The meaning of infinity

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The meaning of infinity

Abstract: What is infinity? This question and how infinity is more concrete than we think is answered in this brief article.

Infinity (∞) is defined in mathematics, physics, applied physics and applied maths, as a quantity that is unlimited and therefore boundless. In Calculus, this quantity is the limit of a function over a null function for (whereby the dependent variable) x tends to a small x_0 . Natural and real numbers are an example of infinite sets, in bidimensional Euclidean or analytical geometry, lines can be considered as infinite entities, however, we can find infinite resources and much more (let's think of astrophysics, quantum or string theory) in the real world that we could also include in that same category.

Infinity in economics

Economics (micro and macro) could be easily considered a branch of applied physics, perhaps the easiest one, as a lot of consumption and production curves are finite, particularly in the short term, however, not all products in play are finite, a lot of products are considered renewable (renewable resources) and we can expect labour itself being infinite, being that labour cannot end, as production is necessary to survive within our species. Humans have always found ways to produce and renew and invent and create new renewable sources, that replaced the non-renewable ones, we could think of green energy, food enterprises, horticultural methods, or even drug factories where drugs themselves have become more and more synthetic, whilst in the beginning we would use semi-synthetic or herbal remedies; this has also been achieved thanks to the agricultural and farming spheres. It is therefore not

accurate to debate that infinity does not exist in the world of political economics and it demonstrates a lack of understanding of political theory itself. In political economy, we find that some of the curves or functions that are used to represent concepts, such as marginal costs can sometimes be infinite, and productivity can also be infinite, as well as labour, of course there exists unemployment, but it is counterintuitive to think that unemployment and microeconomics could coexist, because unemployment equals a lack of production and thus quantities are not enough to satisfy needs that mankind needs and which drive labour itself.¹ Motivation theories also support why mankind is drawn to support those same needs, and labour too.

Figure 1. The curve shows that as labour increased since the beginning of human civilisation (hypothesising the origin of the axes is the beginning), production also increased and will continue to increase in time thanks to labour and that the tangent to the curve will tend to infinity as time goes by for renewable resources as it could be best described by a logarithmic function.

It can be expected that labour and productivity depend on the resources available, but it can be assumed that the curve of labour throughout the centuries will look like a logarithmic function tending to infinity as established by L'Hôpital's rule $\lim_{x \rightarrow \infty} \log(x) = \infty$. Moreover, we could also conclude that proportionality exists between labour and production or productivity,

since without labour, production would be nil. Therefore it is easy to guess that unemployment may cause a reduction in production, and a waste in the available renewable resources, as well as a reduction in the replacement of those available resources, with artificial resources which can strengthen the natural habitat and solve many environmental problems. If labour is not employed, then it is unlikely that standardisation can happen leading to an inability to think of ways or inventions or escamotages, that could prevent losses of production and of natural resources.

The meaning of infinity in philosophy, quanta-strings and astrophysics

Since the time of Anaximander, Democritus, Aristotle and even Epicurus infinity was already associated with atomistic theories and with the Universe. Atoms are infinite as is the Universe, and in fact the Universe is made of atoms, our planet is “relatively”² a part of the universe itself, and it also is made of elements, subatomic particles and so on, as are renewable and non-renewable sources, nature, and us. Erodotos claimed that the logos is infinite too, and modern neuroscientists defined neuronal networks are as large as galactic networks³.

Conclusion

Infinity is often associated with abstract concepts that are often unconsciously separated from the concrete by political economists, almost erroneously, but we know that it shouldn't happen, since enterprise economics demonstrates that a lot of methodologies adopted by entrepreneurs can be used in political economy too, successfully and effectively. Among these methods, we can think of what infinity means in this particular “branch” of applied physics, which involves the handling of abstract concepts into the concrete day to day management, i.e. in the case of labour and planetary resources, which are nothing but a subset of the infinity concept that we apply to the more complex settings of astrophysics, neuroscience or the “world” of quanta or strings.

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