**Growth – Population, Economic, Cancer**

*Philosophers are not intellectual referees, arrogantly declaring certain ideas offside; they are more like therapists, trying to work out how muddles got created and how they can be undone* says Giles Fraser in the Guardian (20/8/13). So it is in this spirit I am trying to inform you about growth.

So let’s start off with the introduction from Wikipedia. Growth refers to an increase (note direction!) in some quantity over time. Growth is a stage in the process of growing or full growth. It is an anticipated progressive growth especially in capital value and income. It is a projection. It is a progression of something from a simpler form to more complex form.

The quantity can be:

Physical (e.g., growth in height, growth in an amount of money)

Abstract (e.g., a system becoming more complex, an organism becoming more mature)

This talk will be only about the physical. First we need to understand growth as a mathematical concept. So let’s start off with a few simple definitions

Arithmetic or linear growth means that it grows by a fixed amount each year. If the rate is 2% then after 100 years 100 becomes 300, at 5% 100 becomes 600.This depends where it starts from but 2% is 2 in a 100, after 100 years it is 2 in 300 or .67%.

Geometric or exponential growth means that it grows by a fixed proportion each year . So if the rate is 2% then after 100 years 100 becomes 724, at 5% 100 becomes 13150. This doesn’t depend on where it starts, 2% remains 2%. Professor Albert Barlett’s infamous lecture of 1969 gave numerous examples of this phenomenon. It is certainly scary and may not be sustainable.

Logistic growth is the s-curve. It starts with a period of slow growth then it speeds up in the middle and slows down at the end. In this we need a time period between start and end. The rapid growth gradually becomes saturated so a slowdown occurs. The big question is how many examples of growth we see are logistical.

We also need to think about chaos. One aspect of fast growth is that systems can go chaotic. When this happens then it becomes almost impossible to predict where they are going. This might provide opportunities for some, but most people want to know where they are going even if they don’t like the destination.

***The Limits to Growth*** is a 1972 book about the computer modelling of unchecked [economic](https://en.wikipedia.org/wiki/Economic_growth) and [population growth](https://en.wikipedia.org/wiki/Population_growth) with finite resource supplies. Funded by the [*Volkswagen*](https://en.wikipedia.org/wiki/Volkswagen)[*Foundation*](https://en.wikipedia.org/wiki/Foundation_(non-profit)) and commissioned by The [Club of Rome. Five variables were examined in the original model, on the assumptions that exponential growth accurately described their patterns of increase, and that the ability of technology to increase the availability of resources grows only linearly. These variables are: world population, industrialization, pollution, food production and resource depletion.](https://en.wikipedia.org/wiki/Club_of_Rome)

**Sustainable**

Sustainability is the capacity to endure. It is the potential for long-term maintenance of well being, which has ecological, economic, political and cultural dimensions. This is the central point of this discussion. What was acceptable say 200 years ago may be unendurable today so how absolute is this concept? Sustainable for who – humanity or the planet? The planet will only be threatened if we destroy it, not make it unfit for life. We are talking about humanity.

We need to talk about timeframes:

Short term – our lifetime (next 25 years.)

Medium term – our children ( 25 -75)

Long term – our grandchildren (75+)

Beyond that we have the very long term which we have a moral duty towards.

**Population**

Many of the problems in the world today only become apparent when there are too many people. Climate change wouldn’t be a problem with a 100 times less people. There is no way to reduce population significantly without pain (Gaia theory might get rid of all humans).

Reverend Thomas Malthaus essay on *The Principle of Population (1798*) in which he argued that the growth in human population would eventually be checked by a shortage in food. This probably was the sexual hang-up of a man of cloth that resulted in ideas of population control making their debut in the 19th century.

Population control is strongly associated with eugenics. This closes down any real discussion about the subject. The one person who can raise it is David Attenborough. The main culprit of the destruction of wild life, be it flora or forna, is man. It can be discussed in this context. (Why do we spend more on the vet than the doctor?). He argues that one of the weapons is contraception which if widely available in poor areas would slow down growth a lot.

Population is increasing fast but life expectancy is increasing rapidly in the poorer parts of the world. This is mainly due to better health care and nutrition. There are two very different views on what we can do.

Hans Rosling has a very interesting talk on Ted which he followed with the recent TV program “Don’t Panic”. His optimistic view is that the real growth is amongst the poorest people. The number of children per family used be high in Asia & Africa but now it is just over 2. The world population will grow to maximum of 10 billion. We are at the top of the steep part of the s-curve. Reduction in population growth, paradoxically, is through increased life expectancy from medicine, food and education. What we need to do now is to bring this group nearer to our conditions. That will reduce the growth in world population. That argument is quite reasonable but is it likely to happen? The poor may be very hungry and that might lead to civil unrest. The world population has more than doubled in our lifetime so we haven’t got long now.

In the developed world populations are getting older with fewer young people to support the older ones. There is a pressure to change that, often through immigration. This might lead to an increase in population and it is a good example of what make sense to one group (nation) may not make sense for a bigger group (humanity).

Danny Dorling - *Population 10 Billion* – argues the same. Population growth stopped accelerating in 1971 and is slowing down. That suggests we are on the upper part of the s-curve. Your great grandchildren could be living in a better, calmer, less polluting and less profit-obsessed times than you.

The contrary view is held by Stephen Emmottt, professor of computational research at Oxford, who has written the classic book *Ten Billion* which he performed at Royal Court Theatre. He sees only two ways to deal with the problem either through technology or radical behaviour change and he thinks that both of these are unlikely. Only when climate change hits us right between the eyes might this happen but will it be too late. This is a long term problem. We can kick it into the long grass but it will come back to bite your grand-children.

Lamperdusa was an example of people fleeing from an oppressive system be that Syria or Somalia. In the future, if parts of Africa become uninhabitable with climate change then we could see many people trying to flee just to survive. At the moment the West is seen as a place where it is reasonably stable economically so let’s look at that.

**Economic**

In a recent Telegraph article Philip Aldrick used the term bad growth – fuelled by debt. There doesn’t seem anything absolute about growth just something that people will argue over until the cows come home.

Growth may be seen as a good thing but is it sustainable? We compare countries by looking at their growth but only occasionally do papers look at real growth (a simple measure is GDP growth minus inflation). Inflation is another measure of growth giving some clue as to how much it would cost to buy a basket of things compared to last year. Inflation is seen as a bad thing on items that are on the liability side but good on the asset side (house prices?). Deflation mean negative growth which is seen as a bad thing but that may be everything associated with it rather than negative growth itself.

Negative growth is seen as a temporary phenomenum, longer term it is called decline and that is associated with the end of things be they life or empire.

Limitless growth is a fantasy of economists, businesses and politicians but it is a relatively recent mantra. It was put forward as a measure to mobilise resources during the second world war. Growth needs a way to be measured so a number was needed which we call GDP (Gross Domestic Product). Things that you produce and then consume, like food, aren’t a part of GDP so we don’t measure them. Technology is making a mockery of measuring growth this way, social networking (eg Twitter) has virtually no effect on GDP.

Growth is used as a measure of how we are doing compared to other systems. Chinese officials say that order could break down if the rate of growth falls below 5% for a few years in a row so it is improbable that they could put up with a decade of no growth like Japan. People get use to a rate of growth and that is the tacit compact on which democracy risks breaking down.

We use economic growth as a way of changing things. For the optimistic this is associated with helping the poorest. We think of this as redistribution which it isn’t but at least when things are growing we can pretend. So negative growth forces us to think about these things.

Economists have always debated about whether there is as cut-off where more growth subtracts from well-being. A recent paper by Proto (Warwick) & Rustichini (Minnesota) argues we have reached that sweet spot where Uk income has reached that point. This is based on averages and a lot of people would argue about their personal lot. That raises the question about distribution of wealth.

When things grow very quickly it is called a bubble. Classic cases back in history are tulip mania and the South Sea. More recently it was the dotcom bubble now it is probably south-east property. A bubble is a good analogy, it could deflate with old age but more usually it bursts (a very sharp negative growth). Bubbles take up too much space which stops other things from growing.

All this is about investment. We have choices. Currently it seems to about owning property. Investment is all about growth, can we predict what will do well and what is possible. Bitcoin is a good example of this. It has done spectacularly well in the last year but what does the future hold for it. Pension estimates are based on a range of estimates of growth.

“The system creates so much short-term gains for so many, that any incentive to change so as to avoid long-term disaster isn’t there” Says *David Stockman – The Great Deformation: The corruption of capitalism in America.*

Professor Tim Jackson from Surrey University argues that you can have prosperity without growth. This is all about sustainability and the book *The End of Growth* lays out how this might be achieved. I would urge everyone to watch his talk on Ted (see www.gcssfs.org) which expounds his ideas far better that I can.

Growth leads to bigness. In the capitalist system this may be a problem. Firstly there is the issue of ownership. When organisations exceed a certain size then if they are private they may have too much influence, so should they be owned by the state? We have Amazon, Google, Amazon, Apple and Microsoft. Would they even exist if they knew that if they grew too much they would be nationalised? Then globalism adds another dimension and this leads towards state control which hasn’t worked so far.

Another aspect of big organisations is how they work and their robustness. Big state systems were broken up (phones, railways, electricity, water etc) presumably as people thought they would work better. They do but only for some depending on where you live and how rich you are. The only one that does well (phones) is where consumers have a wide choice of suppliers, but this is a very political discussion.

In a big hierarchical structure you can always say, it’s not my fault someone higher up told me to it. We may find that the whole culture of places becomes ‘unfit for purpose’ as we have recently seen in the NHS.

Simon Jenkins said “The web has grown too big for its bytes”. This got me thinking about the growth process separate from ownership. In the digital world everything can be connected. How do we define big in this circumstance? Is it to do with influence, control and ownership. Are all these different words for the same thing – power?

Data may be the new oil. Crude oil is of no use directly. It must be turned into fuel, plastic .. The process is very similar with data. Big data is one of the buzz words of the moment. Big organisations have lots of data and they can turn it into useful products (for themselves). They also have the resources to handle these. The NSA may have the tools to cope with very large quantities of data. Looking for details of what an individual is doing they may have trouble with non-text things particularly with pictures (viz Instagram).

Technology is changing fast and we might have fight against the flow if we want to slow down growth or we will get swept along with the tide.

This is a medium term issue. It may affect our pension, our childrens’ prospects but it will become a while before that comes clear. Until then we can just carry on the same old way.

**Cancer**

Cancer is a noun. Up to now we have only talked about growth as a process but now we have something which is seen as a very bad guy. Cancer is a growth where bad cells multiply quickly. Most modern treatments try to interfere with growth pathways and slow down or stop the development.

This implies that only bad cells grow quickly good cells are better behaved. Maybe cancer is a way of looking at everything we have previously discussed. Has population or economic growth become cancerous?

Life has a certain span – it user to be three score years and ten but now it might be four score. Cancer is seen as a shortening process, dying of it at the end of a long life may be acceptable. This brings us back to the concept of sustainability. We have expectations like length of life, a reasonable economic climate, enough space and not creating problems for the environment that would leave our grandchildren up the creek without a paddle.

This is definitely a short term issue. We are concerned about whether we will be affected.

Conclusion

Growth is a far wider topic than I have talked about. Below there are entries for three major suppliers of information. Chambers defines growth as a gradual increase so it all come down to one’s thought on what is gradual.

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From Wikipedia, the free encyclopedia

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Abstract (e.g., a system becoming more complex, an organism becoming more mature)

It can also refer to the mode of growth, i.e. numeric models for describing how much a particular quantity grows over time.

**Biology**

Cell growth

A tumor is sometimes referred to as a "growth"

Bacterial growth

Human development (biology) Auxology, the study of all aspects of human physical growth

Growth hormone

**Social science**

Human development (humanity)

Developmental psychology

Personal development ("Personal growth")

Erikson's stages of psychosocial development, stages of individual growth

Population growth

**Economy**

Economic growth

Financial growth, due to simple or compound interest

Growth investing

**Mathematical models**

Linear growth

Logistic growth, characterized as an S curve

Exponential growth, also called geometric growth

Hyperbolic growth

**(growth) free online dictionary**

n.

1.

a. The process of growing.

b. Full development; maturity.

2. Development from a lower or simpler to a higher or more complex form; evolution.

3. An increase, as in size, number, value, or strength; extension or expansion: population growth.

4. Something that grows or has grown: a new growth of grass.

5. Pathology An abnormal mass of tissue, such as a tumor, growing in or on a living organism.

6. A result of growth; a product: concerns that are a growth of the new responsibilities.

adj.

Expected to have or investing in businesses expected to have higher-than-average increases in revenues and returns: a growth stock; a growth fund.

**Grow (Chambers 1972)**

* To have a habitat
* To become enlarged by a natural process
* To advance towards maturity
* To increase in size
* To develop
* To become greater in any way
* To extend
* To pass from one state to another

**Growth**

* Gradual increase
* Progress
* Development
* A morbid formation

**Questions**

1. Is growth directly correlated to optimism?
2. Are there too many people?
3. Would you accept negative economic growth if it had benefits – if so what might they be
4. Has population or economic growth become cancerous?
5. Sustainable for who
6. Is bigness bad?
7. Population, economy, cancer – long/medium/short term