

World Economic Growth

The world had seen unprecedented economic growth in the second half of the last century. Will such high growth continue in this century?

World economic growth in the second half of 20th century was driven by two broad fronts of demands and technology. There were no shortages of demand: the rebuilding of practically the whole of Europe after WW2, the developing of so-called third world countries after being liberated from their colonial hosts, and the development of China. Technology came in leaps and bounds in semiconductor, materials science, genetic and health care, etc. These paved the way for rapid advance in communication, transportation, global trade and a stable society in developed and developing countries. All the above made possible because of abundant and inexpensive natural material and energy resources, fossil energy in general and oil in particular.

For the year 2005, fossil energy accounted for 85% of world energy usage of which 37% came from oil, coal 25% and gas 23%. Of the remaining 15%, nuclear (fission) energy makes up 6%, biomass 4%, hydro 3%, and all the rest 2%. ([World Energy Resources and Consumption](#)) Based on current consumption and reserves, crude oil (petroleum) would last for just another 43 years, with oil sands added, 120 years. ([Fossil Fuel Levels and Flows](#)) The production curve is an inverted bell shape, and it is quite likely that oil production is already at its peak now. We will see oil supply declining and becoming a lot more costly in the coming years.

Is there a sustainable alternative energy resource that can meet the insatiable energy demands of this modern society? The yet to be commercially viable fusion power appears to be the only answer. It is supposedly much safer than fission fuel technology, and its reserve is almost nondepletable for the foreseeable future. Despite optimism dating back to 1950s, it is still unclear if commercial fusion power plant is possible, (it was proposed as a 30 year projects back then; two 30-years periods had passed, commercial production is still believed to be unlikely before 2040. Please visit http://en.wikipedia.org/wiki/Fusion_power to know fusion power and the technical challenges.)

Oil has a unique place among all the various other types of energy resources. Due to its high energy density and easy transportability, oil has become the most important source of energy since the 1950s. It is also often attributed the "Mother of all commodities" because of its importance in the manufacture of a wide variety of petrochemical materials.

This writer thus believes that the scarcity of natural resources especially oil resources will be a major damper in the world economy making the unprecedented growth in the second half of 20th century something not to be repeated for a long time to come.

Readings:

[3rd thoughts on 21st Century Economic Growth](#)

In this article of Oct 2004, the writer tabulated the growth figure from the year 1600s and arrived at the following conclusion: *"Economic growth in the 21st century will be spectacular. Growth will be way beyond anything in the "economic literature," as reported by the IPCC. By the end of the century, average world per-capita GDP will be well over \$20,000,000 per year. In fact, world per-capita GDP will cross*

\$100,000 sometime around 2050.”

THE WORLD ECONOMY IN THE 21st CENTURY

The author started his article saying *“the 20th century has been one of unprecedented economic achievement and progress in many aspects...”* and continued talking about the challenges and opportunities in the 21st century. Among others, he questioned the euphoric view of some others and asked *“are great depressions indeed a thing of the past”*.

European Economic Growth, 1950-2005

The article sees the growth experience in terms of three distinctive periods: the *Golden Age of 1950-1973*, the *Growth Slowdown of 1973—1995*, and the *New Economic Period since the mid 1990s*. And its key conclusion: *“study of the historical record underlines the importance of incentive structures for growth outcomes while sustaining growth performance over the long run requires the (often difficult) adaption of institutions and policies as catch up becomes more complete and new technological epochs arrive”*.

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