

The Financial Impact of Increasing Longevity

In 1965, Andre-Francois Raffray, A lawyer in the southern French city of Arles, made a deal with a ninety-year old woman. In a contract relatively common in France, he agreed to pay her an income for the rest of her life in exchange for inheriting her house upon her death. Unfortunately for M raffray, the woman was Mme. Jeanne Calment, who went on to be the longest-lived person in the world at 122 years. She outlived the luckless M.raffray, who paid more than the value of the house before pre-deceasing her.....!



Jeanne Calment (1875 - 1997)

PARIS -- Jeanne Calment, born a year before Alexander Graham Bell patented his telephone and 14 years before Alexandre Gustave Eiffel built his tower, died in a nursing home in Arles. At 122, she was the oldest person whose age had been verified by official documents. One of Mme Calments saying was "in life sometimes you make bad choices' this obviously wasn't one of hers.....

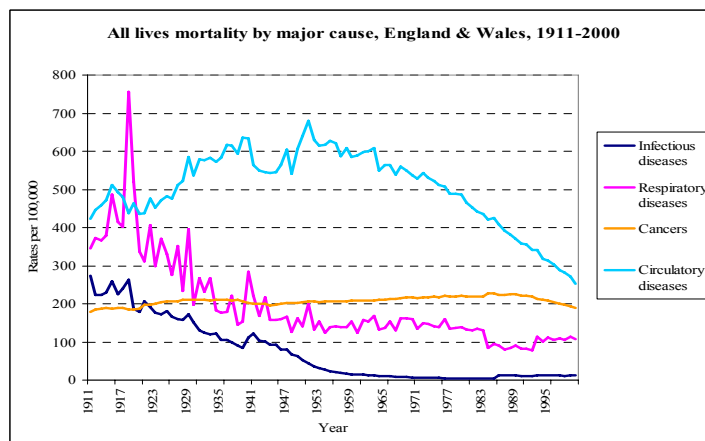
Longevity has been improving for many years and the rate of acceleration has increased in recent years. As you can see from the table below we have seen a 20% improvement in the 6 years to 2002 when the same improvement took 68 years from 1901 to 1969.

- 20% fall between 1901 & 1969 (68 years)
- 20% fall between 1969 & 1986 (17 years)
- 20% fall between 1986 & 1996 (10 years)
- 20% fall between 1996 & 2002 (6 years)

Some of the reasons for this improvement could be explained as:-

- Improvements in state education and establishment of the NHS
- Cigarette consumption
- World War II
- Austere, but relatively healthy, diet in the post war years
- Reductions in infectious diseases in early life
- Reductions in circulatory disease in later life

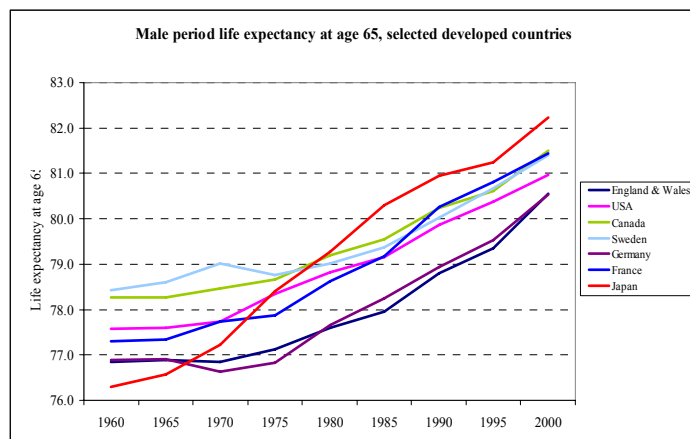
You can see from the table below the virtual elimination of deaths from infectious disease during the first half of the century and rapid improvement in mortality rates from circulatory disease during the second half of the century has had a significant impact on longevity. For those of you now looking at the pink spike this is the effect of Spanish flu and some of the reason why bird flu is taken so seriously today.



Source ONS Statistics

In recent years Cancer survival rates have increased significantly in the UK but the yellow line has remained level as less people die of Heart Attack and Respiratory Diseases but something has to get you in the end.

We have looked at the changes to longevity in the UK however this is not unique to us and can follow other improvements in longevity across the developed world in the graph below.



This table indicates that although our mortality has improved it is still behind many of our European neighbours and across the developed world. This could indicate that our future mortality improvements should increase at a greater rate to catch up with the countries ahead of us. Some of you may be looking at the red line and considering why this group has increased at a greater rate than any other? Some suggest the reason for this could be the invention of the refrigerator and significantly less salt used in the storage of food for this group. Having said this life expectancy in the certain parts of the world remains very low for example average male life expectancy in Zimbabwe is only 37.

So what does this mean to me and my Pension?

For a 65 year old male today a 20% improvement in longevity will reduce his annuity by 9% because the provider will have to continue payments further into the future than currently expected. Having said this Longevity is only one aspect of Annuity pricing Gilt yields also have a significant effect on Annuity rates.

We have looked at the Longevity historically but looking forward is probably more important and will have a greater effect on Retirement Incomes in the future. Obviously this is not an exact science and people have very different views on the future, even experts from wider fields cannot agree!

- Professor Jay Olshansky, University of Illinois (The Pessimist)
- Dr Jim Oeppen, University of Cambridge (The Optimist)
- Dr Aubrey de Gray, University of Cambridge (The Extremist)

One argument is that mortality will not continue to improve at its current rate the main reasons for this are:

Obesity, Belief that the USA is on the verge of an obesity epidemic.....and that the UK isn't far behind. Recently commented in the press was that by 2040 50% of the population will be obese

Spread of disease, SARS, avian flu, repeat of the Spanish flu spike but higher.

Most importantly, the existence of biomechanical limits on our lifespan, we just get old and break from wear and tear!

One contrasting view to this is that it is possible to achieve engineered negligible senescence. "It is not just an idea: it's a...plan to repair all...molecular and cellular damage that happen to us over time." This person has said that the first person to live to 1,000 might be 60 already. (Recent TV documentary)

No one knows what the future holds however assumptions have to be made about the future to make sure there is enough money in the mortality pool to continue to pay pensions for as long as the population lives into the future.

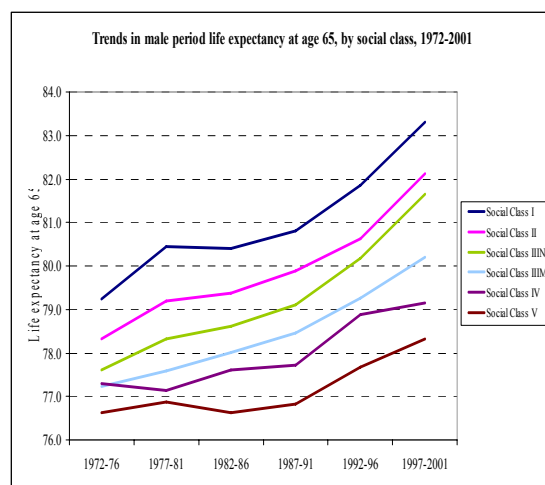
Lastly we can consider the difference of Longevity across different socio economic groups There are many ways to classify people into socio-economic group e.g. occupation, education level, income etc.

Occupation is often used - social classes I to V, with III split into IIIN (non-manual) and IIIM (manual).

Class I – professional

Class V - unskilled

Over the last 30 years, improvement rates have been largest in the better socio-economic groups. Differentials between class I and class V lives have been increasing. Differentials are not caused by belonging to a particular socio-economic group, but by associated behaviours, e.g. diet and smoking habits.



We have said before that Longevity is not an exact science and looking forward people have very different views as to what may happen in the future. Importantly for Insurance Companies. In particular those players in the Annuity market are taking on the full longevity risk into the future and therefore have to be more conservative in their views however the Annuity market is an open market and rate will be a key factor on those who secure this business in the future. Government has considered the option of offering Longevity bonds where the longevity risks could be shared with the insurance industry however currently have deferred moving into this market, having said this we do believe that longevity could be traded risk in the future.

Impact on Annuity rates.

Insurers use rating factors to assess the risk they take on; they can only use factors for which they have reliable data and an understanding of that data.

For annuities our rating factors are:

Age - Sex - Fund size - Health

Lifestyle (Future considerations)

- Dietary habits, - BMI index- Attitude to health - Postcode- Family mortality history

In theory if the impact of a factor is understood then it can be used in pricing.

Currently the poorer mortality lives are cross subsidising the healthier lives and if we pay a higher amount to the poorer mortality group then the healthier lives will see reduced rates in the future. As this market develops and we have seen a significant increase in impaired and enhanced annuity market and this will continue, also we have seen the drawdown market increase significantly over recent years mainly driven by the fear of people dieing early.

Understanding your own longevity

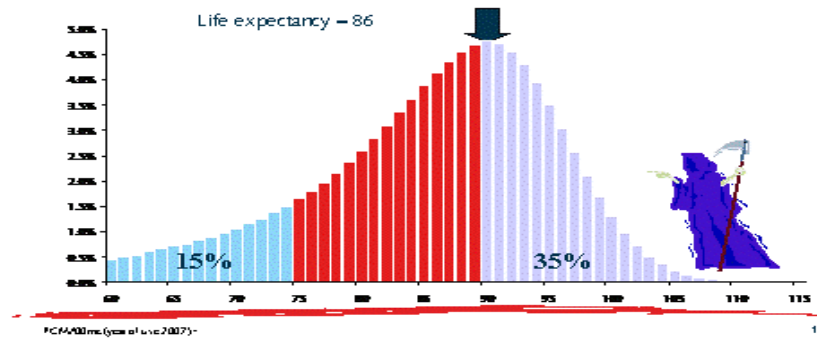
From the table below you can see that for a 60 year old male he has an 85% chance of passing age 75 and a 35% chance of living past 90.

MORTALITY EXPERIENCE

Retirement has more potential with
PRUDENTIAL

CUSTOMERS DO NOT UNDERSTAND THE IMPLICATIONS OF THEIR OWN LONGEVITY

DISTRIBUTION OF DEATHS: MALE 60



I suggest that the biggest issue is not how early could we leave this world but will I have enough money to support my income for the rest of my life? Saying from **Groucho Marx** *'I've got all the money I need for my old age...provided I die by 4pm this afternoon'*

In summary Retirement Income planning is a very complex issue and people need to understand their own potential mortality to make sure that they can provide income for that duration as the Government continue to pass on the Pension risks to the individual. What is clear that any person approaching retirement has a desperate need for advice in this developing market.

Annuities are a huge part of retirement market and very long term business risks. This means that the annuity income guaranteed for life is only as good as the company providing the Guarantee. One of the significant risks to annuities is longevity and hopefully this article has helped to understand the issues in this current market.

Other interesting websites with longevity information

National Statistics

<http://neighbourhood.statistics.gov.uk/dissemination/NeighbourhoodProfile.do?a=7&c=CB8+8BG&q=425917&i=1001x1012&j=302387&m=1&p=1&q=1&r=0&s=1193849144759&w1=1024&enc=1&tab=3&inWales=false>

Citywire

<http://www.citywire.co.uk/Deathometer/Home.aspx?YearOfBirth=1959&SexID=2&RiskID=1&#Results>