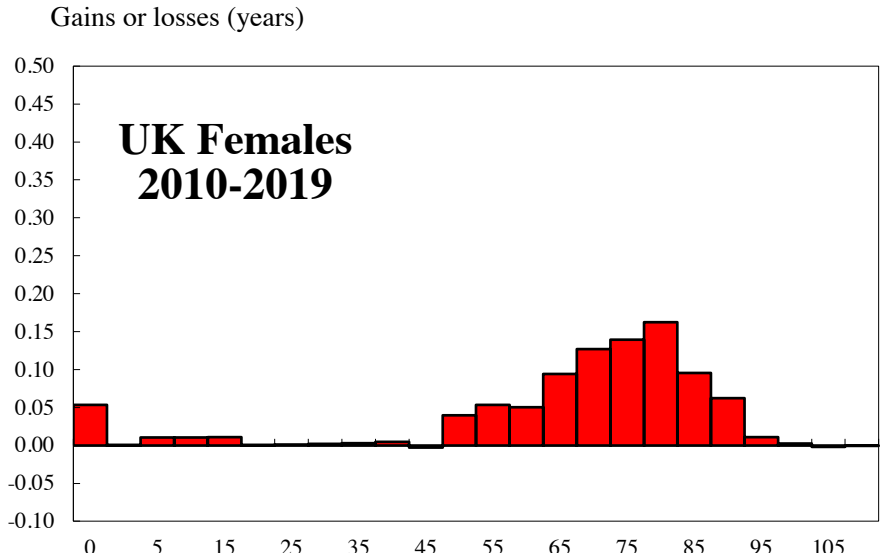
- ✓ Increasing fluctuations: with more and more negative changes.
- ✓ Slowing progress
  - ✓ Impact of flu and covid epidemics on vulnerable old peoples?
  - ✓ or a more fundamental phenomenon (regular increase in new pathologies, especially in old age)?
- ✓ Let us look at age and cause components of life expectancy changes

Japan and United Kingdom : a decrease of gains at all ages

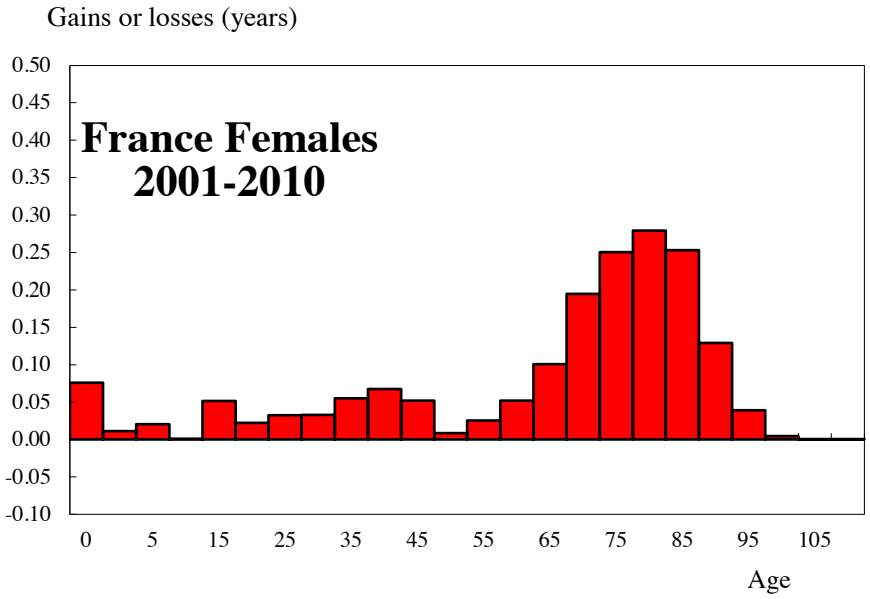


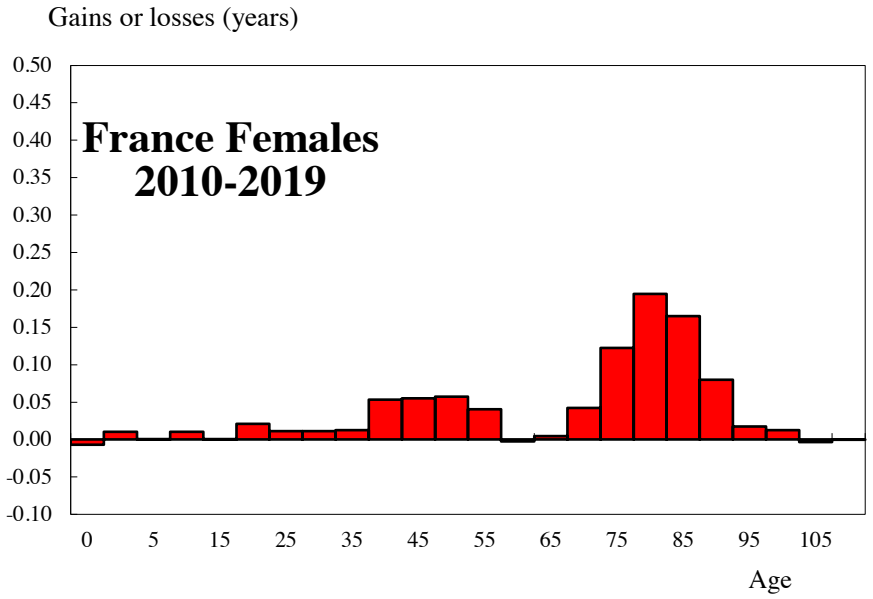


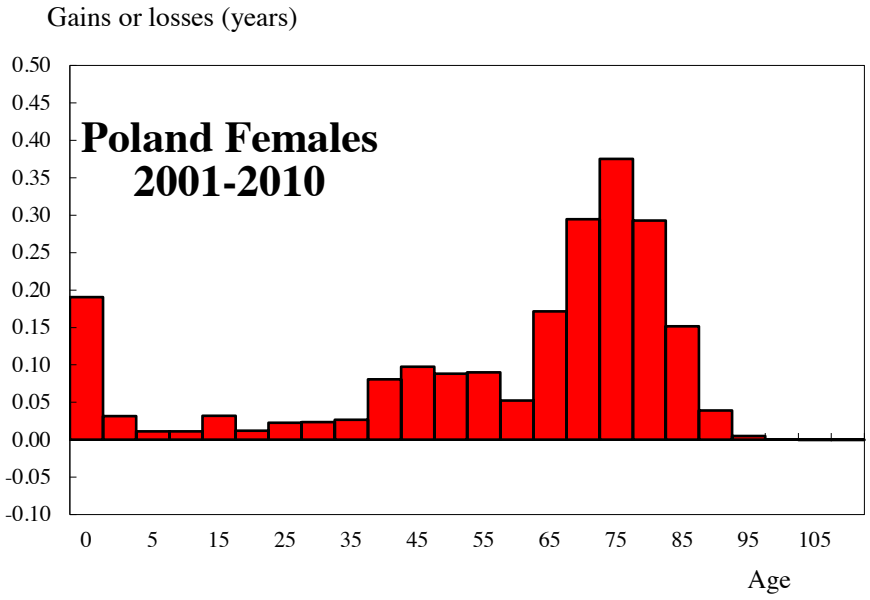


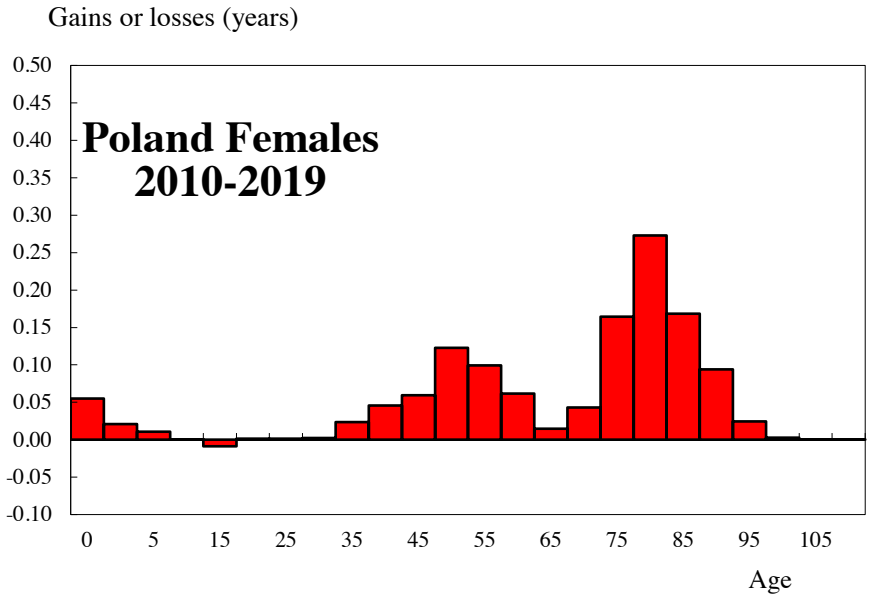


France and Poland: the same

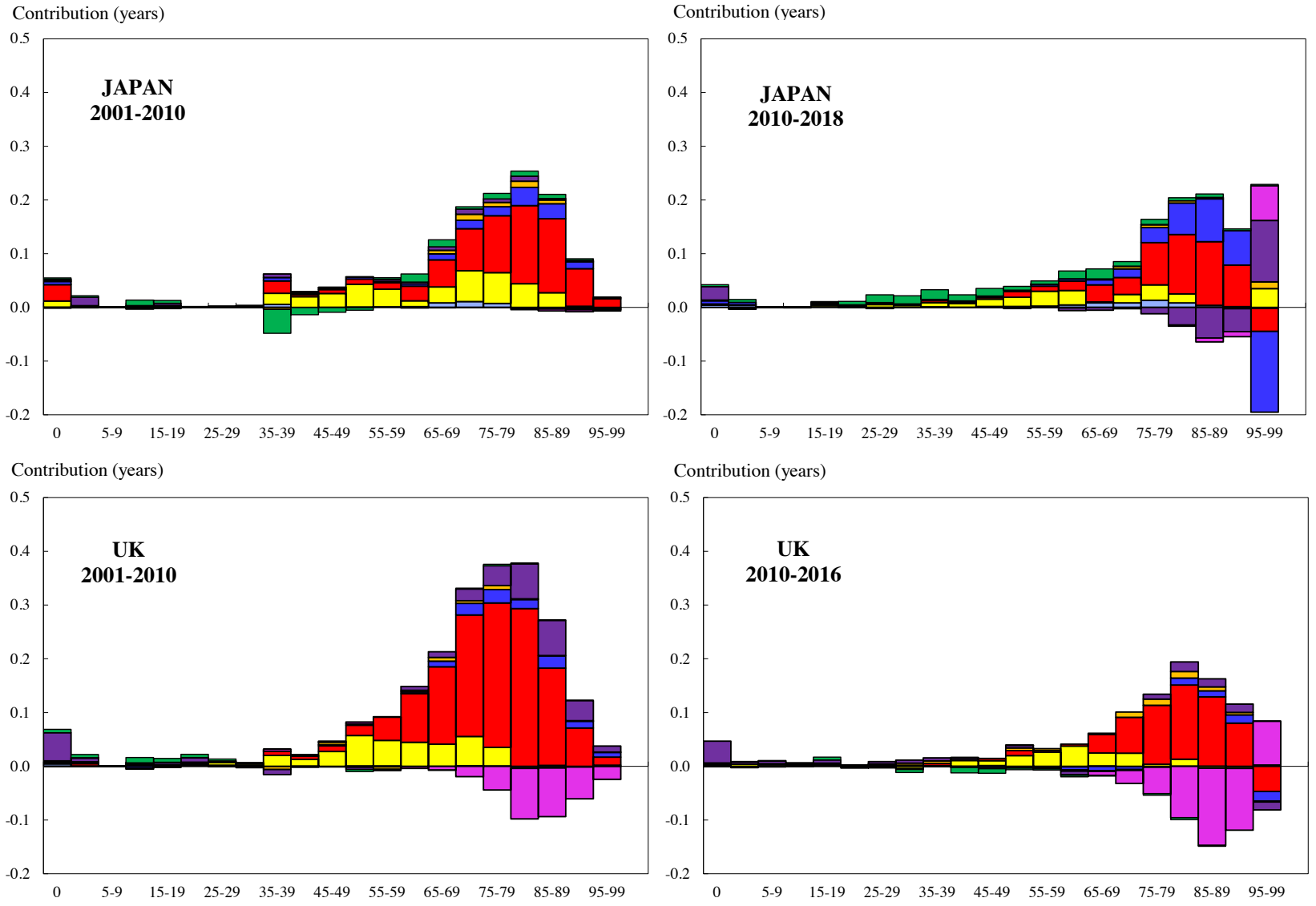




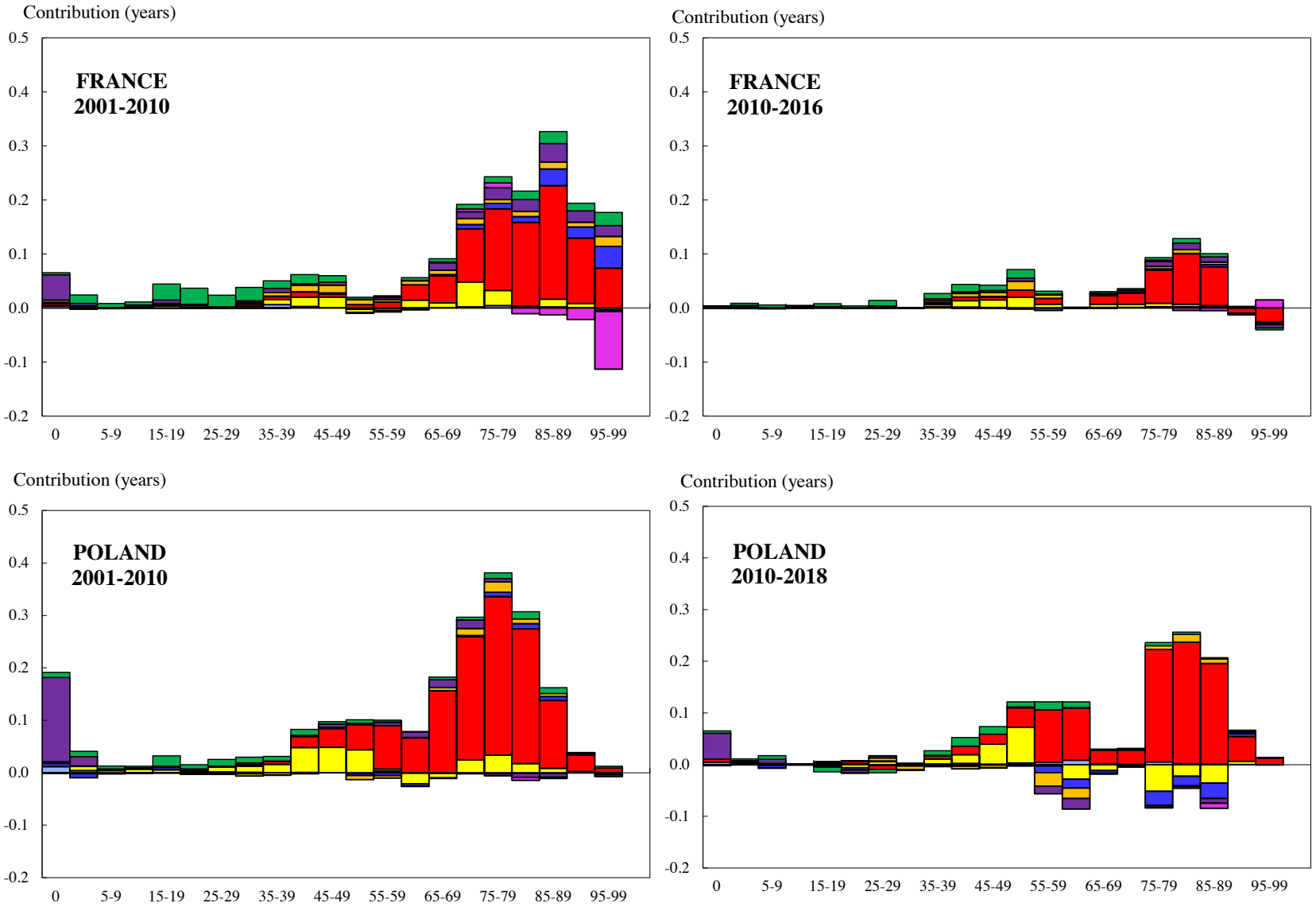




Japan and United Kingdom: some negative effects



France and Poland: a less clear picture



Conclusion

- ✓ A diversity of situations
- ✓ Further progress in life expectancy is not ensured
- ✓ Hindsight is lacking to clarify the reasons for the recent slowing down
- ✓ It could be the start of a new stage of health transition: neurodegenerative diseases becoming the leading cause of death
- ✓ Exploration should be extended to other countries
- ✓ And the risk of a succession of sanitary crises (heat waves, new epidemics) is not totally excluded.

ined
INSTITUT NATIONAL
D'ÉTUDES DÉMOGRAPHIQUES

Thank you !

ined
INSTITUT NATIONAL
D'ÉTUDES DÉMOGRAPHIQUES