

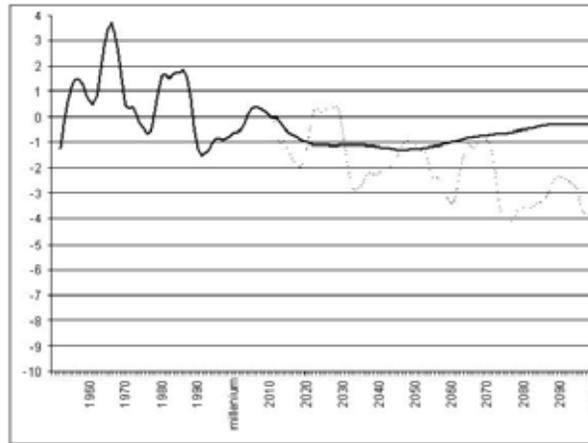
Dorling, 2011, We're all...just little bits of history repeating (Part 2 -The Future), Significance Magazine Website, 14<sup>th</sup> June: [http://www.significancemagazine.org/details/webexclusive/1082185/Were-all\\_\\_\\_just-little-bits-of-history-repeating-Part-2---The-Future.html](http://www.significancemagazine.org/details/webexclusive/1082185/Were-all___just-little-bits-of-history-repeating-Part-2---The-Future.html)

## We're all...just little bits of history repeating (Part 2-The Future)

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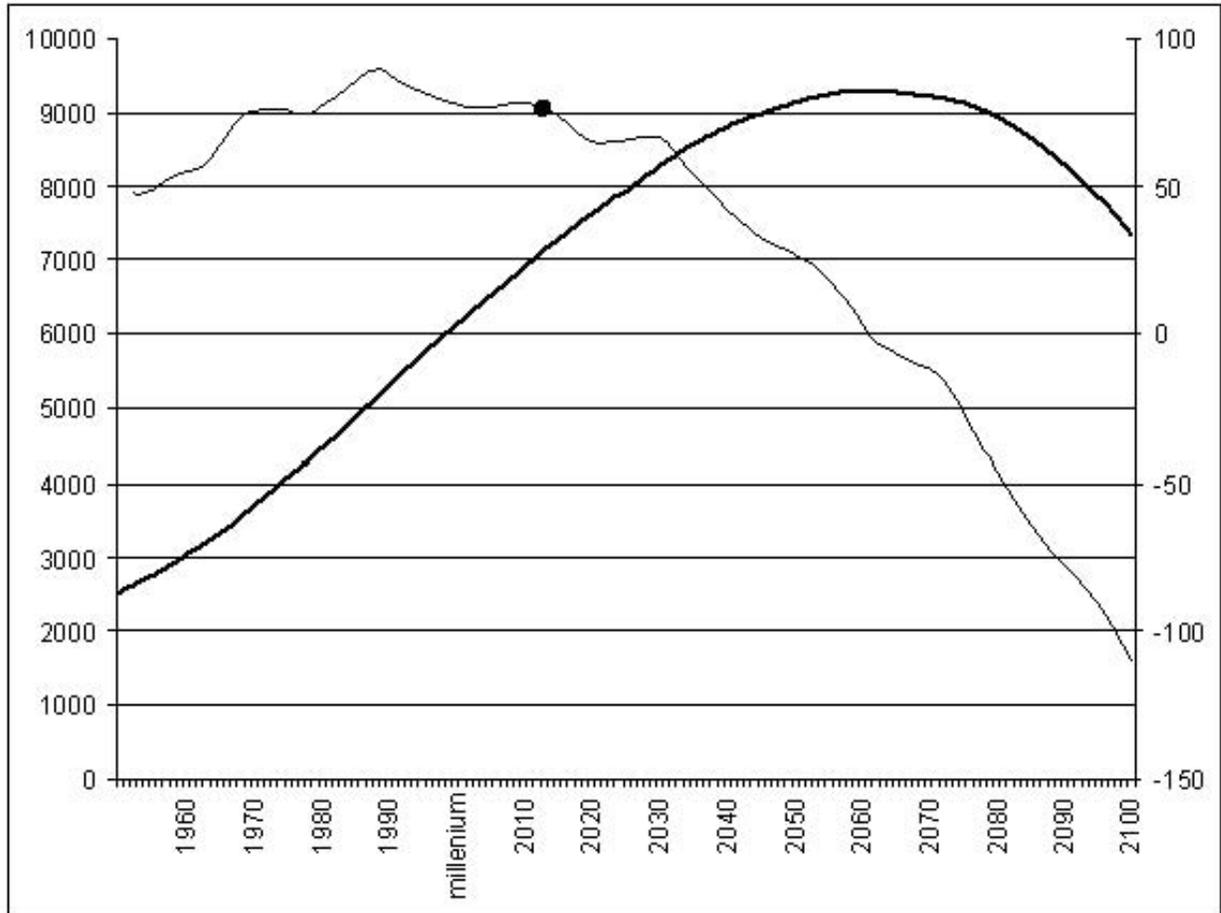
Estimating the past is hugely uncertain. Most people in the world are still born without being issued a well-recorded birth certificate and most die without their deaths being systematically counted. We estimate the past. The troughs and peaks of population from 1966 to 2011 that I showed in [Part 1](#) yesterday are all estimates and include estimates of better infant survival and estimates of prolonged lengths of life that will all have errors associated with them. What we can be most sure of is how uncertain the future is. That health warning the UN Division gave was very apposite because small fluctuations really do have huge effects, especially now that the second derivative of population shown in yesterday's graph - repeated here, but drawn a little smaller - is hovering around the zero line.



World population estimates and projections  
annual change in population change (millions)  
- UN median variant scenario in thick line,  
Alternative scenario drawn as thin dotted line

To illustrate the uncertainty I have added a very faint dotted line to the graph which shows, not the change, but the change in change projected forward if the peaks and troughs of the past were to continue into the future. Introduction of this little bit of variation has a huge impact on how population changes in future. That is shown below with the dot again marking where we are now. The trends from 1950 to 2011 are identical, but under this alternative median variant scenario births decline just a fraction more rapidly because - between the booms of the past - there were troughs which we currently ignore as we project forward from a time of boom. That potential error has great cumulative effects.

As the graph below shows, if the change in change repeats the most recent little bit of history we have enjoyed then a human population maximum is reached in 2060 at 9.295 billion, but by 2100 there would be just 7.362 billion of us, the same number as currently, officially, are projected to be alive in around five years from now.



World population estimates, projections and annual population change (millions)  
 - Alternative median variant scenario, change on right hand axis and drawn as thin line.

Many might hope that the falls were not as abrupt as those shown in the graph. You only have to continue that rate of decline on another 38 years and we are extinct. As UN statisticians say, in warnings which are routinely ignored, small variations can produce major differences in the long run. Hopefully history will not repeat the last 32 years so exactly and in the long run our offspring are not all dead.

A fall to less than 7.4 billion humans by the year 2100 may appear rapid but it is slower than the UN Population Division's own low variant projection which is for world population to fall to 6.2 billion by 2100 if fertility were to fall to just half a child per women less than that expected by the medium variant projection. If women in areas where they are expected, on average, to have 2.5 children have 2 and if those expected to have 1.5 (between a group of them) each instead on average had 1 then there will be even fewer of us

even sooner than projecting forward ever declining baby booms implies. If we had any firm understanding of how our very short term futures were likely to pan out then the United Nations would not endorse projections that vary by some 9.6 billion people (15.8 - 6.2) in just 89 years time from now. But it is worth contemplating the possibility soon we will begin to see the emergence of new regularities in our numbers.

The United Nations was born out of a World War with the mission, above all else, to try to prevent its repetition and the harm that would cause in affluent countries. Over the last seven decades people in it changed its remit to be concerned much more with all humanity and with much more than primarily war. The same forces that have resulted in much better global population statistics becoming available in recent years might also lie behind the apparent medium term deceleration in our numbers: better health, better contraception, better literacy, maybe even improved numeracy - worldwide. All of that might be more easily realised in future if we saw suggestions in our recent past that our immediate future might be more benign than we were currently had planning for.

Whether human beings become extinct depends far more on our behaviour than our numbers, and our behaviour depends greatly on what we understand. This is why it matters whether our recent past suggests there are trends in our collective behaviour we are not yet aware of. As Shirley Bassey so presciently sang in 1997, just as the fourth post-war baby boom was beginning:

*and I've seen it before*

*.. and I'll see it again*

*.. yes I've seen it before*

*.. just little bits of history repeating*