

# The information society and the post-2008 economic crisis

David Keil, October 2011

## Abstract

The U.S. and worldwide financial and economic crisis that began in 2008 has occurred in the context of a globalized market, falling rates of profit, and effects of rapid expansion of information technology since the 1970s. Among the developments worth studying are ubiquitous computing; accelerated financial speculation; falling standards of living; job migration; information-alism replacing industrialism; potentials for universal human connectivity; and a new decentralizing trend that is emerging in human thinking and in society. A *network* concept of human society may be gaining credibility, with the networks and their rapid-feedback loops enabled by information technology.

## 1. Globalization, information technology, and finance

Developments in information technology have profoundly affected society since the 1970s. What role did they take leading up to the U.S. mortgage and financial crash of 2008 and the full-blown worldwide economic crisis of 2009?

*Globalization*, the creation of a more integrated world market than ever before, was made possible by information and communications technology that gave millions of businesses a world market and placed nearly every business in contact and in competition with every other business in the world. Now the globalized market poses obstacles to any nationally focused efforts to revive national economies. For example, the “multiplier effect” of Keynesian economic-stimulus spending is reduced when spenders make their purchases on the world market.

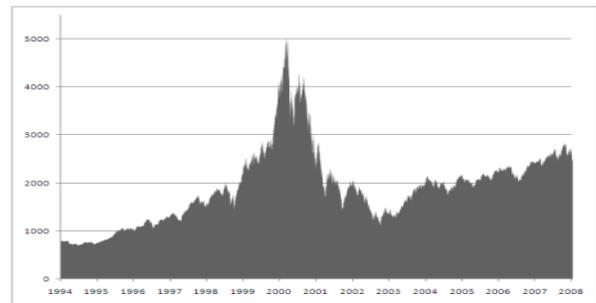
*Deregulation* of the finance industry and others was part of the 1980s governmental response to downward pressure on rates of profit. At the same time, the use of information technology enabled manipulation of markets by insiders, unpredictability in finance markets due to computer-driven stock trading, and the use of financial instruments that few people understand, since they are based on flows of data generated by computers in real time.

*Speculative investing* is part of all major economic crises. When solid, productive investments will not absorb all money that investors are seeking to invest, high-risk speculation expands.

Speculators make bets on future changes in the value of assets, including speculative paper assets.

## 2. Speculation, information technology, falling profit rates, and job flight

Speculative investment drove the *dot-com bubble* of 1995-2000, in which technology stock prices doubled in a very short time (see graph of NASDAQ prices, with their sharp peak of 1999-2000, below). In the bursting of the dot-com bubble, five trillion dollars in stock value was lost in a short time. Other speculative investments, made possible by computer use, are *derivatives* and *credit-default swaps*.



The 2008 crash was fueled by a housing-prices bubble not unlike the dot-com one. In the housing bubble, millions of persons took mortgages on overvalued property in order to maintain their standards of living. The collapse of the known values of these mortgages brought about the collapse of many financial institutions that had bought and sold large numbers of mortgages packaged together. Unlike traditional mortgage lending based on realistic property values and likelihood of ability to pay, the subprime-mortgage bubble was speculative.

Money goes into speculation rather than productive investment when productive investment opportunities are scarce. Immanuel Wallerstein (2008) writes:

Profit rates from productive activities go down, especially in those types of production that have been most profitable. Consequently, capitalists who wish to make really high levels of profit turn to the financial arena, engaging in what is basically speculation. Productive activities, in order not to become too unprofitable, tend to move from core zones to other parts of the world-system, trading lower transactions costs for lower personnel costs.

This is why jobs have been disappearing from Detroit, Essen, and Nagoya and factories have been expanding in China, India, and Brazil.

These two factors, falling rates of profit and the export of jobs, are both phenomena of the globalization of the economy and the information society. The tendency of the profit rate to fall, as the ratio of technology investment compared to all investment rises, has been explained as follows.

Technology is acquired to improve productivity and profitability. As information technology and high technology enter every part of production, distribution, and exchange in the advanced capitalist countries, capital accumulates in the hands of employers and at the site of production. The part of capital investment that pays for non-human productive plant (including IT) rises in proportion to the part of investment that goes to pay for labor. Technology is passive in relation to humans and does not produce commodities by itself, but rather *enables* production of value by human labor. The *rate* of profit extracted from the human-conducted production and exchange process is pressed downward.

Speculation occurs under looser rules. When the *perceived future* value of a speculative investment rises, the price goes up, and the speculator may reap windfall profits merely by selling. People who bought houses to “flip” them in the market followed this logic and gained for a number of years. Their profit appeared as if from out of the sky. A speculative investment may not involve any production at all, and its value may not have any connection to its usefulness or the labor necessary to produce it.

The relevant point is that as production became increasingly driven by expensive high technology, including software, profit rates were driven downward, allowing investment money to be lured into high-risk speculation.

In addition, investment has been concentrated further in equipment and technology, not on labor, during the recovery. Almost three years after the outbreak of the 2008 crisis, and after the “stimulus” measures, business spending on employees during the recovery has grown only two percent, while spending on equipment and software has risen 26

percent, according to the Commerce Department (Rampell, 2011).

Another cause of the crisis in the U.S. society and economy is the export of jobs to countries where pay is lower. This too is a result of the globalization of the market and the world economy, enabled by information and communication technology. Technology is applied in every country. Under conditions of plentiful world trade, production tends to move to where wages are lowest. Hence jobs tend to leave countries with a higher standard of living, like the U.S., for countries with a lower standard.

The rapid job flight of the last thirty years created an *implicit* lowering of the U.S. standard of living. This lowering was cushioned by massive U.S. consumer borrowing. The long-term ten percent annual growth rate of the Chinese economy has been financed by this borrowing, in turn made necessary by the lowering of incomes in the U.S. partly due to the flight of millions of U.S. manufacturing jobs to countries like China where wages are lower.

### 3. Industrialism and informationalism

M. Castells has identified *informationalism*, a current-day analogue to *industrialism*, as a mode of development in capitalist economies. What characterizes the informational society best is the action of knowledge on knowledge to revolutionize all aspects of social life, accelerating the pace of change. According to Castells, the *statist* mode of production, which prevailed in Russia and surrounding countries until the early 1990s, failed to adapt as the *capitalist* system was able to do with the use of information technology.

Whereas industrialism aims at economic growth, informationalism seeks technical development. Informationalism is linked to the rejuvenation of capitalism, deregulation, dismantling of the welfare state, and disruption of the social contract between employers and labor.

The informational society is characterized by the introduction of significant new social opportunities and problems:

- Universal connectivity of humanity, with universal access to knowledge and culture
- New challenges to security and, in response, new challenges to traditional concepts of privacy

- New opportunities for free expression and the exercise of democratic rights, and new challenges to these
- The possibility to widely exchange every kind of intellectual or cultural artifact, including music and videos, raising new challenges for the compensation of creative work and new challenges to those who carry on free exchange
- Changes in work life, culture, and education
- Problems of reliability of information systems and security risks
- A new, decentralized “network” paradigm of social and organizational structure, replacing the old hierarchical paradigm.

The *global information infrastructure* is the merger of computer/information technology with telecommunications. This infrastructure supports greater access of all businesses to the world market and greater access of individuals to each other. *Web 2.0*, a nickname given to the use of the interactive capabilities of the World Wide Web, is an evolving and expanding collection of web-based capabilities for interaction and of interactive web sites that enable participatory web browsing. Examples are blogs, wikis, social networking, twittering, and the posting of videos. In *Web 2.0*, the users provide the most interesting content, attracting other users.

New issues of privacy are raised by the massive collection and posting of personal data in the informational society. One hypothesis is that the notion of privacy is a notion of limiting the *power* of the data collector, intruder, information access controller, or surveiller over individuals. *To whom* does the new social power afforded by IT flow?

#### **4. Chaotic behavior challenges equilibrium-based economic theories**

With greater connectivity, human society is subject to similar effects as are seen in other decentralized, self-organizing, internally connected systems. *Chaos theory* explains these classes of phenomena – events that occur in the presence of *nonlinear feedback*. As greater decentralized connectivity develops, which feedback paths strongly affect the entire system are harder to predict.

The chaotic results of the information revolution, and the implications for economic theory, are sketched by Z. Sardar (1998) as follows:

The world has been linked into a single global market ruled by instantaneous transfer of capital by electronic signals. Small changes can quickly multiply in the global electronic market and lead to serious perturbations. Modern, high technology firms are radically different from traditional old-fashioned businesses. Technological innovations proliferate rapidly, making nonsense of conventional ideas of a solid lead over competition.... Under these circumstances, chaos and complexity – or chaotics – provide us with a better understanding of what is happening than conventional economic theories.

Economic theory has assumed a long-term tendency toward equilibrium. For example, if a firm sets very higher prices for a new product, then it may profit, but, by the law of diminishing returns, may have to reduce prices or lose market share to other firms that market similar products. An equilibrium state is reached. But with information technology, positive feedback may convert the economy into a nonlinear system. Sardar writes:

As more people adopt a specific technology, the more it improves and the more attractive it looks to the designers/adopters and to would-be manufacturers and sellers.

A software product, for example, may “become a massive source of continuous, ever-increasing returns.”

It seems likely that the suddenness of the financial collapse of 2008 was related to chaotic phenomena enabled by information technology, and that future surprises are in store from the same source.

#### **5. A decentralized paradigm**

The informational-global economy is associated with a new, *decentralized* organizational logic, replacing flows of information between individuals and powerful organizations (e.g., broadcast media) with massively more numerous flows among individuals and groups. Flows are “purposeful, repetitive, programmable sequences of exchange and interaction between physically disjointed positions held by social actors” (Castells, 2000).

The paradigm of *decentralization* challenges our assumption that actions by groups always require

leadership and the creation of complex structures always requires intentional design. Examples of creations not resulting from conscious design include the Internet, natural language, human society and culture, and the evolution of life on earth.

The informational society, like capitalism itself, has fostered both centralization and decentralization. The capitalist ideal is a free market, i.e., one lacking central control. In the time since the 1970s, deregulation policies aimed at encouraging market processes have fostered a massive merger and acquisition process, and a process of power accumulation by financial managers.

Information technology has further enabled these processes. Business processes have been reengineered with support of IT, making them more efficient. Competition has been intensified by Internet use, but massive mergers have tended to reduce competitive pressures on the enterprises that hold the largest market shares.

*Networks* restructure society. Power relationships are made susceptible to major change. Power is held by people at the interfaces between networks. Global capitalist society is structured around a network of financial flows. Dominant functions in society are organized in networks, subordinate functions are fragmented (Castells, 2000).

The kind of communication associated with hierarchy, or “power over,” may be characterized as “life-alienating,” and in many circles is being replaced by a “power-with” style of human communication (Rosenberg, 2003). This possibility of change is supported by a global information infrastructure that “flattens” the world in a decentralizing and market-equalizing sense (Friedman, 2005).

## **6. Society as an evolution from hierarchy toward network**

A very long-term tendency can be observed, of life and human society moving from centralization and hierarchy toward non-hierarchical network structures.

In the *animal realm*, the food chain is a hierarchy of species; individuals within species compete for dominance within groups.

Some *human indigenous societies* practiced gender and social equality; others imitated the animal realm in part by eating or killing defeated opponents in war. The element of equality in “primitive” cultures points toward the possibility of human equality in future societies.

*Slave societies* advanced toward equality in war situations by allowing the vanquished to survive and reproduce. Slavery follows a paradigm of hierarchy and survives in pockets today.

*Feudal societies* enabled serfs to manage their own plots while bound to their feudal lords; this provided for greater productivity and a greater surplus to benefit the feudal nobility than slaves produced for their owners. Feudalism slightly expanded freedom within a hierarchical paradigm.

*Industrial capitalism* decentralized societies to the degree that owners of industry were set in competition with each other and the state was subordinated to a collective of such owners of property, increasing productivity further and creating a labor market within which workers could move in search of higher wages. Capitalism combines non-hierarchical competitive opportunity with hierarchical possibilities of attaining great wealth and political and social power. Capitalist economies are often characterized by hierarchical forms of corporate structure and tiered economic structures, including monopolies that dominate markets and industries.

*Statist economies*, as Castells refers to societies like the former Soviet Union, have often been characterized by ultra-hierarchical political structures, including one-party rule and prohibition of dissent. These have been combined with state ownership of the means of production and distribution, and prohibition of private accumulation of wealth except by the highest state officials.

*Capitalist informational society* maintains a hierarchical form of corporate structure and tiered economic structures, including monopolies that dominate markets and industries. However, some hierarchies are replaced by flatter network-type organizational forms, more efficient than deep hierarchies. Inter-department work groups and intra-industry collaboration are examples of the capitalist “network economy.”

At the same time, mergers and acquisitions have fostered dominant mega-enterprises and intensified

inequalities of compensation and wealth, increasing some hierarchical tendencies in social structures.

## 7. Conclusion

An interdisciplinary study of the interaction between information technology and social structures may help address economic and social problems, and problems of analysis, revealed in the crisis that broke out in 2008. Classical economic theory is challenged by the chaotic behaviors seen in some decentralized processes enabled by IT. Encouragement is offered by the observation that human society has moved for millennia in the overall direction of decentralization of social power.

## References

- Sara Baase. *A Gift of Fire*, 3<sup>rd</sup> ed. Pearson Prentice Hall, 2008.
- Manuel Castells. *The Rise of the Network Society*, 2<sup>nd</sup> ed. Blackwell, 2000.
- Thomas Friedman. *The World is Flat*. Farrar, Strauss, and Giroux, 2005.
- Fred Goldstein. *Low-Wage Capitalism*. World View Forum, 2008.
- Catherine Rampell. Companies spend on equipment, not workers. *NY Times*, June 9, 2011.
- Mitchel Resnick. Decentralized thinking and decentralized modeling (1999). In *Modeling and Simulation in Precollege Science and Mathematics*, edited by W. Feurzeig and N. Roberts. Springer: New York. Downloaded.
- Marshall Rosenberg. *Non-Violent Communication: A Language of Life*. Puddledancer Press, 2003.
- Z. Sardar. *Introducing Chaos*. Totem Books, 1998.
- Immanuel Wallerstein. The Depression: A Long-Term View. October 2008. <http://monthlyreview.org/mrzine/wallerstein161008.html>.
- Wikipedia. Dot-com bubble. [http://en.wikipedia.org/wiki/Dot-com\\_bubble](http://en.wikipedia.org/wiki/Dot-com_bubble). Downloaded 2/21/09.