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MAKING SENSE OF IT ALL –  
SUMMARIZING WHAT I’VE LEARNED OF ECONOMICS

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After more than a year of studying, reading, and keeping up with the news, what have I learned about economics up to now?

**First:** I now understand that economics is a social science, not a hard science like physics or even an empirical science like medicine or geology. Economics was once called *political economy* which is really a much better name for it. It should be classified as one of the social sciences such as sociology, political science, or public administration because it deals with people, their beliefs and expectations, and the social structures they create when they interact. As presently taught, though, economics is like a fish out of water – it swims awkwardly in these social ideas since it has such a strong tradition of mathematical analysis and it undeservedly thinks of itself as a hard science. But it’s now undergoing reorganization and may emerge from it a bit humbler.

Economics could be compared to Philosophy or Education since it’s prone to fads originated by geniuses who wrote persuasively. Adam Smith, Malthus and Ricardo, Jeremy Bentham and John Stuart Mill had big impacts that echoed down the years, all done without mathematics. Some of their crucial ideas such as “the invisible hand” and “utilitarianism” still grip hearts & minds today. The mathematical branch of economics was introduced by Leon Walras in the mid-1800s and was codified by Alfred Marshall in the early 1900s. But genius Karl Marx ignored math in his *Das Kapital* which also still holds hearts & minds today. Genius J.M. Keynes was well schooled in classical economics but the Great Depression changed his mind, and his *General Theory* changed economics – again without using math. Economic scholars like Friedrich Hayek and Milton Friedman were apparently so horrified by the Soviet tyranny and occupation of Eastern Europe that they introduced a kind of Libertarianism into economics.

Such “big men” have made economics into a society of tribes or schools of thought each with its own followers. There’s not much building upon what’s gone before or “standing upon the shoulders of giants,” as Isaac Newton once wrote. Economic ideas seem to live forever, becoming myths or memes, and be built into ideologies and political platforms.

**Second:** I learned that societies are economically conservative – people have a powerful need to believe in things as they are, that they will continue in their present course, and that the established order is a proper one. These attitudes make everyone’s life much easier. Most economic decisions are already made, others become routine, and there’s no need to fuss over every little thing. People know what to expect, they know where they stand, and many problems are eliminated. Hobbes’ war of all-against-all is avoided and a functioning society is made possible in which everyone can do their part. Of course some people are happier about this than others, but social rebels are really very few. Social beliefs and practices, including economic ones, change extremely slowly. They change more by evolution than by revolution.

The effective watchwords are, “Things could be worse,” “Better the devil I know than the devil I don’t know,” and “Don’t rock the boat.”

**Third:** I learned that economics as a profession and a field of academic study is in very deep trouble. Although professional economists are quite well paid for their advice, almost no one in a position of authority actually believes in them and certainly won’t act on their advice unless it supports a preconceived purpose. If they don’t care for the advice, they’ll find other economists. Comedians make jokes about economist’s predictions. Economists regularly insult each other about bad assumptions, judgments, and calculations.

Academic economic theories apparently went off the rails in the 1850s when Leon Walras based his mathematical economic theory on the idea of ‘equilibrium’ taken from physics. It has turned out to be a hundred & fifty-year excursion down a dead-end path. At first, the equilibrium hypothesis allowed economists to mathematically solve some static problems of supply and demand, price and quantity, and others such as optimization under various constraints. Always, however, the equilibrium hypothesis carried with it basic assumptions about consumer behavior – namely, that consumers are always rational maximizers of money or utility, or rational minimizers of expense, and that consumer’s funds are always fungible (i.e., funds are quickly and easily movable between various categories.) Without these extra assumptions the equations of economic equilibrium couldn’t be solved at all. This kept economists solidly tied to the equilibrium hypothesis even though it grew less and less believable.

In time, academic economic departments gradually became like some religious orders – groups of faith. Their main hypotheses couldn’t be falsified by evidence. The brothers could instruct novices, grant degrees and publish books of instruction, yet many of them had lost belief in their basic tenets.

**Fourth:** I found that the present remaking and rejuvenation of economics seemed to be coming from several directions: (a) Experiments with brain imaging are starting to reveal consumer’s motivations even down at the unconscious level. (b) Computer simulations using many ‘agents’ with various pre-programmed sets of ‘motivations’ in a ‘world’ with changing ‘rewards’ now show how the behavior of a swarm of independent agents can develop and change through time. (c) Mathematical development in chaos theory, with its ideas of ‘quasi-orbits’ and ‘strange attractors’ in a phase space, will help to better understand the behavior of systems that are far from equilibrium. (d) Further advances in game theory, including multiple players and coalitions, could shed light on economic behavior. All of these researches, and others, are progressing slowly and are nowhere near a definitive stage.

Academic economics is shedding its aura of certainty and infallibility. After being left behind by science and mathematics for years, changes are slowly being made. The ‘Law’ of Supply and Demand is reluctantly being recognized as an approximation that’s valid under only some conditions. (A real Law is valid everywhere and has no exceptions.) Also, some attempts are being made to model time-dependent behavior of simple economic systems using second order time-differential equations. The math is impossible to solve algebraically, so systems of equations are simulated with computers. Beyond these steps in shifting economic theory away from the equilibrium hypothesis and its *homo economicus* consumer, lie some even bigger chasms to be crossed.

First, a technical one: Economic variables like prices, wages, rents, and taxes don't vary smoothly but jump from one value to another. Not surprising, when dealing with dollars and cents. The trouble is that many math tools like graphs and calculus are designed for smooth, continuous variables and we simply don't have substitute tools for discontinuous ones. So we cross our fingers, use what we've got, and hope it works out. New mathematical tools for discontinuous variables are needed. To the working economist this seems like a mere nit-pick. Of course you can draw a smooth curve through the data points! Why not use that? It seems so obvious. The problem is with existence. Two curves may intersect, but the two underlying data sets may not – they may have *no points* in common. See? I told you. It's a nit-pick. Only a mathematician would worry about that. Why, you're absolutely right!

Second: Traders and speculators on Wall Street have long known that people's expectations strongly affect trading prices and actions. Earnings, dividends, statistics, indexes have their places but one trader's opinion of another trader's *purpose* is hugely significant. George Soros, a billionaire trader, describes this as "reflexivity".

Third: It's now a proven, scientific fact that real consumers and corporations are indeed *not rational* about money, utility, pleasure and risk however defined. Other factors are demonstrably present such as loss aversion, endowment effects, status, revenge, conspicuous consumption and others. However, no one has a clear idea of which factors will be important in a given market situation, and why. Everyone, including economists, has opinions and counter-opinions about these non-rational elements. It's as plain as day that if you do X people will respond with Y – or is it Z? So it's a muddle.

Economics is searching again in many directions for its proper roots. New sub-fields like Experimental, Complexity, Behavioral, Fractal and Non-Autistic Economics, plus Econophysics, are springing up to explore promising leads. They are informing some interesting computer simulations, but there is yet no unifying theory that will encompass the usual variables like prices, wages, interest rates, trade & currency flows, but also will incorporate consumer and market sentiments, expectations and the non-rational psychological variables above.

**Fifth:** I found that the creation of money is not as simple as given in the textbooks, that is, by fractional reserve banking and the Federal Reserve System. I also learned that credit is much, much more important to our economy than actual money, that there is far more credit circulating through the economy than there is money, and that credit is created not only by banks but also by other institutions beyond the reach of the Fed. For example, General Motors and General Electric have very large credit operations, as do foreign banks operating with Eurodollars – the many billions of dollars on deposit outside of the U.S.

In this environment, it's not surprising that U.S. banks aim to sell loans first and get adequate reserves later. They can be borrowed from other banks if needed, or from the Fed, which has no real alternative but to provide them.

It also became clear that the classical, neo-classical, or neo-classical synthesis descriptions of economics are totally inadequate. Since they are based on the idea of "equilibrium," they cannot incorporate the concepts associated with credit over time – periodic payments, declining balances, net present values, interest accumulation, puts & calls, options & futures contracts, etc, not to speak of abrupt shifts like default, credit default insurance & swaps, and so on. Equilibrium analysis seems, at bottom, to be based on barter in a stable or slowly changing system. That is, I'll trade you my labor or goods for your money and you'll trade your labor or goods with someone else for their money. Repeat *ad infinitum*. Money and goods go

'round in opposite directions. Each step barter labor and goods for money, with no concept of credit and debt. (Introducing an interest-paying instrument like a bond or mortgage into this happy picture pushes it out of equilibrium, by definition.)

**Sixth:** I learned that the current numbers for international trade and monetary flows are badly contaminated by so-called 'dirty money.' Maybe as much as half of all such international transactions might be involved with false, illegal or unreported wealth transfers using mis-priced invoices, tax havens, secret accounts, dummy corporations, hidden subsidiaries, etc. This tremendous amount of financial activity is used for all purposes, legal and illegal – holding profits offshore, transferring assets at desired prices, hiding financial assets, tax evasion and postponement, money laundering, payoffs and kickbacks, drug running, arms sales, etc. Some of it is done by ordinary citizens and corporations and some by criminal enterprises and government agencies operating outside of the law.

Because international commercial flows of money and goods have this wild-west character, all mixed up together, their reported amounts and purposes really cannot be taken at face value. The international payments system accommodates both proper and improper transactions and cannot distinguish between them since laws and attitudes differ greatly between countries. We don't know how to handle them or properly estimate their drag on the economy. Perhaps under-the-table "fees" and different amounts of corruption should be put into economic models as value-added taxes? (Here's a kind of tax even a conservative would love – it never gets into the hands of governments.)

I think I can sum up under three general headings: Stability and Instability, Old Theories and Paradigm Shifts.

### **Economic Stability and Instability:**

I was born during the great depression. Many people thought my parents were crazy to have children at that time. I am old enough to carry the scars of that time in my upbringing. Everyone knew the depression was an unforeseen calamity like an earthquake or an act of God, except that it was obviously the work of man. But, no one could figure out how. And now, here we are again, living through one of those cursed "interesting times" where economics is on the front page and on people's minds again. The States of Michigan and Oregon have real depression-era unemployment. California is laying off thousands of State workers, paying its bills with i.o.u.'s, and may actually default on its bond payments.

Most people alive today have seen nothing like this so everyone is at sea, thrashing about for answers, analogies, explanations, theories, similarities, just-so stories – anything that will give some comfort or guidance as to what to do. The babble of confusing voices can be overwhelming. Who to ask? Better yet, who to believe?

You'd think professional economists would best understand a depression; it's their field and they've studied it for years, right? Unfortunately they've disqualified themselves, because only a half-dozen of them saw the crash of 2007-2008 coming in advance. Most of them, even now, don't agree on why it began, how bad it is, or how long it will last. There were a number of stock and real estate experts who didn't like the "feel of the markets" in 2007, who knew that something was wrong, and that a correction was likely. There may have been some bankers who

didn't like the drift of the mortgage business. They all were helpless to do anything about it. Brokers were fired for making sell recommendations and bankers had their quotas to meet.

The economic commentariat – columnists, TV pundits and authors – did no better. They were along for the ride to *DOW 36,000*, as one book title put it. So, there was no good advice to be had except from a few obscure academic economists, primarily Hyman Minsky, who was writing in defense of the theories of John Maynard Keynes.

Keynes, a British economist, published his *General Theory* in 1936. [ 1 ] He described how the economy could settle into a condition well below full employment and capacity utilization and cycle up and down from there. He also pointed out that as investment markets became more confident the risk of speculation predominating over enterprise would increase. A weakening of either speculative confidence or bank credit could bring about a collapse in the price of equities, industrial orders, jobs and aggregate demand. The only remedy would be for the government to provide jobs to the public so they had money to spend. If necessary, he said, the government, “could bury banknotes in bottles in disused mineshafts and hire people to dig them up again.” Essentially, government had to undertake deficit financing for the emergency. This was as contentious in the 1930s as it is today. Roosevelt's collection of make-work agencies – the CCC, WPA, and infrastructure projects like the Tennessee Valley Authority and the Hoover Dam – took the edge off of unemployment. Full employment was not restored until World War II when the government spent money faster than was thought possible.

Minsky, an American economist, is known for his Financial Instability Hypothesis which he published in 1986 and later set forth in his book, *Stabilizing an Unstable Economy*. [ 2 ] He too put the blame for economic booms and crashes on speculative finance, which he saw as progressing in three stages: In the first stage, (1) interest payments on investor's borrowings are paid from the ongoing returns from existing investments. Minsky called this Hedge Finance. In the second stage, (2) such interest payments are met by rolling over existing debt. He called this stage Speculative Finance. In the third stage, (3) interest on existing debt is met by additional debt, by refinancing, or by selling other financial assets. Minsky called this last stage Ponzi Finance.

Minsky showed that in prosperous times, when the last crash has been forgotten, there is a pressure to gradually build from Hedge toward Ponzi financing in the capital markets because it is more profitable. Financial innovation and engineering lead in this direction, as well. But a largely Speculative and Ponzi financed market is much more fragile. As the boom progresses, a rise in interest rates can eliminate a margin of safety, forcing some investors to sell in order to make their positions, further forcing declines in asset prices, leading to a downward spiral of investment, profits, and stock prices.

Economic collapses and depressions should have been familiar to everyone because they happened fairly regularly. But strangely they were not anticipated, for two main reasons:

First, classical economic theory, being based on the idea of equilibrium, had no clear concept of a self-reinforcing downward economic spiral, or of economic growth either, for that matter. Depressions were not part of people's mental model of 'the economy.'

Second, the really huge depressions happened infrequently, at least a generation apart, so that society didn't learn to build up reserves against the really hard times as they provided food for the winter. Children didn't learn how to survive depressions while growing up, so the warning signs were always missed. Depressions always hit like a ton of bricks and people didn't know what to do except muddle through.

Gradually things would recover and normalcy would return. Personal memories of the catastrophe would fade and be forgotten. The survivors would die off. Institutional restraints put in place would become quaint or nonsensical in the enthusiasm of a new boom, and be bypassed or removed. After all, “things are different now.” So a few souls would live to see their grandchildren’s generation make the same mistakes, ignore their Cassandra-like warnings, and get to live through it again.

### **Old Theories:**

The social conservatism that lets people hold beliefs-in-common about society also holds them to those beliefs, even in the face of lots of plain, contrary, evidence. Usually, it’s not a problem for anyone. People deal with contradictory evidence by simply ignoring it. They don’t have to refuse to look through Galileo’s telescope, so to speak, because they never think about such matters at all.

### **Paradigm Shifts:**

A mighty paradigm shift has been brewing within economics for the last twenty of thirty years, boiling up from below with dissatisfaction among mathematicians and physicists who’ve been looking into the foundations of economics, and neurologists who study the brain’s response to economic situations. These groups do not accept the hypothesis of *homo economicus*, the rational maximizer, as explanatory of human behavior. (And, as a matter of fact, not many economists do either.)

Some interesting advances have been made with computer simulations using large numbers of interacting cellular automata that show economic-like group behavior. But, these are a bare beginning. No progress has been made in game theory, or elsewhere, neither in explaining or predicting such phenomena, nor in somehow letting these entities become able to invent their own rules and become independent.

[ 1]    The General Theory of Employment, Interest and Money by John Maynard Keynes  
(1936)  
Palgrave MacMillan, 2007

[ 2]    Stabilizing an Unstable Economy by Hyman P. Minsky  
Yale Univ. Press, 1986  
McGraw-Hill, 2008