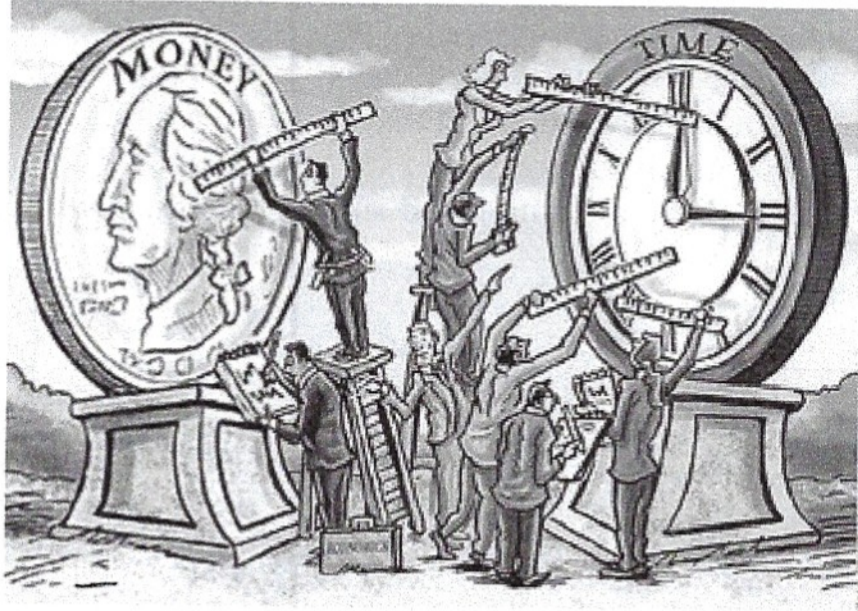


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*The consumer-price index tells us nothing about changes in affordability. We need another measure.*



CHAD CROWE

## We Should Measure Prices in Time

By George Gilder And Gale Pooley

Ever since the U.S. abandoned the gold standard in 1971, we've been living in a mirage of unmoored money, marked by "inflation," "devaluation" and a federal debt that now surpasses \$36 trillion. Wall Street and Washington issue prophecies of inflationary doom and federal-debt disaster.

At the same time, we've enjoyed technology's spectacular rise in recent decades. We read the news of our growing poverty and inequality on pocket-size Starlinked supercomputers, while humans frolic in outer space and artificial intelligence takes off in Silicon Valley and around the world.

A clue to reconciling this divergence between economic data and technological advance comes from the world of business consulting. For decades, business advisory firms such as Boston Consulting Group and Bain & Co. have documented

"learning curves" across a range of industries, from mining to microchips. These curves, which track performance improvements over time, demonstrate that real prices of goods and services tend to drop between 20% and 30% with every doubling of units sold.

Going beyond economies of scale and efficiency, learning curves feed on growth of entrepreneurial knowledge, springing from improvements in every facet of production, design, marketing and management. Crucially, the curve extends to custom-ers, who learn how to use a product better and multiply applications for it as it drops in price.

With every new product launched across the economy, these learning curves imply that if the real economy is growing, most real prices—that is, prices adjusted to account for inflation and purchasing power—must be declining.

How can the laws of enterprise and business consulting diverge so significantly from the accepted wisdom of economic analysis and political rhetoric? More baffling, how is it that products are becoming simultaneously more expensive and more affordable?

This paradox is possible because while we buy things with money, we actually pay for them with our time—not in dollars and cents but in hours and minutes of work.

The consumer-price index tells us nothing about changes in affordability. To measure affordability, we must compare the prices of goods and services to hourly compensation (wages and benefits). We call the resulting ratio the time price. \*

The original proponent of time prices was Yale economist and Nobel laureate William Nordhaus, who in the 1990s produced a paper showing that traditional economic data have understated progress in lighting technologies—from whale oil to light-emitting diodes—by a factor of thousands. At the same time, economic data fail to capture the rise in living standards made possible by these lighting innovations.

Extending the Nordhaus insight across a range of consumer products and technologies, one of us (Mr. Pooley) and Cato Institute researcher Marian Tupy demonstrated in a book, “Superabundance” (2022), that similar innovations allowing manufacturers to produce goods more cheaply in less time since the Industrial Revolution have made nearly all goods and services drastically more affordable. The Industrial Revolution also brought about a tenfold rise in the global population and an explosion in new knowledge.

The Nordhaus insight remains crucial today. To put the consumer price index, or CPI, in context and measure actual affordability, we need a time-price index, or TPI. The CPI measures the purchasing power of a dollar. The TPI measures the purchasing power of an hour.

According to the Bureau of Labor Statistics, between 2000 and 2024, the CPI increased by 82.2%, while hourly earnings for production and nonsupervisory employees (blue-collar workers) increased by 115.1%. Hourly compensation thus increased 40% faster than CPI. As long as hourly compensation outpaces the CPI, the TPI is decreasing. In this instance, the TPI decreased by 15.3%, meaning average goods and services became more affordable. One hour of time worked in 2024 would buy 18.1% more from the CPI basket of goods and services than in 2000.

Unlike money prices, time prices are universal and unequivocal. Using money instead of time to make measurements was the original sin of establishment economics.

Almost all other sciences root their ultimate measuring sticks in time. The metric system encompasses mass, distance, time, temperature, electrical current, brightness and moles of individual chemical elements. Except for the mole, all the other measures—from the meter and kilogram to degrees Kelvin and amperes of electricity to the candela of luminosity—are informed by time: the speed of light, meters per second. Time prices reconcile economics with this universal standard of measurement.

Unlike money, time can't be counterfeited or inflated. We can calculate a time price on any product, at any time in history, in any place and with any currency. Time also provides perfect equality: We all get exactly the same amount, 24 hours in a day. Money is tokenized time.

When all else becomes abundant, what remains scarce is our time—minutes, hours, days and years. Time is the only resource that can't be recycled, stored, duplicated or recovered. When we run out of money, we're really running out of the time to earn more. If time prices decrease, it means that an hour of time now buys more products and services. Every month, the Bureau of Labor Statistics calculates average prices by tracking prices on around 80,000 specific products and services. The bureau reports the change in the CPI from the previous month and the previous 12 months. It also collects and reports information on hourly wage rates. The CPI tells us how much more expensive things are becoming. The TPI tells us how much more or less affordable they're becoming. To see our true standard of living, we must time-price the CPI.

Plummeting time prices aren't tied to an expansion of material resources. As Thomas Sowell has explained, “The Neanderthal in his cave had all the physical resources we have today.” The difference between our age and the Stone Age is the growth of knowledge, which enables us to use resources more creatively and effectively.

Wealth is knowledge. Growth is knowledge that is increasing and being distributed throughout the economy over time. From these principles we can derive Pooley's law of superabundance: Time measures the growth of knowledge and wealth.

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No 3rd page