

# Post-Capitalism: The Future of Economy in a Hyper-Connected Era

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## **Introduction**

We are living in a pivotal moment of change, an era where recent advances in digital and information technologies are having a profound impact on human society. The impact brought on by technologies such as artificial intelligence (AI), robots, the Internet of Things (IoT), and 3D printers are so far-reaching that it touches upon every aspect of our society, not least the economic paradigm on which our day-to-day economic activities are based.

This paper tries to analyze how capitalism – the underlying principle which governs many if not most economies around the world – is under siege from the advance of technologies and explores the possibility of “Niche Capitalism” and “Social/Collaborative Commons” in post-capitalism society.

## **Classical Economics**

Let's begin with the basic notion of capitalism and value creation in the market economy. In essence, capitalism refers to the commodification of goods and services, exchanged in the marketplace. When individuals and firms participate in the economy – i.e. to work and to do business – economic value is generated, whereby inputs of land, labor and capital are transformed into produce, manufactured goods, and services. In the process, wage is earned, and profit is made. These wages and profits are in most cases fed back into the economy, becoming the lifeblood of capitalism. As the cycle repeats, the economy grows, and people become more prosperous. The reality might be more complicated, but at least that's what Economics 101 teaches us about capitalism.

To further illustrate the process in detail, consider the following example: Buying a Big Mac. The economic process of producing a Big Mac from scratch and delivering it to the customer can be summarized into the following steps:

- 1) farmers harvest wheat and grow cattle (farming),
- 2) wheat and cattle are processed into bread and burger patty in factories (manufacturing),
- 3) bread and patty are delivered to McDonald's stores (logistics), and
- 4) the final product is prepared and served for consumption (service).

Classical economics posits that, in competitive markets, 1) long-term profit becomes equal to zero when 2) price approaches the cost incurred by a firm. In other words, the price a customer pays for a Big Mac will eventually be equal to its total cost throughout the value chain. The price is also the measurement of economic value generated in the process, which is used, for example, in the measurement of GDP.

The question is: with the advance of technology, what if the cost of delivering an extra unit of a good or service approaches zero? The fact is, the process has already begun. The emergence of autonomous vehicles and intelligent robots coupled with connected devices and artificial intelligence is starting to wreak havoc on the notion of capitalism.

### **Towards Zero Marginal Cost and Hyper-Productivity**

Recall that in the Big Mac example, there are four main processes: 1) farming, 2) manufacturing, 3) logistics, and 4) service. As technology progresses, each of the processes can eventually be performed with greatly minimized human input. Based on data from weather satellites and sensors embedded in the soil, drones and autonomous tractors will be able to plant seeds, initiate irrigation and apply fertilizers to crops. Harvested wheat and grown cattle will be processed in fully-automated factories, the products being carried off to stores in autonomous vehicles. Once in stores, robots will be working to prepare burgers and serve them to customers.

As illustrated above, the entire process of making and delivering a Big Mac from scratch may soon be performed with little or no human labor. In fact, artificial intelligence might soon be able to predict the best way of growing the necessary crops based on data collected by numerous sensors, which would result in higher productivity. The idea of having robots perform those tasks might sound like science-fiction to ordinary people, but real developments in this area are taking place at an increasing rate.

For example, Kubota, a Japanese maker of farming vehicles, is developing a range of autonomous farm machines (Kubota's website, 2017). Since there are relatively few safety concerns, it is predicted that the commercialization of these farm machines will take place sooner than that of self-driving cars. Again, entrepreneurs in China are experimenting with the idea of cooking machines and robot staff (Chen, 2016). While those technologies have not been commercialized yet, online retailers giant Amazon has opened partially-automated convenience stores, Amazon Go, which provide us with a realistic glimpse of the future.

Taken as a whole, emerging technologies are still experimental in nature, and at times rather more anecdotal and sporadic (if one takes an extended view of the whole value chain). Nevertheless, there is a growing sense among academics and business practitioners that those technologies are driving the economy towards zero marginal cost and hyper-productivity.

## **Capitalist Time Bomb**

Social critic Jeremy Rifkin argues that capitalism is paradoxical at its core (Rifkin, 2014:5-6). That makes sense when one considers that in the capitalist economy, capital reaped from business operations is regularly ploughed back into technology development to gain advantages over competitors. Technological advances drive up productivity, but more importantly, they also drive down cost.

Productivity continues to increase until it passes a tipping point where the marginal cost of an extra unit of good or service approaches zero, which consequently dries up profits, thus depriving capitalism of its fuel. In other words, capital accumulation, private ownership, and the resulting competition – three of the essential pillars of capitalism – are also self-destructive in nature.

Although rapid recent advances in technology accentuate this contradiction within the capitalist system, economists have long warned of this possibility. Oskar R. Lange, a Polish economist, pondered in his 1937 essay, “[whether] the institutions of private property of the means of production and of private enterprise will continue indefinitely to foster economic progress, or whether, at a certain stage of technical development, they [will] turn, from being promoters, into becoming shackles of further advance.” (Lange, 1937:127).

## **Post-Capitalism 1: Niche Capitalism and Threat of Monopoly**

It is no longer a question of whether, but rather when the demise of capitalism will happen. And there is the bigger, looming question of what the economy and society will look like in post-capitalism. We have yet to find a definite answer. Nevertheless, a consensus among analysts is starting to emerge.

First, it is highly unlikely that capitalism will die out completely. Instead, it will be confined to some niche segments of the economy. Again, using the Big Mac example as a framework to make the point, while the marginal cost of delivering a Big Mac to customers will be soon be plummeting to zero, the fixed cost (e.g., equipment) won't.

Practically, that means business activities will shrink and be centered, for instance, around developing new types of autonomous vehicles and writing new algorithms for them to work. More broadly, in the economy of the next era, it is likely that wealth will be measured in terms of intellectual resources (ideas and concepts) instead of financial resources or capital assets.

Measuring such an economy using conventional methods will result in an inaccurate picture of the prevailing economic conditions. For example, it is completely plausible that GDP will decrease in the next decades but that the living standard will not. Some scholars go as far as to suggest that the declining rate of growth of global GDP following the 2008 global financial crisis is, to some extent, the result of underlying structural change happening in the economy. (Rifkin, 2014:20).

Nevertheless, there is one critical issue: given that normal business operations will no longer generate profit (with cost being equal to price, approaching zero), how would a company recover its upfront investment? What would be the incentives for it to innovate? Unfortunately, academics and policy makers are yet to find the answer to these questions. Currently, the only viable option seems to be granting monopoly rights to the inventor company, as put by British author Paul Mason, who predicted that, “with info-capitalism, a monopoly is not just some clever tactic to maximize profit. It is the only way an industry can run.” (Mason, 2016:119).

In that scenario, however, there is an inherent concentration of economic power in the hands of the monopolists. And the degree to which power is concentrated would be unprecedented, given that: 1) everything except intellectual resources will become worthless, and 2) monopolistic firms and individuals will hold exclusive rights to the new wealth, and therefore effectively granting themselves absolute power.

### **Post Capitalism 2: Emergence of “Social/Collaborative Commons”**

Another consensus which has begun to consolidate as an alternative to capitalism is the emergence of the “Social/Collaborative Common”. The basic premise here is that the advent of autonomous machines will soon liberate humans from economic constraints, so that they can devote their energy to social activities and the search of life’s purpose.

Proponents of this view often base their argument on that of the great economist John Maynard Keynes, who conceived of the possibility of absolute economic needs being fulfilled by stating, “a point may soon be reached, . . ., when these [economic] needs are satisfied in the sense that we prefer to devote our further energies to non-economic purposes.” (Keynes, 1931:365).

Practically speaking, it is highly probable that humans will not be working eight-hour days and five-day weeks in the next century but will be engaged in multiple forms of social activities, often organized by various social institutions, from local neighborhood associations, social circles and sports clubs, to foundations and charities. The output of social activities will be social capital instead of goods and service. Commons as a way of organizing economic life is distinct from both capitalism and socialism in that there is no single centralized governing institution (such as the market in capitalism and government in socialism). Each individual or organization acts as a free agent driven by common values and interests. (Rifkin, 2014:16-8).

To illustrate this point, capitalism may be thought of as a system of countless engines (companies), each independently containing a fixed number of gears (workers) and lubricated by capital, while social commons is a system with a single giant engine and countless gears (individuals/social organizations) all working in tandem and lubricated by social capital.

Social commons is not a new concept; it dates back to pre-feudal society. Since social commons developed alongside human civilization, they can be found in virtually every traditional rural society. The *Iriai* system of managing common resources – lands, forests, coastal seas – found in rural Japan exemplifies the notion of social commons. By setting and enforcing a set of rules, local communities were able to build a sustainable livelihood.

Today, signs of the increasing prevalence of social commons are emerging. The amount of information and social products generated in peer-based collaborative commons is ever expanding. For instance, Linux and Wikipedia have both been developed by self-organizing common institutions. The fact that contributors do not receive monetary compensation signifies the declining importance of pecuniary value and probably, the growing prevalence of social capital.

Meanwhile, a study by The Brookings Institution concludes that the set of values Millennials hold has a more social orientation than that of previous generations, stating that “Millennials ... demonstrate a greater desire to advance the welfare of the group and are less concerned with individual success.” (Winograd and Hais, 2014:2).

In the following decades, the emergence of social commons is likely to accelerate with the spread of newer technologies. Klaus Schwab, in his book *The Fourth Industrial Revolution*, argues that the impact of innovation will likely result from a single force: empowerment (Schwab, 2017:28).

Network-connected devices, 3D printers, access to low cost technological infrastructure via cloud computing, for instance, will enable millions of people across the globe to collaborate in the future economy governed by social commons. Those technology platforms will enable an individual to become both consumer and producer simultaneously. The increasing usage of the word ‘*prosumers*’ is evidence of social commons starting to gain hold in our economic life.

### **Future Employment**

A study by McKinsey and Company suggests that the sectors in which employment will be *least* affected by the wave of automation are those that involve the ‘application of human expertise’, i.e., tasks of making, planning and creating, as well as sectors that involve ‘managing others’. Only 18% and 9% of those sectors, respectively, are likely to be automated. (Chui et al., 2016).

The report seems to support both the scenarios of “Niche Capitalism” and “Social/Collaborative Commons” outlined above. In a world of shrinking capitalism, the authors hold that sectors involving the generation of intellectual wealth will continue to exist. In a sense, this corresponds to the sectors that involve the ‘application of human expertise’. Meanwhile, the importance of social skills will be increasing along with the emergence of social commons. This corresponds to the sectors that involve ‘managing others’, the sector last to be affected by automation.

## Conclusion and Future Outlook

Advances in technology are driving our society and economy towards zero marginal cost and hyper-productivity. It is almost certain that at some point, sweeping changes will take place and affect all facets of society, including the foundation of our current economic life.

What is less certain, though, is what society and economy in post-capitalism would look like. In this essay, my purpose was to review existing literature and try and explore two major assumptions: shrinking capitalism and the threat of monopoly that comes with it, as well as the rise of social/collaborative commons.

In any case, the implications for both economy and society will be profound and far-reaching. Academia and policy makers will need to address these issues before any darker sides of technology change encroach on us.

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