

Interesting Economics

Posted by [Stuart Staniford](#) on July 1, 2006 - 6:12pm

Topic: [Economics/Finance](#)

Tags: [demurrage](#), [net present value](#), [peak oil](#) [[list all tags](#)]

[editor's note, by Stuart Staniford] This is a guest post submitted by [Mike Hearn](#). I have some issues with this idea, but it's certainly provocative, and I'm looking forward to seeing what folks make of it.

Mike Hearn writes:

Previously on The Oil Drum, Stuart Staniford [demonstrated how the system of interest on savings discourages long term thinking](#). But is this some intrinsic property of human nature? Or is it something we can change?

The alternative economics community has been studying questions like this for a long time, and much research has gone into what a sustainable economic system might look like. Far from being fundamental to who we are, the monetary systems we use today have evolved haphazardly over the years with no real over-arching design or guiding principles. It should come as no surprise that it has some undesirable properties. But just like our bodies, the more we learn about how they work the easier it becomes to see ways of changing them for the better.

This post will look deeper at the effects of charging interest, and present an alternative that has been widely deployed in practice - an alternative that promotes the long term over the short term.

*If he has exacted usury Or taken increase -- Shall he then live? He shall not live! If he has done any of these abominations, He shall surely die; His blood shall be upon him.
(Ezekiel 18:13)*

□

Usury, better known as the payment of interest, doesn't only cause discounting of the future. It encourages competition and stresses social bonds - something it seems those who wrote ancient religious texts understood all too well. To see how it happens consider the following story, taken from [Bernard Lietaer](#)'s book, [The Future of Money](#).

The Eleventh Round

Once upon a time, there was a small village where people knew nothing about money or interest. Each market day, people would bring their chickens, eggs, hams and breads to the marketplace and enter into the time-honored ritual of negotiations and exchange for what they needed with one another. At harvests, or whenever someone's barn needed repairs after a storm, the villagers simply exercised another age-old tradition of helping one another, knowing that if they themselves had a problem one day, others would surely come to their aid in turn.

One market day, a stranger with shiny black shoes and an elegant white hat came by and observed the whole process with a sardonic smile. When he saw one farmer running around to corral six chickens wanted in exchange for a big ham, the stranger could not refrain from laughing. *"Poor people,"* he said, *"so primitive."*

Overhearing this, the farmer's wife challenged him. *"Do you think you can do a better job handling chickens?"*

The stranger responded: *"Chickens, no. But there is a much better way to eliminate all the hassles. Bring me one large cowhide and gather the families. I'll explain the better way."*

As requested, the families gathered, and the stranger took the cowhide, cut perfect leather rounds in it and put an elaborate and graceful little stamp on each round. He then gave ten rounds to each family, stating that each round represented the value of one chicken. *"Now you can trade and bargain with the rounds instead of those unwieldy chickens."* It seemed to make sense and everybody was quite impressed with the stranger.

"One more thing," the stranger added. *"In one year's time I will return and I want each of you to bring me back an extra round, an eleventh round. That eleventh round is a token of appreciation for the technological improvement I just made possible in your lives."*

"But where will that round come from?" asked the wife.

"You'll see" said the stranger, with a knowing look.

So where *does* the Eleventh Round come from? The poor villagers face three options:

1. They can make more rounds (print more money). But this is inflationary and doesn't change the worth of an individual round; the stranger in the hat can tell it's happened simply by asking what the price of a chicken is.
2. They can make more rounds and also expand the economy; for instance by increasing their chicken production (and also therefore their food production to feed the chickens etc). In this scenario the worth of a single round doesn't change, even though there are more of them, because the increased amount of currency "covers" the expanded economy.
3. But what if they can't make more rounds, and they can't grow their economy? In this case, there is only one outcome: one family must lose all their rounds. Next time there is a storm and a house is demolished, instead of freely contributing their time and resources to help

the family rebuild, the villagers will charge one another for their valuable time - knowing that if they don't, they cannot fulfil their obligations to the man who gave them the money in the first place.

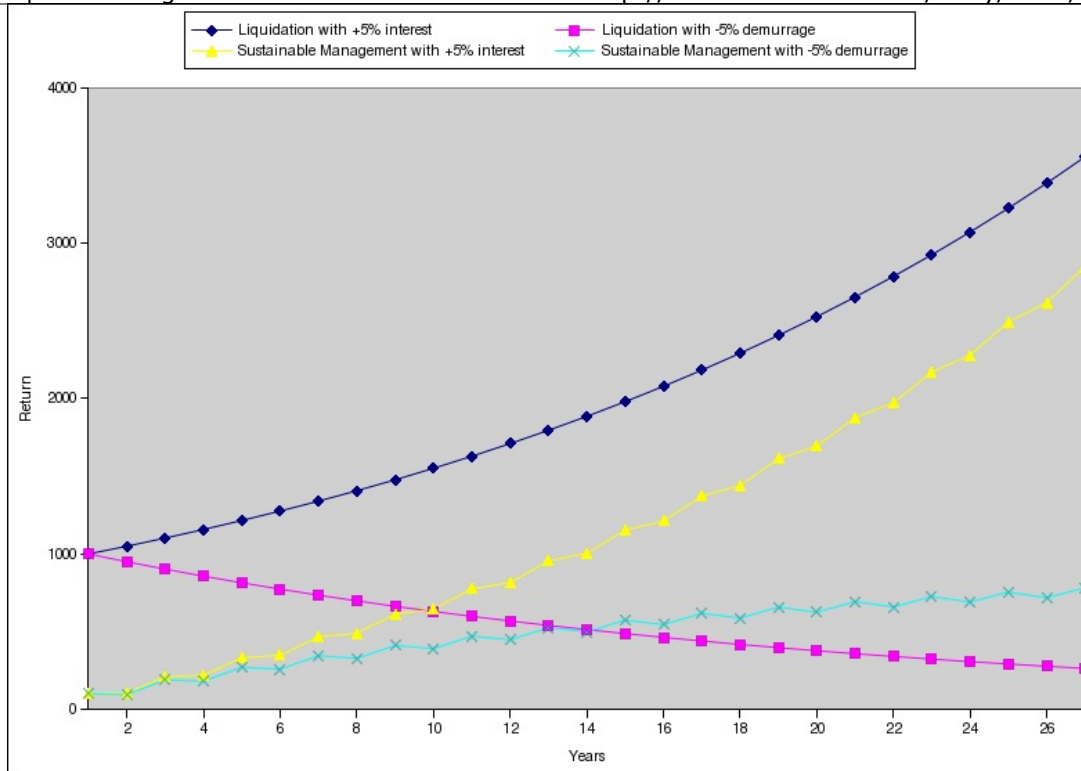
Obviously, this story is a highly simplified version of things that isolates only the effects of interest repayments. A real economy is much more complex and a full explanation of how this story relates to our world requires an understanding of the fractional reserve system - perhaps a topic for a future post. However, it nicely demonstrates the way in which the need to repay interest on our debts requires the economy to constantly expand in order to be stable, and how it encourages competition - even when socially harmful.

Demurrage

When you deposit money in an interest paying account at the bank, you are effectively lending it to others and charging interest whilst doing so. If charging a positive rate of interest encourages short term thinking - liquidating the forest in Stuarts example - then would charging a negative rate of interest encourage long term thinking? ▣

In fact, yes it would. The practice of charging "negative interest" - really a tax on money - is known as [demurrage](#). This term was coined by Silvio Gesell who studied alternative currencies in the early 20th century, better known nowadays as complementary currencies. He theorised that if money deposited in a bank lost its value over time instead of increasing via compound interest it would discourage hoarding of currency and encourage long term investment. The concept is subtly different from that of inflation, even though its effects may appear to be similar at first.

To see how this works, let's revisit Stuarts forest. When interest rates are high it makes sense to clear cut the forest and convert it into currency, which will then obtain compound interest and quickly become more valuable than the forest would have been had it managed sustainably. But if that money actually diminished over time rather than growing then liquidating the forest would be the worst possible decision because a constant rate of return would be given every year. I don't have Stuarts skill with graphs, but the differing rates of return would look something like this:



Obviously it's the basic shape of the lines that matter - in no way is this meant to represent a realistic economic scenario. Basic things like the ongoing cost of running the forest in the sustainability scenario are not taken into account.

The top line represents clear cutting the forest for a return of \$1000, which at a compound interest rate of 5% will be worth a little over \$3000 in 25 years. The yellow line represents sustainable management giving a return of \$100 every 2 years, with a 5% interest rate. Clearly, whilst that's still profitable it cannot match total liquidation.

The other two lines are where it gets interesting. The purple line represents a clear cut with a 5% money tax, the other sustainable management in the same situation. Clearly whilst clear cutting will be the most profitable thing to do at first, within only 13 to 14 years sustainable management has matched it and within 25 it's doubled your return over liquidation.

This matches our intuitive notion that if money loses its value over time, long term investments will make sense.

The Cathedral Builders



In the early middle ages, money was issued to villagers and townsfolk by the local Lords, who through their knights ruled supreme. Of course, power corrupts and few lords could resist the temptation to periodically collect and re-issue their currencies with a proportion skimmed off the top. In this way, an informal tax was levied upon the currency in circulation making money a poor long term store of value. What, the peasants reasoned, was the point of saving money when the hated lord would simply take it from you at the next re-issuing?

It was during this time that the great age of cathedral building began. Cathedrals sprang up all

over England - astonishing works of architecture that you wouldn't have thought the poor and primitive societies that built them could have produced. But build them they did. Why?

Building a cathedral was the ultimate in long term investment. A project that could take over a century and would be completed long after the founders had died, they took enormous effort to complete. Yet the rewards were equally large - not only a beacon of your dedication to God but a huge creator of employment in the local community and, when completed, a cathedral would ensure a steady supply of pilgrims from far away lands who brought a significant source of income to the local town. This correlation doesn't imply causation but it strongly hints that this sort of phenomenon deserves a closer look.

This is far from the only example - for instance in ancient Egypt grain, an important source of wealth, had a natural loss due to spoilage by rats in storage. This sort of thing was widespread and imposed a kind of natural wealth tax that encouraged large scale spending.

The idea of people funding projects that give a return only after a century is laughable in this day and age, yet it was common not that long ago. Modern money, it turns out, is not some expression of human nature but a tool that can be used to give people incentives to act in certain ways. Existing currencies encourage competition and growth, but as we reach the limits of our planets carrying capacity alternative economic designs will become more and more relevant.



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