Appendix One: The Algorithmic Consequences of Debt-based Money Systems

It can be difficult to shift to dialogical reasoning collectively if we are still thinking individually in the framework of Rational Economic Actors. And there are a host of institutions that encourage us to stay in that framework because they are generating profitable business by getting us to behave like Consumers making Rational Economic Choices. We have already alluded to the power of advertising. But there is another key national institution that plays an at least equally powerful role in getting us to think like Rational Economic Actors: the Debt-based Monetary System.

The US monetary system illustrates some fundamental problems with the dominant practice of creating money through debt. The basic process is one in which someone who owns a real asset uses it as collateral for a loan. The bank creates a deposit account in which they issue dollars to the borrower. Those dollars are backed up by the collateral the bank holds. They are created by the bank when it changes the digital numbers in the borrower's deposit account from zero to the amount of the loan. There are, of course, a variety layers to this basic process that include the Federal Reserve System, the US Treasury and banking regulators, but the basic process is, in essence, no different than what happened hundreds of years ago when merchants would bring gold to a bank as an asset and the bank issue pieces of paper that functioned as money and could be exchanged by the merchant for goods and services owned by any other merchant who was confident the bank notes could be exchanged for gold if they wanted to trade them in.

Nowadays, it may seem as though the money that the borrower then has and can spend is "created out of thin air" because the bank simply types it into the borrower's account. But in fact, the money is created out of the real asset – the house or car or land that was indebted through the loan. The new money existing in the account serves, in effect, as the bank's way of making the value of the title to that asset become "liquid" -- extremely easy to transfer. That value can now be moved about by check or electronic transfer. A crucial feature of this indebting system is that the bank charges compound interest for the service of creating that liquid money, and letting the borrower use it until the loan is repaid.

In managing a real asset like a house or farm or forest or factory, there are lots of different people and points of view and forms of intelligent activity that come into play. And collaborative dialogue can be used to determine how to reconcile their interests and concerns so that the values served by community functions and ecological processes can all be balanced in wiser ways.

But once the asset is indebted, it becomes monetized. Control of it passes to the lender who will insist on it being managed in ways that sustain the monetary value of the asset so that it can be cashed in if the borrower fails to keep up with payments on the interest and capital. This is why banks insist that borrowers purchase fire insurance for their houses. It is also why they may call in a loan if the housing market drops and the house can no longer be sold for some safe extra margin beyond the amount of the outstanding debt.

So, the decision-making process controlling the life of the asset is no longer the living process of collaborative dialogue amongst stakeholders. It is dominated by a mechanical algorithm that demands annual increase in monetary value set by the interest rate. Of course, the domination is not complete. The bank's control allows plenty of room for people to do all kinds of things with their assets and plenty of room for people to make decisions collaboratively

– so long as the net result satisfies the rigorous and unyielding demand of the algorithm of interest. But, over the long run, that demand has an enormous influence on the everyday management systems of every real asset that has been indebted. They must be managed for growth or get liquidated.

So, a central source of problems with our economy is that it is dominated by a monetary system grounded in indebting that transfers control of assets from communities engaged in collaborative dialogue to banks engaged in unilateral inferences employing calculations of interest.

One problem that results is that natural resources that grow less rapidly in value than the interest rate, get liquidated. This is by no means the only explanation as to why farmland, forests, and fish stocks around the world are disappearing – and why we are experiencing a Sixth Great Extinction. But it is a key underlying factor.

A second problem is the inequality in who bears the risks in the growth process for the economy. The borrower needs to invest the loan in some activity that will produce income to grow their wealth. But this is always a gamble. The farmer borrows money to buy seeds and tractors but then droughts or mechanical breakdowns occur and her investment fails. At that point, she and the many others who may be in her same situations lose their farms. The famers get owned by one or a few banks. Inequality increases. Further, the bankers have it in their interest to control the terms of loans and the management of resources to try to reduce their portion of the risk as much as possible. As larger, wealthy, politically more powerful agents, they generally manage to do so. Unless, of course, there are strong social norms and institutions that militate against this – like income taxes used to redistribute wealth, or, even more radically, a probation of usurious lending like in the earlier Christian and Islamic traditions which spread risk by insisting on sharing it through investment in partnerships instead of splitting it through borrowing at interest.

A third concern is that the inequality that results is not just an economic problem for the poor who become dispossessed. It is also a political problem for the society which becomes undemocratic. Money talks and as long as it is allowed to accumulate unequally there will be an ever smaller few that have much more powerful voices and votes than the many.

So, our current system of creating money by indebting is a major and unremitting cause of growing ecological collapse, economic impoverishment, and political inequality that undermines democracy. And at the center of these problems is the way that the “logic” of indebting imposes processes of unilateral inference on the management of assets. It is, of course, only half right to put the term logic in scare quotes here. Doing so provides a rhetorical way of emphasizing the irony that this process that is claimed to make us all better off really does so only in the short run and from a limited point of view. It’s like using scare quotes when we say talk about the “logic” of addictive behaviors or the “logic” of an arms race. But it is also perfectly appropriate to talk of the logic of indebting without any scare quotes because it is a process that does, in fact, involve a set of algorithms that determine how the process unfolds. For their part, in the aspects of it that they determine, they proceed with all the rigor of any other sort of mathematical calculation or proof. They involve a fundamental way in which monological reasoning is institutionalized and entrenched in our economy.

It is important clarify that the fundamental problem is not with money in general, but, rather, with the particular kind of money that is based on indebting. The creation of money

systems, in general, in and of themselves, can actually be quite beneficial and enable us to enrich the kinds of collaborative dialogues in which we manage our resources. As a step beyond barter systems, many forms of money can allow us to make exchange more efficiently by sharing information about ways in which we value things and what tradeoffs we would be interested in. If I want to trade some of my labor for some of your fish and you want to trade your fish for someone else's apples and she wants to trade her apples for some health care, then we might have a deal that could make everyone happy. But it may take some complicated negotiation. I could arrange to work some hours at the clinic to compensate the doctor for the farmer's healthcare to compensate you for your fish which you then exchange with me. But money makes these kinds of exchanges possible and much more efficient in even enormously complicated markets.

In doing so, it takes real assets that are being managed by collaborative dialogues between their owners and it enters them into the market system in a way that makes it possible to include more people in the dialogue. If my wife and I are thinking about how to manage our house now that we no longer have children at home, we may wonder about converting bedrooms into workshops or renting them out to boarders. The opportunity to place the whole house on the market for sale and take the money to buy a smaller place puts more options on the table and invites dialogue with a variety of potential buyers who might make different uses of the place. In and of itself, the process of simply letting the house become a potential commodity for sale does two things: 1.) It makes calculative inferences about the market value of the house become a relevant part of our dialogue about what to do with it. 2.) It leaves us in a position to continue thinking, framing, and including those kinds of monological inferences within the larger context of collaborative dialogue about what the house may mean to us, what we are doing with our lives, and how we hope to change our world.

As long as we and our holdings remain free of debt, we are free to continue those dialogues without subordinating them to the logic of interest and the need for growth that are part of the debt based monetary system. If we decide to rent a room at a low price or give it freely to someone in need, there is nothing to stop us. But **once an asset is *introduced into the market AND indebted,* then we must subordinate whatever further dialogue we have about it to the logic of interest and the need for growth.** The significance of this has been well understood by farmers and indigenous groups around the world. So long as they own their land and holdings debt free, they may choose to manage them however they will and they are able to follow the norms and values of their culture to their hearts content. As long as they manage them in ecologically sustainable ways, they will continue to have those resources. They will be able to grow the olive trees their ancestors planted 1500 years ago or practice the milpa system of agriculture that is central to their traditional culture and way of life. And they also remain free to improve their lives with whatever modern technologies they choose to adapt and adopt in their own, culturally autonomous ways. But the moment they take out a mortgage and borrow money by indebting their land, they must subordinate whatever community dialogues they have about it to the logic of the debt based monetary system. And if they are hit by seasons of drought or onslaughts of climate change and their trees and other natural resources cannot grow at least as fast as the interest rate, then suddenly the range of possible dialogue options is tightly constricted. They must liquidate the asset, selling it off, and abandoning whatever parts of their way of life are dependent on it.

This has been the repeated history of small farmers in the United States and of indigenous communities throughout the world. And it will remain the history of the future for any household or community that indebts its assets.

How could we change the money system so that it would, instead, promote more collaborative dialogue processes for managing our world? And how could we make a transition to some system of that sort in an orderly and productive way? There are a variety of proposals for shifting away from debt-based money systems. The process can be started at the local level by the introduction of trust based currencies which communities like Ithaka, New York, have experimented with and which have a variety of important historical precedents such as the currencies created by individual States in America during the Revolutionary period. The process of shifting could also be initiated at the national level by having the government mint coins or print money that is spent directly into the economy in order to pay for goods and services it purchases. There is a legitimate concern that this could cause inflation by increasing the money supply faster than the economy could grow. But as long as the government only adds to the money supply at the same rate at as the current increases in the productivity of the economy, then the number of dollars chasing the number of goods and services will stay in proportion and no inflation will result from this. And it has the added benefit of creating no new debt for the government – unlike the current system in which government borrowing adds to the money supply by, at the same time, adding to the national debt.

There is, of course, considerable need for careful research and extensive dialogue to figure out which alternatives would be best and how best to introduce them. But it is clear that it is urgent to make a shift in the next decade or two because this is required for the transition to an economy that stops liquidating nature, impoverishing people and undermining democracy.

It is one thing to sketch, in broad strokes, the alternatives between these two ways of thinking and acting in the economic realm. It is all well and good to clarify, in general terms, what it would be like to become, as individuals and nations, less like Rational Economic Actors chasing ever more income and GDP and more like Historical Change Agents. But how, exactly, can we actually make that sort of transition both individually and collectively? And how can we do that in a way that is sufficiently fast and scalable to meet the ecological deadlines we have created for ourselves with impending Climate Change and the Sixth Great Extinction?