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Longevity and the “greyny boom”

Manna is raining and (almost) nobody seems to realize it.
Demographics (and pensions) as I see them today and tell
my friends

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Longevity and the “greynt boom”. Manna is raining and (almost) nobody seems to realize it. Demographics (and pensions) as I see them today and tell my friends - 2nd quarter 2017

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The views and conclusions cannot be attributed to any institution with which I am associated, and all remaining errors are my responsibility.

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Warning to readers, abstract and highlights

This is not a normal academic paper, not even a non-technical paper. Rather, it is an account and summing up of dispersed recent readings on longevity and ageing, from diverse sources and disciplinary approaches. Against a background of more than 30 years of reflection on pensions and demographics, my views have “meagered”, quintessentially, I would say, to little more than what you have now the dubious chance to read, if you so wish. Moreover, I’ve written this account not quite in the usual academic style, but I have stuffed it as if I were just having a conversation with my friends on these issues thus using the colloquial style proper to that occasion.

My very point on demographics and pensions is that society has not been able so far to fully understand longevity and its implications, particularly its implications for pensions. One could not find a better proof of this statement than the fact that retirement age (at 65) has not changed for more than a century while life expectancy (at birth or at any other age, 65 included) has more than doubled in the same time span. This failure has more or less gone without relevant consequences until recently, when several scientific developments are about provoking a dramatic change in the extension of the limit to human life. At the same time, pensions institutions and arrangements at all levels are unprepared for this change. When and where policy solutions are being advanced, in no way are they being designed to cope not even with a linear extension of longevity. Pro-birth policies in particular, conceived, designed and implemented to help sustain (or make sufficient for decent living after retirement) public (and private) pensions schemes across the world, are particularly misguided, given ordinary, current trends in longevity. Only recognition of what longevity is and how it evolves will help effective and efficient solutions to emerge. These solutions have a common denominator: breaking the 65 years ceiling glass.

So, out of this short paper (or long pamphlet), several crucial facts and/or ideas emerge that should, in my opinion, permeate future policy towards, and collective understanding of, the very much important “pensions question”. These are the following.

- Life expectancy at birth has been increasing almost linearly at 2 ½ month per year in the last 160 years. There is no reason to expect any less in the longer term.
- In the case of Spain, this development means that the equivalent age today to that of 65 years in 1900, when you look at the same percentage of a generation that survived that year at 65, is 91 years, that is 26 years more.
- If you, however, look at the age today at which remaining life is the same as at 65 in 1900 (9.1 years, unisex), then what you find is 81 years, that is 16 years more.
- But recent developments at labs have virtually stopped ageing in *Drosophila* and other insects and animals. This could accelerate longevity in humans and we could witness it within our lifetimes.
- Current pension arrangements, either public or private, defined benefit or defined contribution based, could not stand in terms of sustainability and/or sufficiency (of their benefits), even the discounted extension of longevity at past rates. And much less so if longevity rates accelerate.
- Against this backdrop, current policy, mostly based in timid adjustments in retirement ages, level of benefits and encouragement of long term savings, is grossly insufficient. When it comes to pro-birth incentives, policy is even misguided.
- It just takes common sense, a pen and the back of an envelope (you don't need to go to Harvard) to realize that (using Spanish data and for this country) those 2 ½ months of extra life every cohort enjoys over the previous one (at 65 years, say) amounts to about 100 thousand babies, every year.
- The next step is to realize that instead of bribing individuals to have those extra babies (letting them do as they wish on this matter, however) it's thoroughly more effective and efficient to dispense off with the tyrannical 65 years' barrier.
- Let's facilitate this “greyny-boom” to materialize into the economy and society and manna will rain for all.

1. Ageing

Frankly, I don't like this word. Less I like it when said in Spanish: *envejecimiento*. Just awful.

I'm currently Sixty-four¹ and I'm in much better shape than the representative individual of my age in 1950, not to mention the representative individual of my age in 1900. Under this perspective, we don't age, we rather rejuvenate. That's a way to look at it. The best case, I admit it.

Even assuming the conventional meaning of "ageing", there is a huge social and institutional misunderstanding and misperception of this process. Ageing is not the same as longevity, to me, at least. Ageing is not senescence, today, at least to all who matter academically speaking in this field. So, what is ageing?

1.1. What is ageing?

Ageing is a gradual process of deterioration of the functional reply of an organism to the ordinary requirements of life. Organisms age, as well as mechanisms². Actually, brand new cars age as they leave the factory. Even... the parts of which cars are made are ageing as they are fitted to the frame. Or the materials from which these parts are made age before they are fixed to this or that car part. Or...

Stop. Aging in live organisms happens differently as evolution, genetics, social institutions and individual behavior are there to shape this process while other types of matter just suffer sheer deterioration that is due to stochastic damage or caused by natural phenomena³.

The ageing process starts in a typical human being at age... (see Section 1.2). This process advances at an accelerated pace with time and is somehow determined by genetics (1/3, approximately), collective health systems (1/3) and personal lifestyles (1/3).

In its normal course, ageing reaches a phase, called senescence, at which organ's and system's functional deterioration compounds itself and causes death. Senescence can be thus viewed as a process where everything that take us to death happens, barring crime, suicide or accidents⁴. Senescence, typically lasts around two years on average. Or, rather, it used to last around two years, for what is new is that senescence is shortening (Vaupel et al, 2010).

Few decades ago, ageing proper was assimilated to senescence whatever the cause and defined as "a progressive increase throughout life, or after a given stadium, in the likelihood that a given individual will die, during the next succeeding unit of time, from randomly distributed causes." (Comfort, 1978). That was then the conventional wisdom about ageing. Soon afterwards, however, it was clear that senescence was a distinctive and the last phase of a much larger process of ageing: "a persistent decline in the age-specific fitness components of an organism due to internal physiological deterioration" (Rose, 1991) and its cause was to be found in a lack of genetic response of the organism to the requirements for survival: "aging occurs because of the extensive absence of adaptive genomic information required for survival to, and function at, later adult ages, due to the declining forces of natural selection during adult life." (Rose, 2009). Of course, these factors aren't present when auto parts or furniture "age".

1.2. When ageing starts?

The age at which ageing starts has been conventionally established at immediately after 19 or 20 years. But⁵, just to mention a few cases, (I) teenagers have already lost the capacity children have to hear high frequency sounds (above 20 kHz), (II) certain cognitive process deteriorate after the age of 25, (III) skin wrinkles appear after 30 years, (IV) fertility in women drastically diminishes after the age of 35, (V) presbyopia starts after 45 years, (VI) around 50 hair starts greying, women enter menopause and men start balding by the large

¹ Well, right now (June 2017) I'm 65. But I was 64 when I started writing this paper while listening this: <https://www.google.es/search?q=when+i%27m+64+youtube&oq=when+i%27m+64&aqs=chrome.4.69i57j0l5.7396j0j8&sourceid=chrome&ie=UTF-8>.

² Please, allow me for a while, until the next footnote, this inaccurate comparison for the sake of illustration.

³ I owe this clarification to Parvin Sharestani who opened my eyes as I dared to blindly assimilate ageing by organisms to ageing by mechanisms.

⁴ Now, look at this. Mueller et al. (2016) have advanced and documented the idea of a "death spiral" in the Medfly and the *Drosophila melanogaster* that very much resembles the concept of senescence in humans, a millennia old idea. Curiously enough, right now, we know much more about what causes this death spiral in insects than we know about what causes senescence in humans.

⁵ The rest of this paragraph is entirely based in <https://en.wikipedia.org/wiki/Ageing>. See the detailed references listed there.

numbers, (VII) osteoarthritis affects to more than half persons of between 60-64, (VIII) at between 70-79 hearing losses affecting communication touch almost two thirds of individuals and, finally, (ix) above 85 more than 40% of elders drink insufficiently as thirst perception decreases, or loss of muscle mass (frailty) affects 25% of them.

So, ageing is a multi-faceted process that can be decomposed in sub-processes, bits and parts. No standard (average) age exists at which one starts (kind of synthetic) ageing. But wait.

A more recent, and radical, view on when ageing starts, however, goes far beyond this conventional reckoning. Milne (2006) (literally) writes⁶:

- Through much of the 20th century, the low point of human mortality was seen at 12-13 years of age. Its stability and timing have been accorded significance in terms of evolution, maximal fitness and the onset of ageing
- The nadir of mortality in developed nations now lies at 5-9 years, significantly predating fertility at a mean of 12-13. This differential fall in mortality has resulted in England and Wales primarily but not exclusively from reductions in accidents and deaths from congenital anomalies
- The assumption that the nadir of mortality, onset of fertility and a putative intrinsic point of maximal biological fitness are synchronous is disproved by this shift
- Biological ageing, whether seen as 'wear and tear', programmed change, or cumulative stochastic damage appears to commence at or before... conception!

Well... we only age, one would say. Now, see what follows.

1.3. Can ageing be stopped?

As reported by Rose (2012), in 1992 the evolutionary biology of ageing shifted paradigms. In that year Curtsinger et al. (1992) and Carey et al. (1992), described laboratory experiments "in which

demographic aging was shown to subside in late-life among cohorts of *Drosophila* and the medfly" (Rose, 2012). The implication of these experiments is that "it is easy for evolutionary biologists to deliberately produce organisms with slowed or postponed aging... All we have to do is extend the period during which the forces of natural selection act with full force." (Rose, 2009).

So, yes, the onset of ageing can be delayed, for instance, through "strategies based on reverse engineering age extended adaptation using experimental evolution and genomics" (Rose, 2009). This is not the same as stopping ageing, however, but laymen as I am would surely take it to be almost the equivalent.

1.4. Meanwhile...

Meanwhile, according to Aubrey de Grey, "the first human to live 1,000 years is probably already alive, and might even be between 50 and 60 years old"⁷.

In a book review of De Grey and Rae's "Ending Ageing" (2006) by P. Boutin in the WSJ (Sept. 8th, 2007), the latter wrote "if even one of his proposals works, it could mean years of extended healthy living not only for unborn generations but also for those of us already casting an uneasy eye toward the mirror."

Scientists, in general, even if skeptic, do not think de Grey's views on stopping ageing are foolish. In 2005, a review carried out by the MIT Technology Review and the Methuselah Foundation concluded that "SENS [standing for Strategies for Engineered Negligible Senescence] does not compel the assent of many knowledgeable scientists; but neither is it demonstrably wrong."

For gerontologists and biomedical doctors, like Dr de Grey himself, ageing is tantamount to a disease than can be cured through regenerative medicine applied to ageing.

⁶ Experimental evolutionary biologists would tell you that what follows cannot be written black on white as our control of human ageing in labs is far less frequent and easy than for insects. But the idea that ageing starts "at or before" conception is thrilling. Isn't it? Since I read Milner, I cannot stop thinking in the Big Bang.

⁷ Aubrey de Grey in an interview at Arte German & French TV, 2008.

2. Longevity (not exactly ageing)

Of course, all the previous stuff is at most laboratory experiments with flies and mice and promises that have to be fulfilled when it comes to the human realm; even speculative theorizing, as some like to term these efforts (Holliday, 2009).

But, when one looks at longevity through time, since, say, the last one hundred and fifty years, the landscape is clearly an eloquent illustration of the prospect for longer and longer lives as already observed in labs' insects. There is a difference, however, between ageing and longevity. And if whether ageing can ever be stopped in humans remains just a (big) question mark, longevity is plainly unfolding before our eyes; everywhere. This is having already enormous consequences even if we do not fully realize them.

What this section shows is just that. Once gone through it, the reader will clearly see, I hope, that longevity so far has left an impressive amount of person-years of life time behind, and continues to deliver.

It is longevity that matters for ordinary social life, not the eventuality of stopping ageing. But, who'd deny that (ever) increasing longevity is the closest idea to that of stopping ageing? On the other hand, putting a brake on ageing implies improving health, as ageing is basically a worsening health process which also implies living longer.

It's longevity... stupid! One would like to shout when policy makers and even "experts" blame ageing (meaning *decadence*) for the ills of pension systems, for instance. For longevity holds the key to understand, and solve, the "fundamental pension problem". This problem being the growing imbalance between working years and retirement years due to the stubbornly fixed effective retirement age at around 64 everywhere. Indeed, people not only live longer and longer, they also age slower and slower. Below you'll be told that a subject around 85 years of age today can only be compared to a subject of 65 years of age one hundred years ago.

2.1. Mortality compression

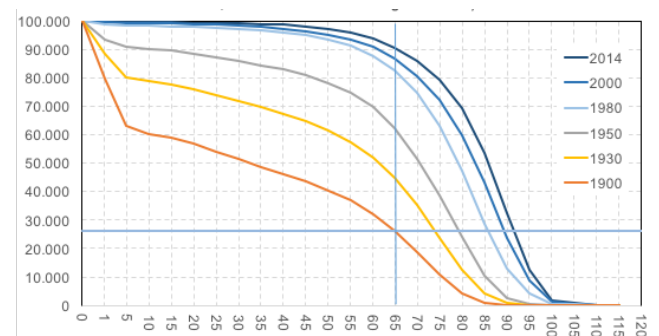
Most experts agree that the maximum length of the human life is 120 years or even 125 (Weon & Je, 2009)⁸. So far, as written in the records and verified, barely (and literally) just one human being has reached

the 120 years' limit, Jeanne Calment, who lived 122 years and 164 days (died in 1997), but as of July 2016, a total of 40 individuals, four of them then living, had reached 115 years of life⁹.

So, until everyone reaches 120 years of age (to die suddenly the second after), given current situation, there is an enormous amount of person-years to be added to the current stock.

In the last one hundred years, compression of mortality has doubled the person-years of life of synthetic generations¹⁰. The Spanish case is depicted in the graph below.

Figure 1. Survival curves - Spain 1900-2014 (both genders, numbers by age, 100,000 individuals synthetic generations)



Source: Herce (2016)

All of us have heard about the immense benefit that basic public health policies implemented at the turn of the XIX century brought to society, mostly reflected in dramatic declines in infant mortality. In Spain, infant mortality ceased to be the problem it used to be by mid XX century, when still almost 10% of a generation born in 1950 had vanished before reaching 5 years of age.

At around 1900 less than 30% of a generation would be still alive after 65 (horizontal line in the graph above). The area between the most lower-left "survival curve" in the graph and the most upper-right one is grossly the same as the area below the most low-left curve. This means that the stock of person-years has doubled in little more than a century. Of course, this has had enormous consequences for society and the economy.

This process also entails an impressive "compression" of mortality towards, literally, bringing the survival curve to

⁹ See https://en.wikipedia.org/wiki/List_of_the_verified_oldest_people

¹⁰ Theoretical generations of 1000 individuals whose mortality is followed until the last member of the generation has died.

⁸ Maximum life span in insects however can be manipulated in labs very easily.

coincide with the upper left limits of the box in the graph above.

Everyone living up to 120 years means full compression of mortality towards the established limit for the duration of human life. This, in turn would imply, again, doubling the stock of person-years available to society.

Whereas the process of survival gains in the XX century mostly impacted in the labor age stock, thus below 65 years, pension systems based on pay-as-you-go and retirement at 65 only suffered in the last quarter of the past century. Current trends, that mostly affect at ages above 65 are thus proving lethal for pensions systems still rooted on those financial and eligibility references.

The future of mortality, ageing and longevity is then set to follow, at least, the same past pattern. Although what we saw in Section 1 tells us that compression of mortality is just one part of the story yet to be written. The other part being an impressive extension of the duration of human life.

In this context, what would we say is “great age” today? Fasten your seat-belts for the next sub-section.

2.2. What means “great age” today?

The answer to this question is already contained in part in the graph above. There are different metrics to answer this question, two in particular. Both stem out of standard mortality tables. For the case of Spain, again, the table below tells the story.

Table 1. Which is today the “equivalent” age to 65 years in 1900?

	Age at which 26.18% of a generation survives		Age at which remaining age expectancy is 9.1 years (**)	
	1900 (*)	2014	1900 (*)	2014
Men	65 years	89 years	65 years	79 years
Women	65 years	93 years	65 years	82 years
Total	65 years	91 years	65 years	81 years

(*) No breakdown by gender available
(**) 9 years for men and 9.2 years for women

Source: Herce (2016)

I wonder whether we are prepared to listen to the messenger when she tells us that “big age” (late XIX century Social Security was born to insure) lies today between 81 and 91 years. If we were ready for good news that would be a great one and, indeed, that’s the way in which most scholars take the extraordinary advances in longevity we have been witnessing all these decades (Holzmann, 2013),

not without warning about the demanding adaptations of all sorts this development entails¹¹.

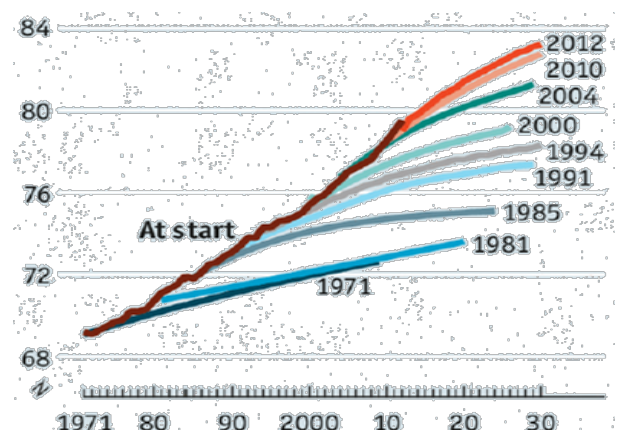
But if we were thinking in the retirement consequences of this good news, setting retirement age, say, close to 80 years, many would prefer not to listen to the messenger. Alas, the Swedish Parliament is discussing since 2013 whether to set retirement age at 75 or above!¹² And yet, there are many countries and institutions were perfectly fitted public officials, teachers or physicians are literally forced to retire at 65 or 70 (Herce et al, 2017).

In general, however there is considerable stickiness of the social corps and its political and institutional elites, everywhere, to accept the implications of such long lifespans. This reluctance would extend even to the experts’ field, as the next sub-section shows.

2.3. Projecting life expectancy is doomed to failure

Indeed, when it comes to projecting longevity, it seems as if all experts are convinced that sooner or later its path will bend downwards and stabilize. Look at the particular case of Britain shown in the graph below borrowed from The Economist.

Figure 2. Who wants to live forever? Forecast of male life expectancy at birth in Britain Years, by year forecast made



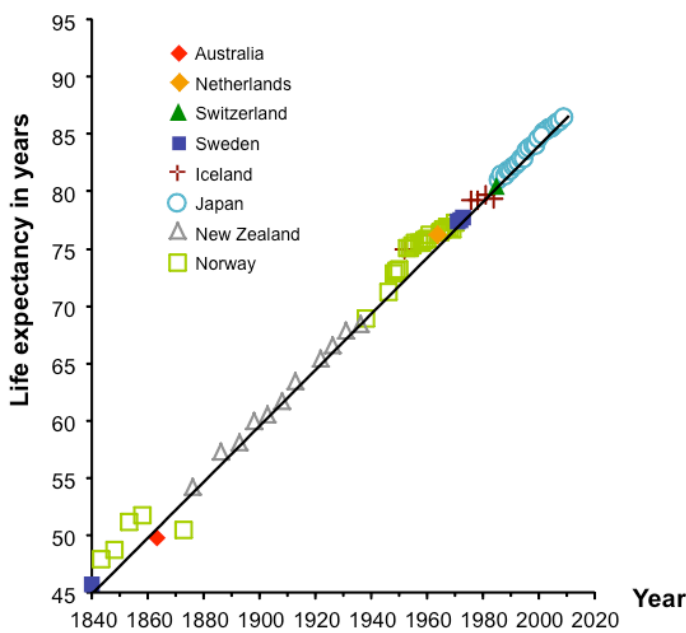
Source: The Economist, 23 August 2014.
Stuart Basten, University of Oxford; ONS; Government Actuary’s Department; World Bank

¹¹ I’m indebted to Robert Holzmann for pointing me towards his comprehensive review of this “rejuvenating” process and the wide range of implications it has, not least in the field of pensions.

¹² See <http://www.euractiv.com/section/social-europe-jobs/news/sweden-considers-raising-retirement-age-to-75/>

Well, all projections about life expectancy (at birth) for Britain have failed and the actual path followed by this indicator is a virtual, straight, positively sloped path. The graph below, with various data sets gathered by Prof James Vaupel, tells also that this process has been there for almost two centuries in many countries.

Figure 3. How best to predict future longevity?



Source: Vaupel (2015), from various sources

So, there is simply no likely check to longevity. Life expectancy has increased by almost three months per year, as far as it can be well documented, in the last 160 years (Gruven and Kaplan, 2007).

It seems as if the best way to predict future longevity is to superpose a linear trend over the Excel graph of observed longevity in the last few decades. Of course, there is no rationale behind this “method” and, what’s more, in no way, the causes that drove linear longevity in the past will be the same that will drive future longevity. Once compression of mortality is achieved (if at all) in coming decades, by just generalizing known public health policies and therapies, new ones will take the token of linear longevity. Mostly based on genetic repair of parts and bits that are at the basis of ageing.

But the important insight here (not sure it will be verified) is that whatever policies and therapies (or lifestyles) that take the token of future longevity will have the same effects on adult mortality that old (and very old) policies, like urban sanitation and vaccines, had on infant mortality more than one century ago.

So, before the (relative) unknown, why do demographic experts take the ultra-conservative view that future

longevity must bend down? Equally, they could take the opposite view that longevity could accelerate. Best, however, may be to embrace the “middle way” assumption of future linear longevity, at least until more evidence is gathered that sometime, someone has finally managed to get longevity models right.

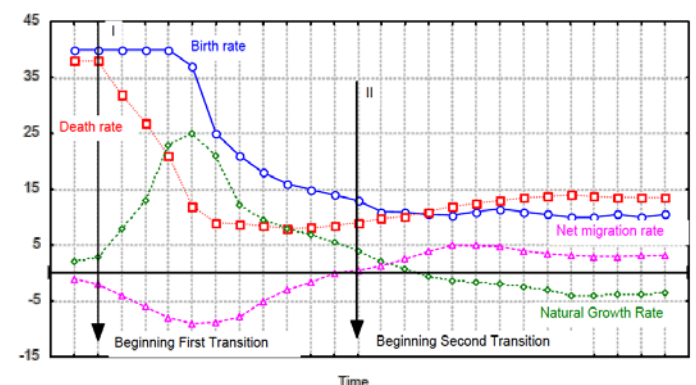
Indeed, if the evidence (even if not so evident one) discussed in Section 1 above is used to take a decision about the bending, linear or accelerating longevity hypothesis, the chosen one will not be the bending hypothesis.

But, what about countries of which little but basic demographic indicators are known, or the world at large?

2.4. Demographic transitions and convergence in demographic trends

In the late eighties of the past century, Dirk J. van de Kaa (1987) postulated and described what he termed “Europe’s second demographic transition” (see graph below). Compared to a situation where both birth rates and death rates are high and migration and natural growth rates are low (like in closed, ancient societies), out of which a (first) demographic transition to modern demography starts, a society enters a second demographic transition when birth rates stabilize at low levels, death rates do the same but slightly above birth rates levels, net migration rates also stabilize at positive albeit relatively low levels and the balance of all this is a steady, if moderate population decline.

Figure 4. Model of First and Second Demographic Transitions



Source: Van de Kaa (1999)

When Van de Kaa first formulated this hypothesis it was advanced countries that clearly were well into these dynamics. Today, here and there among emergent societies, these transitions are starting to unfold so that the model of the demographic transitions has something to say about global demographics.

What is perhaps new to this vision of the general demographic movement is longevity. That is, linear or even extreme longevity.

Advanced societies are clearly experiencing near extreme longevity with the number of centenarians rapidly increasing. In virtually all these societies, the age at which at least 50% of a birth cohort survives is above 100 years. Just see the table below for an illustration.

Table 2. Oldest age at which at least 50% of a Birth Cohort is Still Alive

Year of Birth:	2000	2005	2010
France	102	104	105
Germany	100	101	103
Great Britain	102	103	105
Japan	105	107	108
Sweden	101	102	104

Source: Christensen, Doblhammer, Rau & Vaupel, Lancet 2009. With data from the Human Mortality Database

In emerging societies, however, centenarians are not an issue. But talk is mounting about “accelerated ageing” or the “explosion of the over 65’s (EMS, 2015), something that is being observed since the beginning of the current decade.

This leads to the question of convergence among countries towards a common demographic stance characterized by low fertility and ever increasing mortality. Well, this is not a hotly debated perspective, but, first, remember Van de Kaa’s demographic transitions model. Adopting its most liberal interpretation, I would say that, yes, all countries are called to these transitions. Why not? After all, isn’t demography one of those “universals” so dear in the past for true philosophers?

Second, look at the next (and last) table below. What you see there may not tell you much unless you focus a

little bit on some parts of it. What you see in general is that life expectancies (for most ages) are what they should be for countries like Japan and Russia. Significantly lower in the latter than in the former, good representatives, in my view, of the advanced and emergent clubs, respectively.

Table 3. Mortality tables for ...

Age	Japan (2012)		Russia (2014)	
	Effective	Life expectancy	Effective	Life expectancy
0	100,000	83.27	100,000	70.91
1-4	99,780	82.45	99,257	70.44
5-9	99,696	78.52	99,083	66.56
10-14	99,650	73.55	98,966	61.64
15-19	99,607	68.58	98,820	56.73
20-24	99,493	63.66	98,435	51.94
25-29	99,292	58.78	97,740	47.29
30-34	99,061	53.91	96,615	42.81
35-39	98,801	49.05	94,810	38.57
40-44	98,443	44.22	92,455	34.49
45-49	97,893	39.45	89,855	30.42
50-54	97,050	34.77	86,650	26.45
55-59	95,728	30.21	82,515	22.64
60-64	93,770	25.79	76,939	19.09
65-69	90,760	21.55	69,675	15.82
70-74	86,383	17.51	61,002	12.7
75-79	79,969	13.7	50,578	9.79
80-84	69,921	10.29	37,490	7.31
85-89	54,650	7.42	23,173	5.27
90-94	34,962	5.16	10,550	3.72
95-99	15,741	3.53	2,934	2.68
100-104	4,068	2.42	435	1.98
105-109	467	1.75	30	1.56
110+	21	1.42	1	1.34

Source: Own computations with data from The Human Mortality Database (<http://www.mortality.org>)

But, when you focus closely on the larger ages, differences aren’t that big. This translates immediately into the conclusion that mortality probabilities (hard to establish statistically at these ages, however) at extreme ages are getting similar in both types of countries and that once life expectancies (at younger ages) have been normalized in emerging countries through proper public health policies and institutions and lifestyles, demographics will be also similar.

3. “Greyny-boom” or Baby-boom?

All societies are thus called to experience increasing longevity and advanced ones, in particular, are just starting to get familiar about extreme longevity and learning that their millennials’ cohorts are going to live 100, 120, or more years.

Now, what’s actually happening to this immense “wealth” longevity is already creating for individuals and society? I’m afraid this wealth is being wasted for society. Curiously enough, retirement seems not to have any effect on happiness, self-esteem or depression as compared to continuing working, neither good or bad. But those forced to retire may experience a decline in happiness and well-being (Calvo et al, 2007). Also, massive mandatory retirement implies that the experience, wisdom and inspiration that many of those who retire is taken out of the shop floor only to evaporate as they leave.

Happily, this can be reversed. It only requires the back of an envelope to further some basic numbers, a bit of uncomfortable reasoning to extract equally plain and basic implications for action (this is the uncomfortable bit) and quite a lot of courage (if you are a politician) to transform these implications into policy. Pensions policy, to name it.

3.1 Why everyone thinks of children to solve the pensions problem?

One of the most used (and abused) mantras when talking about pensions is “were we able to have more children...”. Well, I guess that, of course, we are able to have more children. The thing is that by one or another reason we don’t want to, or we cannot have them in a solvent way.

Having children has clear advantages; it helps to keep society going and, above all, gives us the pleasure and happiness to see them grow up and become sound persons. A less obvious advantage, to me at least, is that children will help pay for our pensions. This is actually miserable thinking. For two reasons. First, that burden should not be put on their shoulders, even if society provides them with health care and education until they can start paying our pensions (who’s pensions, anyway?). Second, for every euro they will pay, our current formulas are promising them much more in return, even at present value terms. So bringing more

children in for the sake of financing pensions systems is not only cynic, but also bad business. Let couples or single parents have the children they wish and don’t make this a policy issue.

The mantra about more children and pro-fertility incentives to cope with financial imbalances in our pay-as-you-go pensions systems is thus wrong. If at all those policies were to help finance our pensions, this impact would be short-lived and would entail larger imbalances in the longer term.

Pensions, however, need a fix. Everywhere.

3.2 People live 2 ½ additional months every year and this amounts to a baby-boom

As we’ve seen before, more than 100 years ago, people had much lower life expectancies than today (less than half the current length at any age typically). When the first ever state pension scheme was introduced in Von Bismarck’s Germany in 1889, retirement age was first set at 70 to be later lowered to 65 in 1916, just one hundred years ago¹³.

Well, I guess that a pension system where individuals start their working lives in their teens, retire at 70 and live around five years after retirement only requires a tiny contribution to be sustainable even if replacement rates are high. Isn’t this the perfect pension system? Of course not! Would say my friends, and they are right.

But, I reply, a pensions system where individuals start working at 25, retire at 65 and live another 22 years needs much higher contributions or savings to be sustainable. Now, push life expectancy at 65 forward by two and the half months every year while keeping the (arbitrary) 65 barrier. If your pension system is already unsustainable it won’t get better.

Now, think a little finer (I take the Spanish data and some back-of-the-envelope computations). The Spanish 65 cohort in 2015 was 476 thousand strong, with

¹³ See <https://www.ssa.gov/history/age65.html> and note that the historical 65 retirement age common everywhere has not actuarial justification at all. Yes, I admit it, a series of advanced countries have now set future retirement age at 67 and are gradually marching towards it. A meagre adjustment when one considers that life expectancy at 65 or more has more than doubled. Review Section 2.2 again, please. And see Herce et al. (2017).

about 23 thousand less people in it than the 2014 class. But, because the 2015 people added 2 ½ months to their life expectancy, this cohort actually embodies 99.3 person-years than the previous one. And thus for every going and coming cohort.

Isn't this equivalent to a baby boom? Actually, these extra years of life are equivalent to almost 100 thousand births! But contrary to babies, that need to be raised educated, painfully beard at their teens, etc., during decades, "greynies" are already educated, abide by the rules, are experienced professionally and vitally, in good mental and physical shape... Well, they should make excellent workers.

As workers, greynies would continue to pay contributions to pension systems without claiming a pension benefit for a while, just furthering their labor lives as their life expectancy advances, with the only limit set by this very same advancement.

No one denies that increasing longevity is a momentous development. It is also so in this respect, something we tend to forget.

So, increasing longevity, properly managed, is the baby-boom we are desperately seeking (through dubious policies), if not better than that. It's the "greyny-boom".

3.3 Manna for all

This unrecognized gift of increasing longevity is happening all the time. It's manna that rains from heaven in a non-stop manner. If we do not see it this way is because of the tyrannical 65 years barrier, a true glass ceiling, that unfunded tradition has imposed upon society and that society, cynically and also dangerously, is failing to breach at all or, at most, breaching it timidly and not without resistance.

All that is needed to mobilize society and fix the "pension problem" is to remove the 65 years' barrier and to persuade society that as good as babies (for pension matters), if not better, are the extra years that increasing longevity is presenting us with, every second.

Those scientists (thinking scientifically) who are not social scientists will not be able to understand why this social reluctance to lift this barrier is so strong and why are we missing the goods of a much more flexible retirement everywhere. I'm not sure that even social scientists are able to understand why. Of course, we know that telling people to retire later does not buy votes and that most workers are just hungrily waiting for their retirement at around 65. But there must be an enormous social and political failure (like there are market failures) when people does not just see hat retiring later should be a natural (and an evolutionary, or moral?) response to living longer. Something we owe to ourselves.

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