Madrid, 26.05.2017

International Longevity
and Cryopreservation
Summit ‘17 Madrid

Money, Pensions and Finance in the World to come

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short introduction

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The world to come will most probably see a huge increase in longevity

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Live expectancy in Roman Empire

Age	Projected Life Expectancy	Approximate Percent of Population in Age Group	Rough Chance of Being Dead by the End of the Year
0	21	4%	36%
1	33	10%	24%
5	42	11%	6%
10	44	11%	5%
15	46	10%	7%
20	48	9%	8%
25	51	8%	9%
30	53	8%	11%
35	56	7%	12%
40	58	6%	14%
45	61	5%	17%
50	63	4%	21%
55	66	3%	25%
60	69	2%	33%
65	72	1%	41%
70	76	0.8%	53%
75	80	0.3%	68%
80	84	1 in 1000	> 99%

Estimates by University of Texas

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https://ourworldindata.org/life-expectancy/

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As you have seen in previous slide,

live expectancy has seen an exponential increase during past century

(after millennia of more or less constant live expectancy)

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Many of the works presented in this Congress have been related with

new tools to fight against various diseases

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Including

how to strengthen the human body in order to improve its abilities in the fight against these diseases

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And here you have the White Paper:

We'll Live to 100 – How Can We Afford It?

(**published today**, 26.05.2017 by the World Economic Forum)

http://www3.weforum.org/docs/WEF_White_Paper_We_Will_Live_to_100.pdf

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and although we don’t know much about the characteristics of the world to come, we will most probably find among them

a further (or even exponentially)

increase in longevity

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What happens with pensions in this context?

<u>There are two main pension systems</u>:

1. The system based in intergenerational solidarity

2. The system based in individual responsibility

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Within the **intergenerational solidarity system**, the problem does not arise (from the technical point of view).

In this system, the amount of pension received by each retired person depends upon the following variables:

1. The wealth generated by a Society over a period of time.
2. The part of this wealth this Society wishes to transfer to retired persons.

(in the case of Spain article 128.1 of the Spanish Constitution of 1978 shows the way).

3. The number of people retired today (which the power operator can alter, for example, by changing the retirement age).
4. The allocation algorithm (for example, taking into account the quotes made by retirees today throughout their active life).

In this system, the pension will be positively related to variables 1 (dependent on multiple factors), and 2 (dependent on the political decision); And negatively with variable 3 (dependent on demography); While their *fairness* will depend on variable 4.

Here the problem shall not arise (from the technical point of view) taking always into account that the amount of pension received by each retired person will depend upon the four variables mentioned (and could be changed only upon changes in one or more of these four variables)

Within the **systems based in individual responsibility**, where the pension that a retiree receives depends on the contribution he/she makes during his/her active life, and on the terms in which the contract is drawn up with the corresponding insurer, we find **two main subsystems**:

1. A guaranteed pension from retirement to death

   (a figure actuarially determined through life expectancy at the time the contract is signed).

2. The right to collect the pension is subject to the availability of funds in the pension plan.

Problems that will arise in both cases, in a context of increased live expectancy, share the key point:

At a given moment funds will not be available for paying the pensions

1. In a system in which pensions are guaranteed from retirement to death, the insurance companies will progressively bankrupt as longevity increases

2. When the right to collect the pension is subject to the availability of funds in the pension plan, insurance companies will not necessarily bankrupt
(provided that it had been calculated from a pension plan actuarially consistent at that time)

Conclusions:

Since, in either case, the problem will have to be solved by the Society as a whole (directly or through the power operator), taking care of people once they have ceased to receive the pension; I se no need to go through a previous phase of bankruptcy of the part of the financial system linked to personal funded pension schemes…

Such a intermediate step shall not solve or contribute to solving the real problem.

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I therefore find absolutely necessary that, in future pension plans, the entities that offer them should include clauses incorporating the variable longevity (measured for example through life expectancy), that could plays a role In the event of a substantial increase in longevity.

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Thank you very much

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