Limits To Growth Revisited

Travis Strawn*

There are environmental and financial limits to GDP growth. The current global economic paradigm is invested in continuing GDP growth based on a monetary assessment of value. This paradigm is unsustainable. A new sustainable economic paradigm and monetary system that takes into account Earth's environmental limits is needed.

Anyone who believes exponential growth can go on forever in a finite world is either a madman or an economist.

Kenneth E. Boulding

The current global economic paradigm today is one where growth is everything. Growth is seen as an imperative that must be facilitated through whatever means necessary. Recessions, depressions, booms, busts, inflation, deflation, costs, profits, and risks are all looked at to fulfill and perpetuate this one thing – growth. Currently the standard measure of growth is Gross Domestic Product (GDP), which has received increasing criticism as a healthy measure of well-being in a society or culture. The concern with economics today is a constant exponential GDP increase of roughly 3% annually per country measured for a "healthy" growing economy. What this means is a continual increase in the activity that GDP measures. This increase in activity means a greater production and consumption of the Earth's material resources. Take the standard equation and measurement of GDP:

GDP = C + I + G + (X - M)

GDP = private consumption + gross investment + government spending + (exports - imports)

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This equation demonstrates that material resources need to be consumed at an increasing rate for there to be economic growth. This equation also uses numbers that represent monetary values in assessing the worth of economic activity, and monetary values are subject to change depending on how money is created and used. It should be obvious that this couldn't continue forever; there are limits.

The Earth has finite resources and cannot be assumed to sustain this method of growth. With this are many other complications and consequences of this form of economic activity including massive unemployment, financial crisis, and environmental disaster. What is needed is a real understanding of these limits and a how to address them in a way that doesn't cause wide spread conflict, instability, and pain and suffering.

Environmental Limits

In 1972 four young MIT scientists did a study, which they published as a book named "The Limits of Growth." In 2004 three of the scientists, Donella H. Meadows, Jorgen Randers and Dennis L. Meadows, decided to make a 30-Year update, which essentially confirmed all the information the first book offered. In their analysis they looked at what they called the sources and sinks of the Earth's resources. The synopsis describes:

Limits to growth include both the material and energy that are extracted from the Earth, and the capacity of the planet to absorb the pollutants that are generated as those materials and energy are used. Streams of material and energy flow from the planetary sources through the economic system to the planetary sinks where wastes and pollutants end up. There are limits, however, to the rates at which sources can produce these materials and energy without harm to people, the economy, or the earth's processes of regeneration and regulation. Resources can be renewable, like agricultural soils, or nonrenewable, like the world's oil resources. Both have their limits.¹

What these scientists found after their study was that we are currently overshooting our physical limits – we are using our inputs and outputs, sources and sinks, in a manner that is unsustainable and unable to regenerate at the current

¹ Dennis L. Meadows, Donella H. Meadows, and Jorgen Randers, A Synopsis of Limits to Growth: The 30 year Update. White River Junction, VT: Chelsea Green, 2004, p. 10. http://www.sustainer.org/pubs/limitstogrowth.pdf

pace. With renewable resources we have the ability to sustain ourselves permanently without overshooting the limits of the Earth's resources. With nonrenewable this is not the case – once something, like oil, is used up it's pretty much gone forever.

There are many ways of dealing with this, but some of the solutions proposed may not permanently work under a capitalist system. A very real example is the world's fossil fuel energy resources. Today we are drilling in increasingly harder to reach places, oil is likely to peak in the near future, and the world continues to grow and develop demanding more of these energy resources. One solution proposed to deal with the decline and exhaustion of fossil fuel energy is renewable energy. While renewable energy is likely far better than fossil fuels it still comes in conflict with capitalism, in GDP terms. This is mainly due to the fact that if all forms of energy were provided with sustainable means, such as wind turbines, then where would profits and economic growth come from in the energy sector? How could an energy company make continuing profits at an increasing rate where energy was provided sustainably and not through a constant increase in production and consumption? The only solution to this problem would be a continual increase in efficiency of energy production through technology/technological growth, or a gradual extraction of profits through other means. The issue of sustainability arises in other industries as well. If industries become completely sustainable, such as agriculture, transportation, and even finance, then the issue of continual profits and growth come into conflict.

Financial Limits

The monetary assessment of value has complications on its own because of the various roles and uses money has had throughout history. Money has not always had such a creation, supply, and flow through governmental institutions (e.g. the U.S. Treasury), central banks, and private banks like it does today. Money also is an abstract value and idea that humans materially create through our relationship to it, which can vary over time, culture, and people. It is also naïve to believe that we can assess the value of the whole human experience in monetary terms (e.g. how much is a son or daughter worth, the Earth, a passion, water, or spiritual enlightenment?). With GDP being a measure of growth in the economic world today we soon realize that this could lead to a wall for growth where the Earth's resources could be completely exhausted. In a capitalist system it is also important to understand that GDP is evaluated in monetary terms. According to the World Bank world GDP value today in U.S. dollars is \$63 trillion, with the U.S. representing \$15 trillion.² What does it mean to say that something is worth this much in U.S. dollars? While that may be difficult to

² World Bank, *World Development Indicators*, 2010. Retrieved January 14, 2012 from http://data.worldbank.org/

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define, we can have some understanding of what is going on in the global monetary system and what limits it may face in the future. With the limits being understood, then what is called for is a reassessment of how money is created, supplied, and how it can be used in a sustainable manner.

If one examines the current monetary system, specifically the U.S., one sees a relationship between several institutions in the creation process of currency. For the U.S. this is the complicated relationship between the U.S. Treasury department, the Federal Reserve, and the banking system (e.g. Bank of America, Citigroup, Goldman Sachs). It is not completely important to understand the full dynamics of this complicated relationship, but it is important to understand that embedded in this relationship is interest and debt. The U.S. Treasury possesses debt through Treasury bonds and the Federal Reserve and the banking system create money through credit that possesses interest. This runs through many of the economic systems in countries of the world, currencies are created through debt and interest. With this debt and interest is the drive to grow out of debt and interest, meaning essentially to pay it back. To pay all the debt and interest back requires payment with the same thing that possesses debt and interest – today's money and currency or monetary system. This is how the global monetary system works in a nutshell, it inherently possesses a need to grow forever. Money and currency today are founded and created by growth, which is why it could face very real limits.

If environmental limits are reached then the monetary system will have to find an outlet for its continuation and a means to pay back the debt and interest that it contains. GDP growth requires a constant consumption, at an exponential rate, of the earth's resources and so does monetary growth. What could happen when financial limits are reached is massive unemployment, global financial instability, and pain and suffering caused by a complex process and transition from a growth oriented monetary system to a much needed sustainable monetary system.

Towards A Sustainable Environmental Monetary System

While there may be real limits to growth, there are sustainable methods of using the Earth's resources - a balance of sources and sinks as the MIT scientists describe it. Although the global monetary system requires growth today, human beings have created a wide variety of currencies and forms of money in the past that give us a potential to deal with environmental and financial limits if necessary. The creative human spirit can deal with these issues if we choose to. What is required is an understanding of the reality we live in - a reality of finite resources and limited GDP growth –and a creative interest to find completely sustainable economic paradigms. Sustainable development can be achieved, but

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the interest in profit and growth will come into conflict with this in the long term. Imagine the current economic system as it is today one to two hundred years down the road with 12 billion people living on the planet, the exhaustion of fossil fuels, a constant need to supply food, energy, water, and shelter, all the while requiring an exponential increase of a 3% annual rate of GDP growth? It is hard to imagine how this can be done sustainably, but it doesn't mean we can't change things. We just need to come up with need ideas about how to measure the wellbeing of the world and its economy. We need to come up with better ways to assess value in our lives and in the world - values that are sustainable and facilitate development, not growth.