The Revolution of BioEconomics and NanoEconomics on Economic Thought

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ABSTRACT

All of economics, both microeconomics and macroeconomics come back to this basic problem on how to use limited resources to satisfy our preferences and unlimited wants. We can claim that the BioEconomics and NanoEconomics have changed the economic thought. With Nano technology we have not limited resources! Advanced technologies as Nano actually have changed this idea that resources are limit. With Nano and other advanced technologies, resources are not limit. Therefore, we can claim that NanoEconomics is how to use unlimited resources to satisfy our preferences and unlimited wants. Also, BioEconomics is about change and innovation based on revolutionary ideas in a dynamic and globalized world.

Key words: BioEconomics, NanoEconomics, Economic Thought

Introduction

The basic problem of economics can be summarized in one sentence: How to best satisfy unlimited wants with unlimited resources. We can break this problem into two parts:
1. Preferences - What do we like, what do we dislike.
2. Resources - We all have limited resources. Bill Gates has limited resources. They have the same 24 hours in a day that we do and neither is going to live forever.

All of economics, both microeconomics and macroeconomics come back to this basic problem on how to use limited resources to satisfy our preferences and unlimited wants [3]. In order to simply model how humans attempt to do this, we need a basic behavioral assumption. The assumption is that people attempt to maximize outcomes (that is, to do as well as possible for themselves) as defined by their preferences given their resource constraints. Economists refer to people who do this as exhibiting 'rational maximizing behavior'. Note that in more complex economic models that this assumption can be weakened, but at a cost of added complexity.

This 'rational maximizing behavior' assumption does not necessarily mean that people make, ex ante, perfect decisions. People may be limited by the amount of information they have (e.g. 'it seemed like a good idea at the time!'). As well, 'rational maximizing behavior' says nothing about the quality or nature of people's preferences (But I enjoy hitting myself on the head with a hammer!?) [3].

The struggle between preferences and constraints means that economists must, at their core, deal with the problem of tradeoffs. In order to get something we must use up some of our resources.

NanoEconomics is the branch of economics that studies the creation and distribution of wealth related to the technological changes brought by nanotechnology. NanoEconomics focuses on understanding the extent of the change that will be brought upon not by a single field of science research but by the convergence of many. Due to the extraordinary amount of innovation that is being generated by nanotechnology as a result of the positive cross-linkages between highly competitive industries (i.e. semiconductor, information technology and pharmaceutical industries), it can be foreseen that to study NanoEconomics is to study the new paradigms in the next industrial revolution [1, 2].

Bioeconomics is the discipline originating from the synthesis of biology and economics. It is an attempt to bridge, through the concept of holism and interdisciplinary methodology, the empirical culture of biology and the literary culture of economics and thus finish with what C.P. Snow has called "the two cultures." Bioeconomics is a paradigmatic shift in the development of the economy-environment disciplines such as natural resource economics, environmental economics and ecological economics. The paradigm shift is really an endeavour to make

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the invisible visible: in the case of Bioeconomics the aim is to make visible all the weaknesses of the socioeconomic activity based on the neoclassical theory and the competitive capitalist ideology [4].

**The Revolution of BioEconomics and NanoEconomics on Economic Thought:**

All of economics, both microeconomics and macroeconomics come back to this basic problem on how to use limited resources to satisfy our preferences and unlimited wants. But which resources are limited? Does Nano technology change this thought? Does BioEconomics change the economic thought?

We can claim that the BioEconomics and NanoEconomics have changed the economic thought. With Nano technology we have not limited resources! Advanced technologies as Nano actually have changed this idea that resources are limit. With Nano and other advanced technologies, resources are not limit. Nanotechnology increases efficiency of productions, new jobs, economic growth and development, economic welfare and so on. Nanotechnology decreases transaction costs that it increases markets efficiency and incentive for investment. So, nanotechnology has enormous effects on global economic system. The most advanced nanotechnology projects related to energy are: storage, conversion, manufacturing improvements by reducing materials and process rates, energy saving (by better thermal insulation for example), and enhanced renewable energy sources. Today's best solar cells have layers of several different semiconductors stacked together to absorb light at different energies but they still only manage to use 40 percent of the Sun's energy. Commercially available solar cells have much lower efficiencies (15-20%). Nanotechnology could help increase the efficiency of light conversion by using nanostructures with a continuum of band gaps. Applications of nanotechnology have the potential to change the entire agriculture sector and food industry chain from production to conservation, processing, packaging, transportation, and even waste treatment. NanoScience concepts and Nanotechnology applications have the potential to redesign the production cycle, restructure the processing and conservation processes and redefine the food habits of the people. In this view, BioEconomics help to economics knowledge. Knowing is knowing truth and Nano technology and Biology Economics are truth. So, BioEconomics is about change and innovation based on revolutionary ideas in a dynamic and globalized world: New Institutional Economics. In other words Bioeconomics in addition to being the science of supply, demand and prices is also the science of accounting for the biological, economic, social, environmental and ethical realities of resource depletion, wealth inequality, social inequity, environmental contamination and ethical misconduct.

**Conclusion:**

All of economics, both microeconomics and macroeconomics come back to this basic problem on how to use limited resources to satisfy our preferences and unlimited wants. But which resources are limited? Does Nano technology change this thought? Does BioEconomics change the economic thought? Therefore, we can claim that NanoEconomics is how to use unlimited resources to satisfy our preferences and unlimited wants. Also, BioEconomics is about change and innovation based on revolutionary ideas in a dynamic and globalized world.

**References**