

**Will You Be Richer or Poorer?
Profit, Power and A.I. in a Traumatized World**

Charles Hugh Smith

Section One: What Is Wealth?

Will you be richer or poorer in the future? Will the world be richer or poorer?

These questions are deceptively simple. Based on conventional financial measures, the answer seems straightforward: yes, you'll be richer, and so will the world, as consumption, income and wealth all continue trending higher.

But there's more to wealth than dollars, euros, yen or yuan, or ounces of gold.

The Problem with Measuring Wealth

Many types of wealth can't be reduced to tidy dollar amounts, and others can't be measured with conventional financial metrics. As author Daniel Yankelovich observed in 1972 (*Corporate Priorities: A continuing study of the new demands on business*):

"The first step is to measure whatever can be easily measured. This is OK as far as it goes.

The second step is to disregard that which can't be easily measured or to give it an arbitrary quantitative value. This is artificial and misleading.

The third step is to presume that what can't be measured easily really isn't important. This is blindness.

The fourth step is to say that what can't be easily measured really doesn't exist. This is suicide."

This describes the problem with measuring wealth only in monetary units: we disregard or assign arbitrary and misleading numbers to types of *societal capital* such as clean air and water, and we presume that what can't be easily measured—*intangible capital*—isn't important, when it may actually be more important than whatever *can* be measured in dollars. And lastly, since we don't even recognize many forms of intangible capital, they simply don't exist in our narratives of how the world works.

In other words, our conventional way of measuring wealth is blind - and potentially suicidal.

There's another problem with conventional measures of wealth: they become powerful incentives to rig statistics in order to generate a politically appealing illusion of financial advancement, even as wealth measured in broader terms may be declining.

(While the markers of wealth vary by culture, the economic measures of gross domestic product (GDP), income, unemployment, etc. and social measures such as child mortality rates, social mobility, etc. are standards applied to all national economies. For the purposes of this discussion, *wealth* includes all types of capital and *well-being*, while *prosperity* considers the distribution of wealth: is a rising tide raising all boats, or is the elite gaining ground while everyone else is losing ground? Even if they're statistically wealthier than people in other nations, the populace losing ground will feel less prosperous.)

But there's an even deeper problem with conventional measures of wealth: the way we measure *profit*, the ultimate incentive to human endeavor, is profoundly flawed. As a result, even our bedrock financial measurements are, in Yankelovich's term, *artificial and misleading*.

The goal of this book is to examine all forms of wealth and well-being, and look critically at the conventional financial measures, before answering the question, *are we getting richer or poorer?*

Factors Contributing to Diminishing Wealth

While conventional measures of wealth such as GDP, income and net worth are lofting ever higher in most nations, by other measures the world is traumatized by staggering losses and rising insecurity.

- Consider nations choking on industrial air pollution. How wealthy are the financially well-off in such nations if they breathe toxic air and can't drink tap water? Isn't toxic air and water a form of impoverishment? How much is their financial wealth worth if it can't provide clean air and water? Social wealth—the results of social structures, values and investments—may well be a more important measure of wealth in terms of well-being than individual financial wealth.
- It's well-known that pollinating insects are in decline due to human pollution and overuse of pesticides and other chemicals. As insect populations crash, this threatens humanity's harvests from sources that

require pollination by these insects. How is a reduction in food supply not a form of impoverishment? Does this diminishment of global wealth appear on any financial balance sheets? No, because the impact isn't easily measured, and there are powerful political and financial incentives to ignore anything which might diminish the perceived expansion of prosperity. While food production may still be rising, the increasing fragility of that production is ignored because it calls the narrative of permanently higher yields into question.

- Human overuse of antibiotics in animal husbandry and healthcare is creating *superbugs*, bacteria that are resistant to all conventional antibiotics. Humanity is in effect breeding new and deadly diseases that may ultimately threaten much of humanity. How is the emergence of untreatable bacterial diseases not a diminishment of global wealth?

To truly measure wealth, we need to focus on all that is not measured by purely financial metrics—social, human, natural and intangible capital.

Measuring Intangible Wealth

On a corporate level, a conventional financial example of *intangible capital* includes corporate brands and customer loyalty to those brands. The capital is intangible but it has real-world results on sales and profits.

As well, a society's intangible capital includes, among many other things, cultural heritage and trust in institutions. This capital is intangible but the loss of heritage and trust in institutions has real-world consequences. Greece offers a recent example of a systemic financial crisis leading to a loss of trust in institutions.

A household's intangible capital includes, among many other things, financial security. If the household wealth is at the whim of volatile financial booms and busts, then how secure is the wealth? Clearly, there can be no sustainable financial security when wealth that balloons up in a bubble vanishes just as quickly in the inevitable bust.

This book will examine wealth in terms of *sustainable well-being*—health, safety, longevity, security, social mobility, trust, liberty, positive social roles, etc., as well as the conventional financial terms of income and ownership of capital. We will also examine access to wealth extracted from the Earth and its natural systems—energy, fresh water and nutrient-rich foods—because financial wealth that can't be converted into well-being is of limited value, regardless of its magnitude in financial terms.

Wealth: The Accumulation of Capital

Historically, wealth is measured by the *accumulation of productive capital*: civilizations that accumulate productive capital (roads, shipping, metalworking, beneficial agricultural tools and techniques, stable institutions of governance and security, etc.), becoming wealthier as the gains enabled by these capital improvements continue accumulating.

The same is true of private wealth: households became wealthier by acquiring more land and working it more effectively with better, more productive tools and techniques, and then using the improved roads to move their surplus to markets where they could fetch the best prices.

We can divide this *productive wealth* into *societal* and *private* wealth.

- *Societal wealth* is available to everyone, a form of *the Commons*, assets held by the community, state or empire for the general use of all inhabitants. This is *publicly beneficial capital*.
- *Private wealth* is held by individuals, families, institutions such as guilds, religious groups, and so on—wealth that generates returns primarily for the owners and secondarily to society at large in the form of goods and services which can be purchased from the owners of productive capital.

If we ask the general public *what is wealth*, the typical answer would focus on *consumption wealth*: comfort, convenience and luxury goods that confer high social status. How the wealth is produced is generally of less interest than how it is spent. This focus is natural in an economy that's dominated by consumer marketing and spending.

There's a contradiction in this mix of production and consumption: accumulating the productive capital that generates wealth requires sacrificing consumption in favor of saving and determined effort, both of which run counter to consumption's demands to spend freely and devote as much time to leisure as possible.

This brief outline highlights some basic truths about wealth. A society that doesn't save capital and invest those savings in productive capital will soon consume its wealth and become poorer. This is *scale-invariant*, meaning that it is equally true of empires and households alike.

A society that doesn't accumulate capital that benefits everyone while enabling the unlimited expansion of private productive capital becomes an asymmetric society of a small class of very wealthy owners of capital and a mass of laborer-consumers who own little productive capital and are thus poor.

If capital is invested in private palaces and temples, for example, rather than in public roadways, secure trading routes, and so on—*publicly beneficial capital*—the majority will be poor for two reasons: they own little productive capital, and in such a capital-poor society they lack the means to earn enough money to save and invest in productive capital.

The relative wealth or poverty of the majority is largely influenced by the organization of trade and markets. If the society is dominated by *captive markets* (markets controlled by a monopoly or cartel) and limited trade routes and trade volumes, the society is commonly characterized by mass poverty. Not only is the ownership of productive capital limited, so is access to the goods and services being produced.

An example of a captive market is a forest owned by the nobility for its own use. The forest may have plenty of resources desired by the peasantry—fallen wood, wild game, etc.—but the majority have no access to the resources, even if they have the means to purchase them.

An *open market*, in contrast, enables the free trade of goods and services between all participants: those who own the productive capital, laborers selling their labor, traders taking advantage of local scarcities and surpluses, and so on. An open market benefits from multiple trade routes and a high volume of tradable goods.

But ownership of productive capital is only half the picture. The other half is the *accessibility* of the goods and services produced by that capital by the majority.

Characteristics of Wealthy vs. Poor Societies

A society in which most of the productive capital is owned by a handful of wealthy families and companies can generate widely accessible wealth for all inhabitants if most of the private wealth is invested in publicly beneficial capital such as free transportation routes, public health measures such as clean water, open markets for goods and labor, access to credit, secure trade routes and so on.

If this society also nurtures a culture of competent governance, general security (legal protection of private property, defined rights of employers and employees, etc.) and social mobility (i.e. anyone can better themselves, no matter how lowly their initial status in society), then this *cultural capital* will greatly increase the accessibility of publicly beneficial capital.

All of these publicly beneficial forms of capital characterize the early Roman Republic and Empire: secure travel and trade routes, open markets, reasonably competent governance, broad accessibility to public capital (clean water, public baths, markets, and forums) and defined citizens' rights along with many forms of social mobility.

Alternatively, societies characterized by wealth that is hoarded by a tiny class of ruling elites (e.g. gold stored in the vaults of palaces, resources reserved exclusively for the elite, little capital invested in publicly beneficial assets) are captive markets with poor security, little trade, low social mobility and uneven governance are poor.

Historically, the *natural capital* of a region plays an essential role in the wealth or poverty of a society. Natural capital includes the resources that can be harvested, mined or extracted such as forests, metal ores, coal and fresh water, as well as the predominant weather patterns, fertility of the soils, the geography of rivers and valleys that make trade easy or difficult, and so on. Even the diversity of micro-climates within the region is a form of capital, as greater diversity enables specialized crops and beneficial trading within the region.

History offers many examples of societies that depleted their natural capital and then collapsed once they consumed their inherited natural wealth. Depletion of soils and energy sources often leads to warfare and the spread of disease once inhabitants no longer have enough food to keep healthy, and ruling elites seek to conquer the remaining resources of nearby polities to maintain their own consumption.

Fluctuations in weather, trade, and climate can exacerbate depletion by spreading new pathogens to populations that lack immunity, reducing crop yields.

Societies dependent on high levels of natural resource extraction often falter when depletion leads to declines that cannot be compensated with imports or substitutions. There are no substitutes when rainfall declines, forests have been chopped down, and mines are depleted.

Much of what we perceive as *human-generated wealth* is actually our *inherited natural capital* being consumed. Sustainability of a society's consumption of natural capital is thus a critical factor when measuring wealth: if natural capital is declining, this fact alone will offset any gains made in financial capital. Not only can non-renewable resources be depleted, but even renewable resources such as fisheries and forests can be destroyed by over-use.

Surpluses extracted from natural capital can be traded for gold, but once natural capital is depleted, there are no surpluses left to trade. A hoard of gold may be able to buy grain for a season or two, but no amount of gold can reverse long-term drought, renew depleted soil or conjure up resources that has been consumed.

If a society is spending its natural capital at an accelerating rate, the consumption of what cannot be replaced generates a temporary illusion of wealth. If the ledger of wealth includes natural capital that's being depleted, then the society may be becoming poorer even as it revels in a last dying splurge of overconsumption—in effect, fiddling while Rome burns.

If a society is consuming more than it sustainably produces, it is becoming poorer, regardless of the financial illusions of wealth generated by consumption. If their productive capital is eroding, regardless of the cause (depletion, overconsumption, etc.), impoverishment is the inevitable result. Conversely, societies that are accumulating *sustainably productive capital* are becoming richer.

External Costs: What Markets Don't Include in Price

External costs refer to costs of production that are borne not by the producer but by the society at large. Examples include industrial production that pollutes the air and water, planned obsolescence that generates waste that society must pay to recycle or dispose of, and the eventual cost of replacing what was depleted. For example, once the fisheries have been wiped out, the costs of finding replacement sources of protein fall on consumers and society, not those who reaped the gain from overfishing.

Though external costs are traditionally limited to physical effects such as pollution, the intangible distortions created by those maximizing their private gains in ways that cost society at large can also be viewed as external costs. For example, the mortgage lending sector reaped enormous profits from packaging and selling subprime mortgages as low-risk financial assets in the early 2000's, but the economic fallout from this fraudulent exploitation ended up costing society in numerous ways, both tangible (loss of homes) and intangible (loss of confidence in institutions).

When external costs are paid by society at large, *profits are private but losses are public*. If we total the private profits and the much greater losses of public capital resulting from the mortgage meltdown, it's clear that the profits were *systemically illusory*: taken as a whole, the entire speculative mortgage-housing bubble created far more losses than it did gains, especially if we add the decline in interest income earned by savers as central banks cut rates to near-zero to boost housing sales.

Such a bubble dynamic creates temporary illusions of wealth that soon dissipate once the external costs manifest—for example, the housing bubble, sparked by an explosion in speculative mortgage lending, created a brief illusion of wealth for home buyers that was shattered when the bubble burst.

Before the external costs are tallied, the wealth captured by speculators lends a sheen of rising wealth to the society as a whole, even if the majority of gains are flowing to a tiny minority. But this sheen is also temporary, since paying the external costs reduces public capital. As a few reap immense profits by transferring external costs to society, society becomes poorer: if we measure the gain or loss in total capital, the perceived profit is illusory for but the speculators who cashed out at the top.

This reality is masked by the widely accepted but false belief that markets price in all costs. In reality, markets lack the mechanisms to do anything more than include the immediate costs of production, processing and distribution. As a result, they are incapable of pricing in external costs and losses in natural capital such as the decline in biodiversity. This will be discussed in detail in a subsequent section.

As an example, consider a fishing expedition that strip-mines the seas with nets and uses dynamite to indiscriminately kill fish in shallow water. Only the fish with market value are cleaned, cooled and sent on to market. But since much of the wildlife captured by these means have little to no market value, most of the dead fish are dumped back into the ocean after sorting.

The immediate costs incurred by harvesting the marketable fish are easily calculated: wages for the crew, fuel for the boat, maintenance of the nets, ice to cool the fish, and transport to market. But the *full* costs of this method of fishing cannot readily be calculated, much less included in the market price. What price do we place on the ecosystem that's been destroyed by the dynamite, and the food chain decimated by overfishing? How can the loss of natural capital possibly be fully measured?

As Daniel Yankelovich explained, assigning arbitrary quantitative values to what cannot be easily measured is misleading, and ignoring what cannot be easily measured is suicide.

If we only measure the immediate costs of overfishing and the market price of the few fish humans pay a premium to consume, we appear to be getting richer. But this modest gain is dwarfed by the loss of capital caused by overfishing. Just because we can't easily measure this loss doesn't mean it isn't occurring. Rather, the market's incomplete *discovery* of cost lead us to believe that we're accumulating gains rather than suffering catastrophic losses of natural capital.

This false accounting leads to decisions that are suicidal because what cannot be easily measured is assumed not to exist.

The Limits of Measuring Capital and Wealth

Humans *optimize what we measure* and discount what we don't measure. Once gain and loss are tied to a measurement, we focus not just on the measure per se but on the value leveraged by the measurement. Employees optimize *what they get measured on*, to increase their financial gain, and ignore what they aren't measured on.

Since we measure financial transactions embedded in markets (buying or selling labor, goods and services, loaning money, and so on), we try to optimize our financial gain and reduce our losses.

Since we do not measure anything that cannot be measured as easily as financial transactions (e.g. external costs and other losses of capital), we have no real grasp of whether we're accumulating capital (getting richer) or losing capital (getting poorer). This includes both tangible forms of capital such as ecosystems and highways and intangible forms of capital: *human capital* (our skills, knowledge and experience); *social capital* (the value of our social connections and networks); and *cultural capital* (formal institutions, value systems, cultural heritage, willingness to trust fellow citizens, etc.). These are difficult to measure so they don't get measured.

Measuring Natural Capital

Natural capital is difficult to quantify due to what's not readily visible: the nutrients in the soil, remaining reserves of minerals, etc. It may be impossible to accurately measure the loss of biodiversity because species that were never identified may have already gone extinct. Since trees, animals, bacteria, fungi, and other micro-organisms are all potential sources for novel medicines, the loss of biodiversity could be incalculable in terms of human suffering that could have been alleviated had we preserved ecosystems intact rather than laying waste to them to extract whatever parts are currently valued by markets.

Measuring Tangible Capital

Tangible capital is complicated to calculate for a variety of reasons relating to the type of capital being measured. For example, tangible public capital such as bridges and roadways pose difficulties due to the *opportunity costs* embedded in every capital expenditure: what else of greater value could this capital have been invested in? Investing in *bridges to nowhere* may generate short-term financial gains such as jobs and orders for concrete and steel, but what else could that labor, concrete, and steel have constructed that would have been of greater value to society at large? Such questions may appear abstract or even political in nature, but if we understand that *capital is not infinite* and *value flows to what's scarce*, then addressing scarcities (or proactively avoiding creating scarcities) is inherently a more valuable use of capital than building lightly used bridges.

Measuring Intangible Capital

The difficulties in quantifying capital accumulation or loss become even greater in the realm of intangible capital. We'll examine intangible capital in depth in a later section, but we can start by listing forms of intangible capital: well-being; trust in institutions; trust in one's fellow citizens; cultural heritage; positive social roles; social mobility; personal agency, and control of one's own human and financial capital. In many cases, we take these for granted, and have difficulty even recognizing them as important forms of capital.

As consumers, we're inundated with claims extolling the value of convenience, which covers everything from frozen meals, labor-saving devices, goods delivered to our door, online services that automate some aspect of our increasingly complex lives, etc.

Marketing attempts to persuade us that convenience and status are wealth. The motivation is obvious: if we trade capital for convenience, the purveyors of convenience reap profits. What marketing studiously ignores is the opportunity cost of convenience and status: what else could we have invested our capital in that generated more value?

Put another way: are we actually getting poorer while marketers tell us we're getting richer? Marketers reap profits by conflating *needs and wants*: our basic needs (referring to Maslow's *Hierarchy of Needs*) are few, while our wants are many. *You can have it all* is the motto of marketers, where *having it all* refers to profitable goods and services. But if we tune out the ubiquitous marketing and focus on recognizing and measuring our *productive intangible capital*, we'll end up with a more complex and accurate sense of whether we're accumulating or losing capital, i.e. becoming richer or poorer.

Section Two: Will Technology Make Us All Richer?

This section examines what many propose is the new wellspring of wealth, the automation technologies of robotics and artificial intelligence (AI), which many believe will generate so much wealth that all 7.5 billion humans currently on the planet will benefit not only materially, but by being freed from work. Examining these claims will illuminate the flaws in our understanding, not just of wealth, but of how our economy actually works.

If new information leads to a conclusion we don't want to hear, we tend to find ways to dismiss the new information. If we benefit from the status quo, our natural bias will be to dismiss any information which undermines our faith that the status quo and economic growth are permanent.

Thus there is a constant battle between our innate biases against information that leads to conclusions we don't want to deal with, versus our awareness that realistic assessments are necessary for survival. In this section I'll challenge the core beliefs underpinning the expectations that profits from automation will enrich all of humanity far into the future. I ask that you follow the results to their logical conclusions.

Will Robotics and AI Be Immensely Profitable?

It's now widely accepted that robots and artificial intelligence (AI) will displace tens of millions of human workers; in fact, many observers foresee the eventual replacement of most human labor.

The problem created by this forecast is obvious: if workers lose their jobs, how will they get the income needed to live?

Two Scenarios

There are two camps of thought. The first holds that technology has always created more and better jobs than it destroys, and this will continue to be the case. The second holds that this wave of automation will destroy far more jobs than it creates, but the solution is to *tax the robots* and use these revenues to distribute the wealth to everyone who no longer has a livelihood.

Both cases assume we'll get richer: if technology generates more high-quality jobs, replacing lower-quality jobs lost to automation, we'll collectively get richer; conversely, if technology destroys jobs but creates immense profits that can be distributed to everyone as Universal Basic Income (UBI), then we'll get richer via distribution of profits to everyone.

But what if neither option is realistic? What if the new jobs that are created in the wake of automation are lower-quality, lower pay, and far more insecure? And what if automation leads to much lower profits rather than much higher profits? What if there's nowhere near enough profits to distribute to everyone as Universal Basic Income? If that's the case, we're collectively becoming poorer, even if a small percentage of the population is reaping wealth from automation.

Taxing the robots is intuitively appealing. If the enterprises employing robots and AI will generate immense profits that society can tax to fund UBI, this will provide an income for everyone who no longer has paid work.

But what if the enterprises employing robots and AI will never be very profitable due to the mechanics of *commoditization*? If UBI can't be funded with taxes on profits, then how many paying customers will these automated enterprises have if tens of millions of households no longer have a secure income?

The profitability of robots and AI is thus critical to our question, *will we be richer or poorer?*

The Need for Profits

Let's start by understanding that profits are required in every socio-economic system. Even a socialist economy in which the state owns all the major enterprises must generate profits to fund its social welfare programs. Absent profits, social welfare programs must be paid for by borrowing or printing money, neither of which is sustainable in the long run.

But profits are not guaranteed. Paraphrasing author Peter Drucker, *enterprises don't have profits, they only have costs*. In other words, profits are not inevitable, only costs are inevitable, and this is as true of state-owned enterprises as it is for private-sector enterprises.

All enterprises, both private and government owned, must generate profits to fund capital expenditures (replacing worn out equipment, etc.), overhead (management, utilities, accounting, etc.) and dividends to the owners in return for their investment.

If enterprises owned by the state lose money every month, they must be subsidized by other taxpayers. If all state-owned enterprises are unprofitable, eventually the state itself becomes insolvent.

How do enterprises make money with robots and software? Technologies become profitable by reducing costs and increasing productivity, i.e. creating more goods and services with the same number of workers and same amount of capital investment. Since labor (known as *labor inputs*) is a primary expense along with production and overhead, automation becomes profitable when it replaces human labor with cheaper automation and/or increases the productivity of the remaining workers.

Since technology increases profits by reducing costs and increasing productivity, and the costs of labor are increasing globally, replacing human employees with automation is the obvious way to reduce costs and boost profits.

To take an example from the 20th century, if a factory replaces 100 assembly-line employees with robots, and needs only ten employees to oversee and maintain the robots, it will increase profits if the cost of buying and operating the robots is lower than the cost of human labor. If the robots can produce more goods and services than human employees, profits will also increase due to higher productivity.

Replacing workers with automation is not optional, since competitors who do so can lower prices, reduce human errors and increase their market share. Employers are forced to replace human workers to compete with companies that have already lowered their costs by investing in automation.

Those reckoning automation will boost profits assume the price of the components being produced will remain stable. In the real world, price is set by supply and demand. Since automation tends to increase production, supply soon exceeds demand. To maintain sales, competitors lower prices. As prices spiral down, profit margins decline. (Since they have no competitors, monopolies can maintain high prices by artificially limiting supply.)

Proponents of the idea that robotics/AI will generate vast new wealth overlook the enormously deflationary impact of technology in general and of *commoditized* technology specifically: once robotics and AI become *commoditized* (i.e. the components and coding are interchangeable and available everywhere), if there are competitors in the market, costs drop as supply outpaces demand, and the prices of the finished goods and services also decline, reducing profits to razor-thin margins.

Globally, *over-capacity*—excess capacity to produce more goods and services—is now commonplace. Few enterprises have *pricing power*, i.e. the power to increase prices, because demand rarely exceeds supply for long, given global competition and over-capacity.

This is the story of commoditized manufacturing in China, where the vast majority of companies scrape by on extremely thin margins. Many of China's state-owned enterprises (SOEs) are unprofitable and must be subsidized to continue operations. Estimates of the wages and profits that remain in China from assembling an Apple iPhone find that only a thin sliver of the retail price of the phone flows to enterprises in China, roughly \$8.50 out of a retail price of \$650 and manufacturer's cost of \$240.

Yes, Apple is profitable, but there is only one Apple. Manufacturers of commodity phones in China struggle to break even. This the result of commoditization, competition and over-capacity.

Marginal Costs and Scarcity Value

To understand why commoditization drives costs relentlessly lower, we have to understand *marginal costs* and *scarcity value* in the digital age.

As an independent writer, I depend on you, the reader, to support my work. If you have an interest in these topics, and are able to buy a copy of this book, thank you.

Table of Contents

Section One: What Is Wealth?

Section Two: Will Technology Make Us All Richer?

Section Three: Capital, Labor and Debt

Section Four: Declining Capital in a Traumatized World

Section Five: The Structure of Power

Section Six: New Relationships between Capital, Labor and the Natural World

Section Seven: Where Will Your Capital Flourish?

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