

Unsustainability

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Abstract—It will not be extraterrestrial impacts, disease, or other extrinsic agents that will cause the extinction of Man, but rather the collapse of his artificial economy. We argue that there is no productive category of the economy beyond the Service Sector in which to shift the global work force. As the Agriculture, Manufacturing, and Service Sectors continue to shed workers in a bid to reduce costs, this inevitably feeds Unemployment. A global economic regime in which an ever decreasing pool of workers subsidizes an ever growing army of unemployed is axiomatically unsustainable and conduces to system breakdown. That fateful day, profit-minded agricultural corporations will have no further incentive to produce food or deliver it to the cities.

Keywords- sustainability, service sector, unemployment, economic collapse, agricultural corporations, extinction.

I. IMMINENT EXTINCTION

With the coming of the Green Revolution, there is much talk these days of sustainability. Of particular concern in these debates are the number of people on Earth, the pollution they generate, and how this affects our environment.¹ There is also a feeling among many biologists that a mass extinction has been in progress for the last few thousand years, a process accelerated recently by the encroachment of humans upon the habitats of free-roaming species.²

We argue, instead, that there is greater evil lurking in the dark, a 500-pound gorilla that the experts missed, a case of not seeing the forest for the trees. Our species is itself facing imminent extinction. The demise of humans will not come

about as a result of nuclear war, virulent disease, climate change or extraterrestrial impact. It will come about with the imminent disintegration of our global artificial economy.

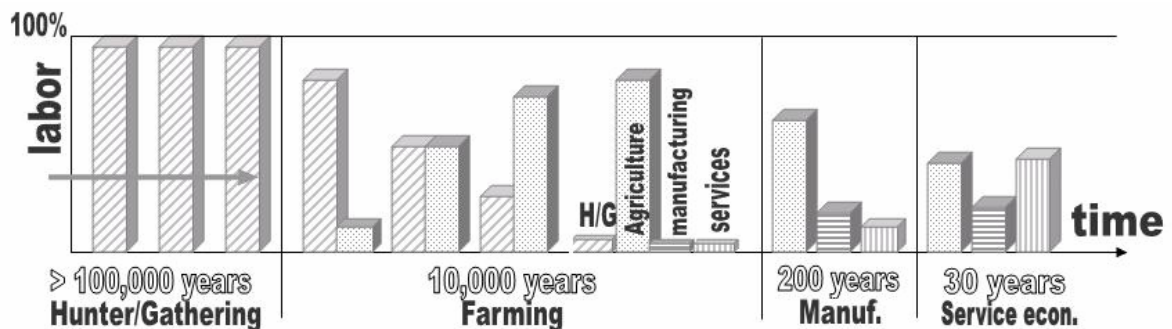
II. THE BIG PICTURE

There are four general activities which humans have engaged in since Mother Nature spawned them (Fig. 1). Let's quickly run through them. For over 100,000 years we were hunters and gatherers.³ 10,000 years ago we invented farming, and gradually abandoned the spear for the plow.⁴ 200 years ago, some nations spearheaded the Industrial Revolution, and farmers flocked to the cities to work in Manufacturing.⁵ Less than 30 years ago, these developed nations shifted their work forces from Manufacturing to Services.⁶ Meanwhile, less developed regions experienced the transition from Agriculture to Manufacturing and/or Services in a rush to imitate the successes of the more advanced nations. Today, 37% of global labor is dedicated to Agriculture, 22% to Manufacturing, and 40% to Services.⁷

The compelling question is: What comes after services? Where will 7 billion people work in the coming decades as we streamline our current activities?

A moment of thought leads us to conclude that there is no other category of the economy that we can even imagine. But if this is true, it implies that Man is destined to work in the Service Sector for the rest of eternity! It means that we will merely be changing the percentages of Service subcategories for the next million years, more bakers than bankers one year, fewer cashiers than dishwashers the next. The Service categories have not changed in the last 30 years!

Figure. 1 Jobs through the ages



One argument many experts raise is that we are entering the Knowledge Economy.^{8,9} The next category is Information.¹⁰

The problem here is that Information is not only a sub-category of Services, but practically synonymous with it. There are few activities in the Service Sector that are not managed with computers and software. We are already experiencing the Knowledge Economy. We are already in the Age of Information.

Another solution that many improvise is that we will invent something new. We always have.

This vague proposal fails to take the obvious into consideration. Since World War II, Manufacturing has been steadily declining as a percentage of labor and as a percentage of GDP in every developed nation. For instance, in 1947, the United States had four workers in Manufacturing to every one in Services.¹¹ In 2010, the tables have turned around. There are seven workers in Services for every one in Manufacturing. Developing nations such as China, India, and Brazil have picked up much of this slack, but they too are now experiencing the transition from Manufacturing to Services.⁷ Not a single invention since World War II has taken Manufacturing to its former prominence. The greatest invention in the last 100 years – the computer – did not put people to work in Manufacturing. It put them to work in Services.

Hence, a breathtaking invention has as much chance of triggering a return to Manufacturing as it would to Agriculture or Hunter/Gathering. Any new invention will most likely be produced and marketed by existing manufacturers, which merely need to modify their existing assembly lines. It will certainly not trigger the hiring of billions of workers. We are stuck with Services or with whatever comes next.

Further analysis reveals that even the Service Sector is unstable and likely has already begun its inevitable descent. Cost conscious corporations are substituting bank tellers with automated tellers, airport check-in agents with check-in machines, and supermarket cashiers with self-checkout. These ominous mega-trends suggest that it is only a matter of time before galloping efficiency erases millions if not billions of jobs. The unbridled urge to cut costs in order to compete will push people out of Services like technology and innovation pushed people, first, out of Agriculture and, then, out of Manufacturing.

III. DECLINING POPULATION SPELLS TROUBLE

To compound the problem, the global population growth rate has been steadily declining since 1963 when it peaked at 2.3 (Fig. 2).¹² Today it stands at 1.2, and United Nations demographers project that it will reach zero some time around mid-century.¹³ Although good news for environmentalists, this spells trouble for businessmen. Our artificial economy is founded on the principle of profit. The expectation of all corporations of the world is that tomorrow there will be more demand, and demand is ultimately dependent on the number of people. The ideal demographic scenario for a corporation is to have

unlimited exponential demand, if possible with zero costs (i.e., no workers or salaries) – a world run by robots comes to mind (Fig. 3). What we are seeing, rather, is asymptotic demographic growth (Fig. 4). The conclusion is inescapable: Man's artificial economy cannot be run on a constant or declining population.

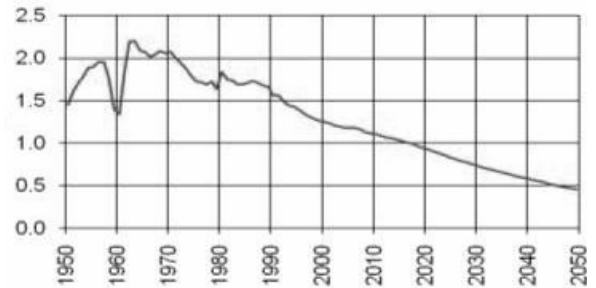


Figure. 2 World Population Growth Rate 1950 – 2050 (U.S. Census Bureau IDB)

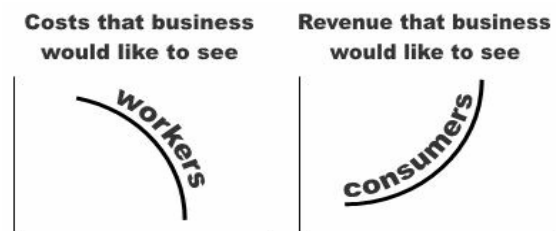


Figure. 3 Ideal Costs vs. Ideal Revenue

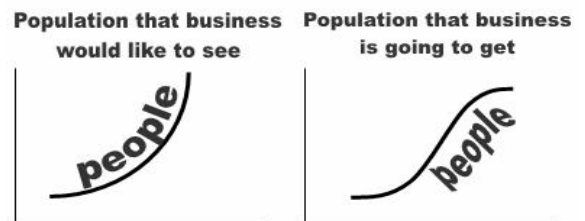


Figure. 4 Business Aspirations vs. Global Population

IV. THE LAST SEGMENT IN MAN'S ARTIFICIAL ECONOMY

There is, in fact, a category in Man's artificial economy that comes after Services, which incidentally is the fastest growing segment in the global economy. It is known as Unemployment. As the Agriculture, Manufacturing and Services Sectors shed jobs and become more efficient, workers will have no other place to go

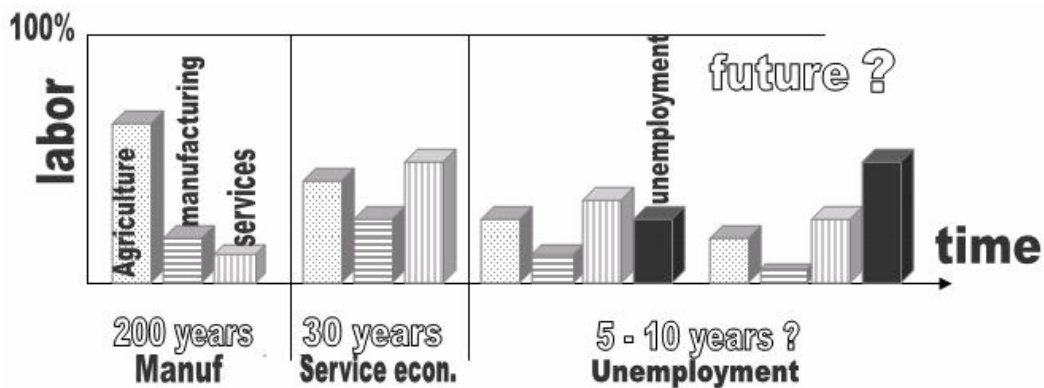


Figure. 5 Unemployment: the last economic category

other than to the unemployment lines (Fig. 5). The big picture is that we started out as fully employed hunter-gatherers and subsistence farmers and have worked our way to the most ironic of categories: people who are in the business of doing nothing and who are maintained by those who still have jobs! The current high level of unemployment that we read about in the news is not a predictable period in the business cycle. It is a structural part of our long term economy dating to the birth of Man.

The inevitable rise in unemployment is unsustainable. It is difficult to visualize how an ever decreasing work force can consistently maintain an ever increasing army of unemployed. We must face the obvious: at some point, man's artificial economy *will* come to an end. The question is: What will replace it?

V. IS ECONOMIC COLLAPSE ANYWHERE IN SIGHT?

Nanotechnologists brainstorm an idyllic world of abundance where needs and wants are ostracized. ¹⁴ Technology, they say, will dump scarce resources into the ash heap of history and actually trigger the creation of the workerless society. The future is a world of human couch potatoes served by metallic slaves with fancy names such as Robo sapiens, Robo server, and Homo proventus. ¹⁵ Indeed, many visualize such a wonderland as the ideal society, a Leisure Economy of sorts, the final stage in Man's economic development. Humans will not become extinct, but live forevermore without having to work or worrying about money.

However, it would behoove us to regard these pie-in-the-sky utopias as nothing but wishful thinking of dreamers. The authors extrapolate just a bit too much from the past and end up making fundamental errors in reasoning. Since the invention of commercial farming some 5000 years ago, we have isolated ourselves from the only thing that keeps us alive: food. It is crop growers, food manufacturers, and distributors that put bread upon our tables. They do so not to keep us healthy, but to make profits. The disintegration of our artificial economy destroys not only corporations that

make and provide goods and services that we don't ultimately need, but also the agricultural corporations that produce and deliver what we actually do need. Global economic collapse gives agricultural corporations no further incentives to sow seeds, harvest crop, or process and deliver food to the cities. The day our economy finally crumbles, it surprises billions around the world stranded in cities with food but to survive for a few days or weeks.

Nevertheless, if we conclude that extinction does not necessarily follow, we have to concede that the demise of billions of people will certainly end life as we know it. The entire socio-economic fabric that humans have painstakingly built breaks down. Corporations vanish, and scattered remnants, pitiful individuals destined to envy the dead, will most likely return to a long forgotten age of subsistence agriculture. Whether the survivors will have the know-how, inclination, resources, need, or money to continue with sophisticated nano-projects in countless ghost cities around the world is beyond speculation.

Are we anywhere near total economic collapse?

If the trends just described have any merits, we seem to be on the verge of the precipice. We spent over 100,000 years as hunters and gatherers, 10,000 years as farmers, 200 years in Manufacturing, and about 30 years in Services. This exponential progression suggests that we probably have no more than 5 or 10 years to go in the cutting edge category called Unemployment

REFERENCES

- [1] D. Munro, "Caring for the Earth. A Strategy for Sustainable Living," World Conservation Union, 1994.
- [2] J. Lawton, R. May, "Extinction Rates," Oxford University Press, 1995.
- [3] H Liu, F. Prugnolle, A. Manica, and F. Balloux, "A Geographically Explicit Genetic Model of Worldwide Human-Settlement History," *The American Journal of Human Genetics*, vol. 79, issue 2, 2006, pp. 230-237.

- [4] A. K. Gupta, "Origin of agriculture and domestication of plants and animals linked to early Holocene climate amelioration," *Current Science*, vol. 87, no. 1, 2004.
- [5] T. S. Ashton, "The Industrial Revolution, Oxford University Press (1969).
- [6] J. R. Meisenheimer, "The services industry in the 'good' versus 'bad' jobs debate," *Monthly Labor Review*, vol. 121, no. 2, February 1998.
- [7] CIA, "The World Factbook," 2010.
- [8] P. Drucker, "The Age of Discontinuity," Harper and Row, 1969.
- [9] D. Rooney, G., Hearn, and A. Ninan, "Handbook on the Knowledge Economy," Cheltenham, 2005.
- [10] D. Ulmer, "Beyond the Information Age," VIAS, 2007.
- [11] Bureau of Labor Statistics, "Employees on nonfarm payrolls by industry sector and selected industry detail," 1940 – 2010.
- [12] U.S. Census - IDB, "World Population Growth Rates: 1950-2050," 2010.
- [13] U.N. Department of Economic and Social Affairs, "World Population Prospects: The 2006 Revision," 2007.
- [14] S. Burgess, "The (needed) New Economics of Abundance," *Nanotechnology Perceptions*, vol. 2, no. 1b, May 2006.
- [15] D. Mulhall, "Our Molecular Future," Prometheus, 2002.