

Money Flow in a Dynamic Economy

How economic inequality causes instability
that leads to recession and how to fix it.

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Abstract

This paper is a greatly condensed pre-release extract of a forthcoming book by the same name that emphasizes the dynamic, interdependent nature of our economy and how best to dampen its cyclical oscillations. It explains the causes of our extreme income and wealth inequality with the return to capital exceeding the growth rate of the economy. It emphasizes how technology with almost zero marginal cost on the internet has produced an underlying transformation from a variable cost economy to a fixed cost economy that has shifted the money flow from labor to capital over time. The rate of return to capital has become much greater than the rate of return to labor.

A substantial portion of the economy's money flows into the savings of large corporations and the super wealthy, driving up stock prices and driving down interest rates creating a permanent liquidity trap and economic instability. Meanwhile, middle class Americans have accumulated little, if any, savings, while getting deeper and deeper into debt in the form of college loans, car and truck loans, mortgages, home equity loans and credit card debt. Monetary policy has kept interest rates close to zero in real terms, while fiscal deficit spending and deregulation have been used to make up for otherwise insufficient demand for goods and services, and in the process have been generating trillions of dollars in federal government debt. *Substantial time lags prevent monetary policy from preventing recessions and inflation. New \$1,000+ smart-phone Federal Reserve accounts with eyeball-face recognition and phone-registration are proposed for all Americans who have a social security number to give the Fed direct and immediate access to consumer demand.*

Recognizing differences in the marginal propensity to consume by income and wealth is central to effective economic policy. Traditional economics assumes rational, independent decision makers and emphasizes a (long-run) tendency toward equilibrium while ignoring contagion effects that reinforce the centrifugal forces driving upward toward irrational exuberance or spiraling downward toward recession. Such negative forces are just as central to and inherent in the free market system as its positive, self-correcting forces and should be recognized as such. A fourth branch of government is proposed to take direct control of and responsibility for the aggregate effects of both monetary (money supply, etc.) and fiscal (debt ceiling, etc.) policy in every phase of the economic cycle based on empirical, scientific, reproducible, peer-reviewed research and divorced from political ideology. The governing board would employ data scientists to track the economy using state-of-the-art techniques that combine expert systems in the form of dynamic stochastic general equilibrium (DSGE) models combined with pattern recognition techniques such as hierarchical hidden Markov models, Bayesian decision tree models, artificial neural networks, and generalized fractional multi-dimensional spline regression methods. Candidates for the new Prosperity Branch governing board to be proposed by the governing board of the National Bureau of Economic Research (NBER) and nominated by vote of the research associates of the NBER and submitted to the United States Senate for approval.

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I. Natural Money Flow

SUMMARY: Piketty documented capital's triumph over labor with more and more wealth accumulating at the top of the income ladder. Technology elevated the role of fixed costs (capital) relative to variable costs (labor) while creating an online world with nearly zero marginal cost. Cooper introduced a blood-flow paradigm as a framework for understanding the flow of money in an economy. Earlier, Fisher, and later Minsky, explained the debt-deflation cycle. The key to correcting flow distortions and lessening cycles in order to promote a healthy economy is not for the wealthy to hold on to as much money possible, as in congestive heart failure, but to allow and encourage money to flow dynamically out to all parts of the economy with all available resources fully employed. Real wealth is not measured by how much money you can hold on to, which is your nominal wealth, but by how much money flows through your hands in exchange for products and services, then on out to all corners of the economy, and ultimately back to you in a circular flow. A system that maximizes nominal short-run wealth leads to stagnation while one that maximizes real long-run wealth leads to economic growth.

Piketty documents capital's triumph over labor

From a slow beginning in the 19th century, gradually accelerating advances in technology have favored fixed costs over variable costs. For a capitalist, the same amount of real investment dollars produced greater productivity and a relatively high return on investment. This explains the natural tendency for the rate of return to capital to exceed the growth rate of the economy, which was clearly and extensively documented in Thomas Piketty's book *Capital in the 21st Century*.¹

When capital's rate of return exceeds the economy's growth rate, the rate of return to labor falls below the economy's growth rate. Increasingly over time, more and more money flows to capital and less and less to labor. The capitalists get relatively richer and the laborers get relatively poorer, and in recent decades, absolutely poorer in real purchasing power. Piketty provides an exhaustive review of the evidence showing that over time the predominant flow of money has been upward to the wealthiest elite class.

Piketty's book raises two questions. The first question is what are the underlying causes of this phenomenon? The second question is what should we do about it? The unstoppable, insuppressible advances in technology that are accelerating the transition from a variable cost (labor) economy to a fixed cost (capital) economy, assisted by "pay-to-play" politics, helps answer the first question, but the second question requires a better understanding of how money flows in a healthy economy.

¹ Piketty, Thomas. *Capital in the 21st Century*. Cambridge: Harvard University Press, 2014.

Circular money flow keeps economy healthy

George Cooper responded to Piketty in his book *Money, Blood and Revolution*,² which Cooper extended and republished under the title: *Fixing Economics*.³ Cooper recalled the theory of blood flow established by Galen (129-200 AD), who argued that blood flowed through the body in much the same way that sap flows up a tree and out to the tips of the tiny branches. Galen claimed that blood originated in the liver, with nutrients supplied by the stomach, and then flowed first to the heart, and then outward to the extremities where it evaporated.

Galen's theory held sway for over a thousand years until 1628 when William Harvey (1578-1657) published *On the Motion of the Heart and Blood in Animals*,⁴ where Harvey reported his experiments demonstrating that blood flowed around the body in a circular loop and did not evaporate at the body's extremities. Harvey saw that the veins were the collection system for blood and the arteries were the distribution system in a circular loop.

Cooper argues that in a healthy economy money is first pumped upward by the natural winner-take-all tendency for the rich to get richer. This was true in caveman days when the big guy got as much of whatever he wanted, and under the kings, pharaohs, emperors and tsars as well as in our modern economy as capital in the form of fixed costs comes to dominate over labor in the form of variable costs.

This natural tendency for money to accumulate at the top is similar to how the heart's right atrium receives blood from the rest of the body. But there is little incentive in the economy for the money to trickle down. Instead, for a healthy economy the government must act like the heart's ventricles working in concert and proper rhythm with the atrium to encourage an adequate distribution of wealth to all extremities and to also return to the heart. A healthy economy requires both the upward flow of money to the economy's right atrium and an active government as the left ventricle to maintain adequate demand to grow the economy dynamically with increasing productivity. Basically, Cooper calls for using fiscal policy to reroute a sufficient flow of money from the rich to the middle class and working class to restore balance in the economy and enhance productivity growth.

The rich ultimately gain greater wealth when wealth is dynamically redistributed than if they held on tightly to their large piece of the proverbial pie. By allowing money to flow downward to people who will actually spend it, the rich sow the seeds of a more bountiful harvest. It is not surprising that the marginal propensity to consume, velocity of money and multiplier effects tend to be much higher for working class

² Cooper, George. *Money, Blood and Revolution*. Hampshire: Harriman House LTD, 2014.

³ Cooper, George. *Fixing Economics*. Hampshire: Harriman House LTD, 2016.

⁴ Harvey, William. *On the Motion of the Heart and Blood in Animals*. Frankfurt, 1628.

and middle class families than for wealthier families. Those lower on the income scale are more likely to spend any additional money more quickly on goods and services while wealthier people are more likely to save additional funds or purchase pre-existing items of value including rare paintings, coveted real estate, or financial assets such as stocks and bonds.

A recent paper by Carroll et al. estimated the marginal propensity to consume of the wealthiest 20 percent of Americans to be about 8 percent while that of the poorest 20 percent was estimated to be about 94 percent.⁵ Thus, for the wealthiest 20 percent, the government spending multiplier is 1.087 while the tax multiplier is -0.087 .⁶ In contrast, for the poorest 20 percent, the government spending multiplier is 16.667 while the tax multiplier is -15.667 . The figures for the poorest 20 percent of Americans deviate dramatically from the range of possible average government spending multipliers from the economics literature summarized by Ramsey as typically ranging from 0.8 to 1.5.⁷

Ignoring the dramatic difference between the multipliers of the poor and the wealthy and aiming a government spending stimulus on the average person's multiplier reminds one of the old joke that "a statistician is someone who can put their left hand in freezing water and their right hand in boiling water and say 'On average, I feel just fine'." Clearly, if politicians are serious about literally getting the most bang for the buck, then they need to target their stimulus spending on the poorest 20 percent.

A properly functioning economy grows much more rapidly than one slowing, or even declining in real terms, as labor incomes fall, demand dries up and the growth curve flattens and then declines. As the mechanism of economic modulation, Federal Reserve interventionist policies must apply the correct tool for the given environment. When the Federal Reserve is already keeping interest rates low by providing financial markets with high levels of liquidity, little is accomplished when wealthy families and large corporations pile up large, unused cash savings. Investments in plant, equipment and employment (jobs) occur when consumer demand begins approaching the limits of existing productive capacity. A healthy economy requires an adequate money flow to those who will actually spend the money to maintain effective demand for goods and services.⁸

⁵ Carroll, Christopher, Jiri Slacalek, Kiici Tokuoka and Matthew N. White. "The distribution of wealth and the marginal propensity to consume." *Quantitative Economics*, 2017, 8, pp. 977-1020.

⁶ Other factors held constant, the government spending multiplier is $1 / (1 - mpc)$ while the multiplier for taxes is $- mpc / (1 - mpc)$ where mpc is the marginal propensity to consume.

⁷ Ramsey, Valerie A. "Can government purchases stimulate the economy." *Journal of Economic Literature*, 2011, 49(3), pp. 673-685.

⁸ Lawrence Summers provides a deeper dive into the causes of secular stagnation in his book: Summers, Lawrence H. *The Post-Widget Society: Economic Possibilities for Our Children*. New York: Farrar, Straus and Giroux, 2020.

Money flow shifts from variable costs to fixed costs

Early settlers in the United States had only their bare hands and a few simple tools to farm the land. If they wanted to plant another row of corn, they had to take a shovel and work up the soil by hand. Most of the input into corn production was in the form of variable costs. Over time the costs shifted to investments in farm equipment. Today a farmer can sit in the farm house at her computer while monitoring the self-driving plow that follows signals from a global positioning satellite while measuring soil content and dispensing fertilizer in varying amounts and concentrations as different patches of land show different nutrient content. The variable costs in the form of labor have been largely replaced with the fixed costs of creating the self-driving plow and all of the technology it uses in producing the corn crop.

Throughout the history of the United States, productivity has grown enormously while the money previously flowing to labor has shifted to capital. A similar story can be told in automobile production where fixed costs in the form of robotic equipment and technology have come to replace variable labor costs. In the coming decade self-driving trucks will replace millions of truck drivers on our roads. On the internet, almost all of the money flow goes to the fixed costs of setting up the website with virtually no variable costs associated with adding an additional user to the site or with that user using the site.

The shift from an economy dominated by variable costs to one dominated by fixed costs was slow at first. In the 20th century most machinery as well as trains, planes, trucks and automobiles still required labor to operate. At that time the exploration, development and extraction of natural resources took a great deal of labor input. Self-service gasoline stations did not emerge until late in the century along with self-service check out in department stores. In production labor played a major role and a significant part of the cost of products and services.

In the 21st century the role of fixed costs has increased dramatically. Automation and self-service have played major roles in this development. Giant earth moving equipment is used to extract coal by removing mountain tops rather than sending large numbers of miners underground. Automobile factories employ armies of robots in “lights out” manufacturing where humans are relegated to much less labor-intensive roles such as supervision and maintenance while production continues on through the night in the dark.

Politicians railed against foreigners who were “taking our jobs” when, in reality, those jobs were destined for automation in any case. Their overseas or across the border respite will be brief as even the most lowly-paid workers are overcome by automation and the relentless march of technological progress. Wages have already risen sufficiently in Chinese factories to motivate greater automation with the replacement of labor with capital. In the end it is technology and not globalization that challenges the foundation of our economic system. The stability of our economic system is at risk if we fail to fully

understand the impact of technology on money flow and replace economic policy based on political interests with one centered on empirical, scientific evidence and innovative artificial intelligence methods of analysis.

Win-win strategy maximizes circular money flow

Think of a small, remote, fishing village in Maine (where I happen to be as I write these words). The single family-owned restaurant, bar and general store are at the center of economic activity. If the restaurant, bar and store workers are not adequately paid, and the fishermen and farmers who supply the food are not adequately compensated, the general store, restaurant and bar do not prosper.

When workers, farmers and fishermen have lots of money to spend, they spend a lot at the general store, restaurant and bar. The more they make, the more they spend. The workers, farmers and fishermen have to keep up with demand. Getting more money means spending more and working more. When the money flow is good and the velocity of money is high, workers are fully employed and producing at full capacity while consumers are flush with cash and eager to spend.⁹ Getting less money means spending less and working less. The store owner does better when the village as a whole does better.

Being tight-fisted with the fisherman, farmers and workers is the I-win-you-lose strategy. Saving a few bucks in the short run means losing a lot of money in the long run. The static fixed-pie strategy ultimately loses to the dynamic growing pie strategy. Win-win wins and I-win-you-lose loses. “Us versus them” doesn’t work. This is true locally, nationally and internationally.¹⁰ When the game is greed, we can all compete to see who can be the most greedy, but when the game is generosity, we can all work together to produce more for everyone.¹¹

On a remote island, a single family-owned general store, restaurant and bar can easily see its self-interest in stimulating the island’s economy by paying its workers and suppliers more until it achieves optimal money flow where all resources are fully utilized and the family business (and everyone else) is making maximum profit in real terms. However, in a larger economy, paying workers and suppliers more to maintain an optimal money flow becomes problematic. The overall economy is a common property

⁹ This assumes a given amount of money in the system. Alternatively, in theory the amount of money in the system could be increased while holding the velocity of money constant. In reality, some combination of the amount of money and the velocity of money determine the level of demand and production. *If that combination is too low*, demand and production suffer and deflation triggers a downward spiral. Workers are reluctant to accept a wage cut and consumers hold off on consumption in anticipation of even lower prices in the future. The economy gets stuck in a *liquidity trap* in rejecting negative nominal interest rates. *If that combination is too high*, inflation can become excessive.

¹⁰ Bremmer, Ian. *Us versus Them: The Failure of Globalism*. New York: Penguin Random House, 2018.

¹¹ Reich, Robert B. *The Common Good*, New York: Penguin Random House LLC, 2018.

resource facing a free-rider problem where every business would like to see other businesses pay their workers and suppliers more, but not pay more itself. In a larger economy, each business pursues its own self-interest in a manner similar to the overfishing problem in a commonly owned lake (or ocean in an international context). There are times when the optimal money flow can only be achieved by collective action (i.e. government stimulus). (The common property resource problem has been extensively analyzed by Elinor Ostrom¹² and Oliver Williamson¹³ for which they earned the Nobel Prize in Economics in 2009.)

Professor Robert Reich provides another example with Henry Ford's strategy in 1914 of tripling the pay of the workers producing his Model T cars.¹⁴ By raising their pay to \$5 for an eight-hour-shift, the workers were able to accumulate over time, enough money to buy one of the \$575 cars for themselves. This increased Ford's profits from \$25 million in 1914 to \$57 million two years later. In effect, Ford created his own little successful village of auto workers.

In theory, Wal-Mart could learn from Ford's experiment in generosity and take the lead in raising wages when the economy is struggling, especially in small, remote, rural communities where Wal-Mart is the dominant employer. Wal-Mart workers buy many of their household products from Wal-Mart and the plumbers, electricians and bus drivers they employ in their daily lives probably spend a lot at Wal-Mart as well. Traditionally Wal-Mart workers have not been paid very well. There is no union at Wal-Mart to demand higher pay for Wal-Mart workers. But Wal-Mart should ask: If we pay our workers better, where will they spend a lot of the extra money? The most likely answer: Wal-Mart. Even much of the money those workers pay a plumber to fix their toilet or a roofer to fix their roof will probably end up back at Wal-Mart sooner or later. When Wal-Mart and other such major businesses take the lead in stimulating the economy, everyone can be made better off. In fact, in January 2018 Wal-Mart did raise its starting wage to \$11 an hour. To be fair, we should note that Wal-Mart is fighting off tech giant Amazon and is under pressure to keep its prices low. Even Wal-Mart stores in remote rural areas face increasing price pressure from e-commerce.

Managing the business cycle and money flow

In the face of declining demand for its products and services, a business is unlikely to hire more workers and raise the pay of existing employees during an economic downturn to help stimulate the economy and bring it out of a recession. Microeconomic incentives direct businesses to do exactly the opposite.

¹² Ostrom, E. *Governing the Commons*. Cambridge University Press. 1990.

¹³ Williamson, Oliver. *The Mechanisms of Governance*. Oxford University Press, 1996.

¹⁴ Reich, Robert B. *Aftershock: The Next Economy & America's Future*. New York: Vintage Books, 2011.

When faced with falling sales revenues, businesses are more likely to lay off workers, cut overtime pay and freeze pay rates or even negotiate pay reductions. Although from a macroeconomic point of view, businesses would be collectively better off with an increased money flow, each business pulls back in the face of reduced demand for its goods and services. In this situation, the natural tendency of the free enterprise system is to do exactly the opposite of what is needed.

A business cycle is like a pendulum which goes too far in one direction, only to gain too much momentum in the reversal, and overshoot equilibrium. Classical and neoclassical economists focus solely on the natural forces that ultimately bring the economy back toward equilibrium, but ignore, or at least discount, the natural forces that fed the momentum away from equilibrium in the first place. Later we will discuss the role of government in providing automatic stabilizers to dampen these oscillations and bring the economy back to equilibrium more quickly.

Two invisible hands

The invisible hand that Adam Smith discovered was one of two invisible hands. Smith's invisible hand was the left invisible hand that serves *economic efficiency* by turning entrepreneurial self-interest into better quality products at lower prices through competition. At the same time, the right invisible hand serves *economic power* in attempting to achieve market domination with barriers to entry and the acquisition of rivals. These two invisible hands are in constant struggle with one another. When the right invisible hand dominates, economic inefficiency and economic inequality can become extreme. This bad invisible hand must be constrained through regulation and globalization to ensure fair play and adequate competition. History is the story of this constant struggle between these two invisible hands.

The shared productivity spillover effect

William Baumol (1922-2017) explained that productivity is ultimately shared throughout the economy.¹⁵ A violin player in a professional orchestra in Mozart's time was paid a salary representing very little real wealth. But someone playing that same tune on their violin in a professional orchestra today gets paid a lot more in real terms. Today's violin player has more wealth in terms of cars, electricity and flush toilets than medieval kings and queens. Baumol pointed out that productivity improvements are shared. Technological improvements in one industry will attract workers away from other industries causing, not only higher real wages in the new industry, but also higher real wages in the old industry.

¹⁵ Baumol, William J. *The Cost Disease: Why computers get cheaper and health care doesn't*. New Haven: Yale University Press, 2012.

This works not only within a nation, but across nations as well. We know from the law of comparative advantage that, even if everyone else is better at doing everything than you are, you can still find that niche that others have neither the time nor the interest in pursuing. Productivity improvements are important, not only for the individual, company and industry in which those improvements occurred, but also for all other workers because of the spillover effects.

Don't underestimate the importance of this combination of comparative advantage and productivity spillover effects. What this implies is that structural unemployment is not the huge problem it is made out to be. If, as the economy returns to full employment and demand continues to increase slowly, the effect will be not only to start to raise the wages of those already employed, but to begin to open up opportunities for others who do not have much in the way of technical skills. The spillover effects of improved overall productivity can help even the uneducated get paid a decent wage to pick up gum wrappers, cigarette butts and other trash around a nearby shopping center, or some other such routine unskilled work.

Politicians sometimes argue that structural unemployment and skill-biased technical change make economic stimulus ineffective in alleviating unemployment during economic downturns. They argue that retraining must take place first before any stimulus would be able to bring about full employment. The problem with that argument is that it fails to recognize that the law of comparative advantage operates just as effectively between individuals as it does between countries. Even if an individual or group of individuals is better at every possible productive activity than another individual or group of individuals, there is only twenty-four hours in the day and no individual or group of individuals can satisfy all possible consumer demands if sufficiently stimulated. The fact that the United States in 2018 was experiencing the lowest unemployment rate since 1969 demonstrates this. The little residual unemployment that existed in 2018 was clearly frictional (transitioning between jobs).

However, it is still in our national interest to provide job training and enhanced educational opportunities for our citizens. An educated population is a common property resource that benefits everyone. A healthy, well-balanced economy can be a win-win for everyone, as the rising tide of economic activity raises all boats. It still makes sense to get a good education and improve your work-related skills, but the increased productivity that you engender by having increased your human capital will be shared with others to some degree down the line. If you understand the lump of labor fallacy¹⁶ and the misguided nature of the I-win-you-lose strategy, you will realize that your hard work and success can indirectly help others as well through Baumol's spillover effects. Those who play I-win-you-lose resent free riders and hold back everyone, while those who are generous in pursuing the win-win strategy help others while helping

¹⁶ The *lump of labor fallacy* is the false assumption that there is a fixed number of jobs to be fought over.

themselves. By picking up the trash in your neighborhood, you protect your own property's value, but also the property values of your neighbors. Ultimately, win-win wins and I-win-you-lose loses.

You not only benefit from investing in your own education, but the Baumol spillover effect ensures that you also benefit from the taxes you paid to help improve the education and productivity of others. Our economy inherently works to make sure that your generosity comes back to you. Improved productivity in our economy helps enhance the quality and variety of useful products while competition drives prices lower and quality higher for everyone.

Investing in education is like a farmer's decision to invest in a future crop. Should a farmer spend a lot of money preparing her fields and sending her money for seed and fertilizer, or should she hold on to every penny and just hope that the crop will somehow seed itself? Generating a bountiful harvest requires investing in the future by providing money flow.

Monetary History: The debt-deflation cycle emerges

Money flow became erratic as rapid economic expansions were followed from time to time by economic panics, or in modern parlance, recessions. Initially Irving Fisher came to appreciate this problem from his personal experience in the Great Depression of the 1930s. In 1933 Fisher described the pattern of debt inflation followed by debt deflation.¹⁷ Fisher saw the economy as subject to three forces: (1) growth or trend tendencies, (2) haphazard disturbances, and (3) cyclical tendencies. Fisher's key argument is that natural debt cycles with the buildup of excessive debt ultimately leads to a collapse in the debt bubble as entities reach a tipping point. Fisher used the analogy of a ship that ordinarily can rock from side to side and return to an upright position or equilibrium unless it is subject to particularly strong wind and waves. According to Fisher, at some point if wind and waves reach the tipping point and nothing is done to stabilize the ship, it capsizes.

But Fisher argues that the bursting of the debt bubble by itself is not sufficient to bring down the economy as a whole. Rather, it is the drop in prices or deflation that naturally follows the bursting of the debt bubble along with a slowing down in the velocity of circulation of money that produces a downward spiral toward recession or depression. Fisher said: "It would be as silly and immoral to 'let nature take her course' as for a physician to neglect a case of pneumonia." Fisher concluded that the federal government must step in to prevent deflation and the ultimate collapse of the economy.¹⁸

¹⁷ Fisher, Irving. "The Debt-Deflation Theory of Great Depressions." *Econometrica*, October 1933, 1(4), pp. 337-357.

¹⁸ This is in sharp contrast to those who argue for austerity in letting the economy contract and prices fall (especially wages). Instead of righting the ship, they would let it capsize.

Later Hyman Minsky developed an elaborate theory explaining how economic stability led businesses and individuals to become overconfident, which, in turn, ultimately led to instability and economic collapse. From time to time the economy becomes naturally overextended as individuals attempt to consume and invest beyond their ability to pay. The image that emerges is Wile E. Coyote continuing to walk off the edge of the cliff into thin air until finally he sees that there is nothing supporting him. He then suddenly falls precipitously.¹⁹

Randall Wright²⁰ and others have explained real business cycles in terms of abrupt changes in technology. While cycles in the stock market might be driven by “Minsky moments,” the real economy is also occasionally disrupted by technology shocks. Automation in manufacturing such as in automobile production have dramatically and abruptly reduced the demand for labor. Another major real business cycle may be forthcoming due to a combination of autonomous vehicles and artificial intelligence algorithms replacing large number of workers. Joseph Stiglitz provides an analysis of how the previous macroeconomic models misled policy makers.²¹

Moreover, the delinking of labor from capital will eventually undermine worker motivation and productivity and slow down economic growth in the advanced economies of the world. The combination of slow growth and high expectations will inevitably lead to more “Minsky moments” where the private debt built up creating instability. The resulting financial instability results in a stock market correction and a dramatic drop in output and employment. This cycle has repeated itself again and again throughout United States history.

Wealthy gain from healthy money flow

In a vigorous economy, more money will flow through the hands of the elite than an economy where the elite try to stop the money flow and hold on to every last dollar they can. Again, just as farmers invest in the spring to receive bountiful harvests in the fall, if corporations and wealthy individuals pay higher income and estate taxes, money can flow to middle-class and working-class Americans who will stimulate our economy through investments in education, health care, Social Security, infrastructure and basic research along with money injected directly into the economy by the Federal Reserve. This will ensure an even greater money flow back to business and the wealthy. The objective is not to diminish the wealth of

¹⁹ Minsky, Hyman P. *Stabilizing an Unstable Economy*. New Haven: Yale University Press, 1986.

²⁰ Wright, Randall. “On the Future of Macro: A New Monetarist Perspective.” *Oxford Review of Economic Policy*, 2018, 34(1–2), pp. 107–31.

²¹ Stiglitz, Joseph E. “Where Modern Macroeconomics Went Wrong.” *Oxford Review of Economic Policy*, 2018, 34(1–2), pp. 70–106.

the wealthy, but to make them even more wealthy along with the rest of us in a win-win strategy. As every farmer knows, this requires investment. Ultimately, patience wins out over immediate gratification.

Bill Gates and Warren Buffett understand what it means to contribute to the American dream for everyone while ensuring that their own businesses thrive in a healthy and dynamically growing economy. Through their businesses and the Gates Foundation, they are proud to invest in the lives of everyone. They understand that the “us versus them” philosophy of greed only leads to conflict and destruction.

In a greedy world, the money flow dries up and restaurants, stores and other businesses go bankrupt. In a generous world, where an optimal level of taxation pumps money out to the working class and middle class, the elite benefit from the high demand for their goods and services. The I-win-you-lose, winner-take-all economy stagnates, while the win-win economy thrives.

II. Money Flow Trends and Problems

SUMMARY: As technology advances, capital wins and labor loses. Money previously flowing to labor is rerouted to capital as automation replaces workers in production and distribution. Companies shift risk onto their employees by replacing defined benefit pensions with defined contribution retirement funds. Full time workers are replaced with temporary, part-time or contract workers. Families put in longer working hours, not less, as college students pile up mountains of debt and wages stagnate. Economic slowdowns are seen as opportunities to reroute more money to the rich, who spend little on goods and services, rather than working-class and middle-class families with high marginal propensities to consume. Contagion effects drive the economy between the extremes of rational exuberance and a downwardly spiraling economic slump. Monetary velocity and multiplier effects are strong when they need to be weak, and weak when they need to be strong. Government currently lacks the tools to adequately counter this perverse cycle in a timely manner.

The role of inflation in productivity growth

There are two economic circumstances where employers tend to increase productivity. In the first circumstance, inflationary pressure in a full employment economy provides employers with an opportunity to introduce new technology without instigating layoffs. When demand is exceptionally strong, an automobile company might introduce new technology in a new or existing plant while maintaining employment at current levels. This is the traditional approach where most productivity increases have occurred in the past.

However, when both globalization and the rate and availability of technology improvements began increasing more rapidly over time, inflation did not increase to the point where real wages could fall

adequately relative to rising prices to pay for implementing the new technologies. Instead, employers had to wait for recessions. After laying off workers and waiting for the restoration of demand, employers used a new strategy of replacing the laid off workers with new technology as their businesses emerged from recession.

This strategy was also effective in avoiding worker, union or public objections and concerns. Since the new technology was not directly replacing particular workers (although former workers were not being called back), this strategy minimized bad publicity and did not undermine the morale of the current workforce.

In the first circumstance, the traditional approach to incorporating new technology involved allowing inflation to reduce the real wages of workers while maintaining or even increasing slightly their nominal wages. This approach worked at various times throughout the 1970s, 1980s and 1990s. A moderate degree of inflation allowed us to have our cake and eat it too. Back then some new technologies could be introduced without laying off large numbers of workers, as long as inflation was rising sufficiently to significantly reduce the employers wage bill and expand output in respond to the excess demand. An employer wanting to add more workers in a full employment economy must offer higher wages to get workers to quit their old jobs and sign on with the new employer. That means inflation of at least two percent. Some economists have argued that inflation should be around four percent to achieve a combination of moderate wage growth along with a robust adoption of new technologies.

The concern is that inflation might rise faster than improvements in technology and get out of hand. In the past the Federal Reserve had to put the brakes on the economy by raising interest rates to stop the possible development of run-away inflation. More often than not, this led to a significant downturn with rising unemployment as the economy slipped briefly into recession. But globalization and the ever-faster implementation of increasingly cost-effective new technologies has prevented inflation from rising significantly and, therefore, has prevented employers from using the traditional inflation-based approach to employing new technologies without having to lay off workers. Without significant inflation employers find it difficult to lay off workers in order to be able to accommodate a rapidly expanding array of new technologies. They must either wait for inflation or recession. Slow expansions without significant inflation prevent a more rapid introduction of new technologies and a consequent rapid improvement in productivity.

Insufficient money flow blocks development

Before the industrial revolution, John Locke (1632-1704) introduced the basic principle establishing the right to own private property. He argued that people owned their own labor, and by putting their labor into the land, they created their right of land ownership or private property. Locke in the second part of his

Two Treaties on Government (1689)²² essentially argued that by working the land and other artifacts of the natural world, a person could establish ownership of property by what today might be called sweat equity. This concept worked well at first when craftsmen and craftswomen created and used their own tools. But the link between sweat equity and capital broke down when capital investment became too large for a single worker or group of workers to manage. For large capital investments, members of the nobility with greater command of resources, would step in to make the necessary investment in a water mill for power or machinery in a factory. Now the broken link between sweat equity and the ownership of capital is systematically and inevitably causing more and more money to flow to the owners of capital and relatively less money to flow to workers.

Families have tried to compensate for wage stagnation in various ways. There are more families with both husbands and wives seeking full-time jobs. For many in the United States, working hours have been extended rather than shortened. People have taken on more and more debt to cover their expenses. Young people are putting off buying cars, getting married, having children and purchasing homes. Some are living with their parents while paying off college debt. Movement out of rural areas into a revived urban core in major cities is cutting transportation costs and allowing apartment rent sharing to reduce expenses. Backyard and roof top gardens have gained greater popularity and have helped reduce the cost of food. Ride sharing has become popular.

Money flowing to individuals providing various internet-related services, such as Airbnb, Uber, Lyft and many, many more, does not provide that reliable paycheck or defined benefits. To compensate for inadequate compensation, young people have embraced sharing. It started with the sharing of music. Now newspapers, magazines and books are being shared over the internet as e-books and audio books. More and more authors and artists are bypassing the middlemen and distributing their creations for free. People are offering to rent out rooms in their homes via such services as *Airbnb* while others offer rides in their cars and trucks via *Uber* or *Lyft*. Everything from tools to baby carriages are being shared through neighborhood social media sites such as *Nextdoor*.

Despite these trends and efforts to compensate, insufficient money flow is hampering the professional development of young people. Young people are trapped in 9-to-5 jobs to meet all their debt repayment obligations, instead of making some new technical discovery or launching a new internet startup business. This is not helping our economy grow.

²² Locke, John. *Two Treaties of Government*. London: Awnsham Churchill, 1689.

Money flows through our new “gig” economy

Traditionally a business provided its workers with a consistent and reliable paycheck along with defined health and retirement benefits. Even larger, well-established companies have switched to defined contributions instead of defined benefits. Obviously, this shifts the risk of economic and stock market volatility from companies to their employees making their lives even more uncertain. It also undermines their motivation to ensure that they make their greatest and most effective effort in helping maximize their company’s profits. When your company says: “you are on your own,” it is saying: “we are not all in this together.” This makes the break between sweat equity and the ownership of capital even worse in undermining employee motivation and morale.

Delinking company retirement benefits from the company’s performance makes employees primarily focus on short-term contributions to the company’s well-being and discourages long-term company planning. Greater employee mobility means less employee commitment. Family businesses used to treat employees as family in the context of a more permanent relationship, but too often large corporations treat employees as just another factor input.

Companies are employing more part-time and temporary employees than ever before. In place of traditional, full-time employment, our new “gig” economy has reduced our commitment to our labor force by reducing the total money flow to regular employees in favor of part-time and contingent workers who receive little, if any, employee benefits. A 2015 report from the U.S. General Accountability Office²³ determined from the General Social Survey that over forty percent of workers are contingent workers.²⁴ At our colleges and universities, the American Association of University Professors reports that seventy percent of the courses are taught by non-tenured and non-tenure-track employees.²⁵ These graduate students, adjunct professors and full-time, non-tenured employees are often paid a small fraction of what their tenured and tenure-track counterparts are paid (e.g. \$1,500 for a full semester course at some smaller colleges).

²³ Previously known as the U.S. General Accounting Office.

²⁴ See May 25, 2015 article in Forbes magazine:
<https://www.forbes.com/sites/elainepofeldt/2015/05/25/shocker-40-of-workers-now-have-contingent-jobs-says-u-s-government/#382632df14be>

²⁵ See the American Association of University Professors report:
https://www.aaup.org/sites/default/files/Academic_Labor_Force_Trends_1975-2015.pdf

Trends in money flow and currency dynamics

If money does not reach into all corners of the economy, it can pile up in some places (as fluids build up in congestive heart failure) and fail to reach other places, resulting in stagflation, reflecting an unbalanced money flow. In theory such distortions should quickly disappear, but natural market forces can prevent a quick and full recovery. In reality, the economy can get caught in a liquidity trap which can keep unemployment high and prevent a quick and full recovery.

The real value of money is ultimately determined by its supply and demand. There will be times when the demand for money may slacken, and other times when the demand for money may surge. The Federal Reserve may allow a substantial increase in the supply of money during economic downturns, and, alternatively, attempt to cut back the money supply when inflation threatens. This is accomplished in open market operations by the New York Federal Reserve Bank in the buying and selling of federal funds. This directly affects short-term interest rates which are kept within a narrow range specified by the Federal Open Market Committee.²⁶

Money is produced by the banking system. Paper money originated as iou's issued by banks. Under the Federal Reserve Act of 1913 the Federal Reserve was created to bring large banks together to control the money supply. Currently, the money supply is controlled by the Federal Reserve System through its open market operations as well as through the federal discount rate, the reserve requirements and other regulatory means.

Money can be physical or digital. It can be backed by something of physical value, or backed by nothing but its own scarcity, as Bitcoin, Ether, Ripple, Litecoin and other crypto-currencies have clearly demonstrated. The idea that a country issuing currency is, in effect, issuing iou's that must someday be paid off in gold or some other precious metal is misleading. Obviously, Bitcoin, Ethereum, Ripple and Litecoin will never pay off the debts they are incurring with the issuance of their currencies. But that fact has not undermined the acceptance of these new forms of currency.

Defining money as currency plus checking accounts (M1) or the same plus savings accounts (M2) makes it clear that banks create money out of thin air, when they initiate a loan to someone by creating a checking account funded by the money from my checking account. The same money cannot be in two places at the same time, but it is. This makes it clear that banks are creating money every day, but they are limited in how much they can create by the reserve requirements. In addition to setting reserve requirements, the

²⁶ In this author's opinion the resulting yield curve is too flat in that long-term interest rates are unduly influenced by these short-term rates. For example, ten-year interest rate is more closely correlated with the current federal funds rate than with the corresponding realized rate. In other words, the markets implicit time horizon for the ten-year rate is much shorter than ten years. Other authors have expressed similar concerns.

Federal Reserve is tasked with controlling the amount of money in circulation by buying short-term treasury securities to increase the money supply or selling such securities to reduce the money supply. Alternatively, the Fed could create money out of thin air by creating checking or savings accounts for individuals as long as it did so in moderation so as to avoid excessive inflationary pressures.

A system of establishing and maintaining ownership of money is essential to any successful currency. Originally, the physical possession of coins and paper notes was all that was necessary. Later bank records were the basis for certifying ownership. More recently the blockchain technology has bypassed banks and established a collective memory for recording ownership. Transfer of ownership can take place over smart phones without bank or government involvement as demonstrated in the M-Pesa system first widely used in Kenya and now spreading throughout the world, especially in developing countries.²⁷ The ultimate impact of these trending changes remains to be seen, but they must be taken into account as potentially important factors affecting an economy.

Contagion effects and irrational exuberance

Some markets are dominated by variation in supply such as many of the commodity markets. The classic “hog cycle” taught in standard introductory economics courses explains how this works. When hog prices get too high, farmers invest in more hog production which ultimately leads to an oversupply of hogs. The prices of bacon and pork fall in response to the oversupply. Farmers then cut back on hog production due to the low prices, and the hog cycle begins again. Recently a similar cycle took place in the egg market where an oversupply of eggs drove down the price of eggs. The saying that “the solution to high prices is high prices, and the solution to low prices is low prices” works well in solving the immediate problem of prices that are too high or too low, but does not address the instability of such volatile markets.²⁸

Government policies such as price supports that interfere with these price adjustments are often ineffective and counterproductive. In the case of supply instability, the long-term solution is to look for ways to help the markets be more responsive to small price changes and to more accurately predict future price changes to avoid the extreme variations in price. Future markets and crop price insurance contracts are helpful in this regard, but we need to make better use of artificial intelligence algorithms to better anticipate changes in global weather patterns and other exogenous factors to predict future price changes.

²⁷ “M” stands for mobile and *pesa* is Swahili for money. In theory, the blockchain technology could be used to bypass government in establishing, maintaining and changing other collective agreements such as marriage and adoption.

²⁸ Abbott, Chuck. “Trump Proposes 33% Cut in Crop Insurance.” Successful Farming at Agriculture.com. February 13, 2018. <https://www.agriculture.com/news/business/trump-proposes-33-cut-in-crop-insurance>

While the supply side of markets is usually dominated by key players with enough experience to anticipate, to some degree, the future price variations, the demand side often consists of a multitude of consumers who may be less able to anticipate future price changes, especially in markets where individual purchases are less frequent and constitute a smaller portion of the household budget expenditures. In these cases, the “high prices solve high prices and low prices solve low prices” solution does not work. In effect, this is just another example of the asymmetric information problem in economics.

On the other hand, the stock market is an example where the demand for stocks often responds more rapidly than the supply of stocks, leading to contagion effects driven by variations in demand rather than due to any significant changes in supply. Rather than cutting back stock purchases in response to higher prices, investors may increase their investment expenditures more rapidly as prices rise in anticipation of even greater increases in valuations. Companies typically do not issue new shares of stock to counter such increases in demand. Retail investors are the most likely to get caught up in such momentum stock trading.

In explaining the meaning of a Giffen good, where the income effect overwhelms the substitution effect of price changes in violating the law of demand, introductory economics frequently uses the Irish potato famine in the 19th century as an example where the fall in price of potatoes reduced, instead of increased, demand for potatoes. This occurred because the lower price gave consumers enough money to reduce their dependence on potatoes and broaden their diets to include other foods. In a more dynamic example of a similar effect, higher stock prices can induce investors to buy more stock, instead of less stock, because of the income effect of higher stock prices on their overall wealth. Or, to put it another way, the excitement of seeing your stock portfolio rise in value may cause you to sell jewelry, real estate and other assets as well as using margin to buy more stock.

This suggests a different type of good that responds dynamically to expected price increases rather than statically to the current price. Such stock purchases imply a momentum strategy rather than a regression-to-the-mean strategy in stock trading. This type of good is similar to a Veblen good where the exclusive nature of a luxury good cause price rises to make it more desirable, except the Veblen good, like the Giffen good, is based on static price and quantity comparisons as opposed to the dynamic effect of responding to price increases in anticipation of even higher future prices.

Two extreme alternatives are available for thinking about our free market system. At one extreme there are those who only see goodness and virtue coming from free enterprise where people behave rationally in pursuit of their own self-interest which ultimately leads to everyone being made better off. Alternatively, there is the other extreme interpretation that sees greedy self-interest exploiting irrationality and contagion effects to constantly undermine the stability and benevolence of the system whenever it tries to establish some sort of stable equilibrium. In some circumstances arbitrage leads to a quicker return to equilibrium, whereas in other circumstances market manipulators can exacerbate

disequilibrium. Technical analysis, instead of political ideology, is needed to differentiate between these two phenomena.

Velocity of money and multiplier effect

Is there a particular multiplier effect for different sectors and different participants in the economy which can effectively increase the velocity of money as it flows through that part of the economy? As mentioned earlier, some authors point to Henry Ford who doubled his auto workers pay to generate demand for his automobiles. Ford implicitly understood money flow. If there is no demand for your product, you lose. If almost everyone is buying your product, you win. But your workers win too. It is a win-win situation. You make them richer, and they make you richer.

Typically, firms generate demand through advertising, but advertising alone may not be enough to generate sufficient demand during a recession. Even if intensive advertising during a recession increases the demand for your product somewhat, it may come at the expense of the sales of other businesses. To benefit the economy generally, the answer to a recession is increased money flow. The key questions are: When the economy is weak, how can the economy generate stronger money flow? Is there a particular multiplier effect for different sectors and different participants in the economy which can effectively increase the velocity of money as it flows through that part of the economy? Are the forces that attempt to create economic cycles inevitable, and, if so, what economic policies are appropriate at each stage of an economic cycle to counter these forces?

III. Causes of Poor Money Flow

SUMMARY: In addition to the relentless advance of technology in promoting capital (fixed costs) at the expense of labor (variable costs), there are other significant factors interfering with a healthy money flow for our economy. A major one is “pay-to-play” politics where special interests (primarily corporations and wealthy individuals) achieve undue influence over politicians and write legislation that promotes their agendas. The result is an assortment of laws and regulations that favor the special interests over the health of the entire economy. Tax loopholes and impediments to education with bankruptcy laws that favor business investment over educational investments. A highly distorted process for determining CEO pay and a demographic challenge in the form of the baby boomer retirement bulge further undermine effective money flow for promoting economic efficiency and growth.

***Citizens United* endorses “pay to play” politics**

The Supreme Court’s *Citizens United* decision in 2010 in effect completed the transition of government control from one-person-one-vote to one-dollar-one-vote. When the political establishment is controlled by

some of the wealthiest bankers, hedge fund managers and energy moguls, economic policy tends to be short-sighted. Directing most of the money flow to the wealthiest families in the short run, at the expense of the overall economy, can in the long run tend to make those very same families less wealthy than they would be otherwise. A slowing or contracting economy is good for no one. If the rich want to accumulate more and more money, they must provide a corresponding amount of goods and services to the working class and the middle class. My expenditure is your income, and your expenditure is my income. Taking earnings from working-class and middle-class labor at 35 percent in order to limit the tax on long-term capital gains and hedge fund managers' earnings to only 15 percent distorts the economy to benefit the wealthy. On the other hand, by allowing more money to flow to the working class in the short run, the wealthy can benefit even more and gain even more wealth along with everyone else in the long run. This is the advantage of thinking in dynamic rather than strictly static terms. A healthy, balanced economy creates a win-win situation where everyone benefits.

Special interests use “pay-to-play” to influence politicians to promote policies that distort the economy by directing a larger portion of the money flow to the special interests in the short run and create an I-win-you-lose situation where everyone loses in the long run. Large campaign contributions have given wealthy individuals and corporations special access to politicians to change their thinking on key economic issues. Joseph Stiglitz and others refer to how special access and undue influence can alter the thinking of policy makers as *cognitive capture*.²⁹ In its *Citizens United* decision, the Supreme Court reinterpreted our constitution and went against the intentions of our founding fathers by changing our one-person-one-vote system to essentially a one-dollar-one-vote system by declaring that corporations were *people*. It also allowed Political Action Committees (PACs) to finance campaigns to promote or defeat candidates for political office throughout the United States. In effect, these decisions transferred enormous power to wealthy individuals and corporations and fundamentally changed our form of government from a democracy to a plutocracy. One of the key ways that these special interests accomplish this is by having “captured” politicians insert specific lines into our tax code that are often referred to as *tax loopholes*.

Tax loopholes work well for the wealthy

Over many years wealthy individuals and corporations have been able to get politicians to insert lines into our tax code, which have become known as *loopholes*, that enable those entities to substantially reduce their tax payments or even avoid paying taxes altogether. The recent tax law passed by Congress and signed by President Trump did little to simplify the tax code or eliminate any of the *loopholes*. Instead it was

²⁹ Stiglitz, Joseph E. “Toward a taxonomy of media capture,” *In the Service of Power: Media Capture and the Threat to Democracy*, edited by Anya Shiffrin, Washington, D.C.: National Endowment for Democracy, 2017.

specifically designed to fool the American people by raising the standard deduction to \$24,000 so that fewer middle class taxpayers would be itemizing their deductions. This was presented as simplifying the tax code so that middle class taxpayers could complete their taxes on a “postcard.” And not be aware of the *loopholes*.

It is precisely the tax *loopholes* that explain why President Trump does not want to release his tax returns. No doubt that President Trump has paid little or no taxes. But that alone would not motivate him to avoid tax return disclosure. In fact, he would probably be proud to show that he was smart enough to avoid paying taxes. Rather he does not want the public to know the reason that he has been able to pay little or no taxes.

One of the key reasons would be the 750-hour rule. Under the Internal Revenue Code, IRC-469, the 750-hour rule says that anyone who spends at least 750 hours in any given tax year on property management can depreciate their property on their taxes making their “losses” fully deductible. Many Americans own property. But if you can’t prove that you, or someone you employ, has spent at least 750 hours in a given tax year managing your property, then this *loophole* doesn’t apply to you. However, if IRC-469 does apply and you own a \$200 million property, and you depreciate at ten percent, you can deduct \$20 million on your taxes in a given year. Basically, this means that you pay little or no income tax.

Ostensibly, the reason for IRC-469 was to account for the deterioration of property due to such things as weather damage, animal infestation or just being in a neighborhood that is losing value over time. However, the rule just takes a percentage of the property’s current value as the alleged “loss” of value. Ironically, if your property actually appreciates in value, you get to depreciate a greater amount as a “loss” on your taxes. It is not only inappropriate, but unfair to those who have real losses in their property’s value but don’t manage to spend at least 750 hours on property management in a given tax year.

This rule was added to the tax code under “pay-to-play” where wealthy individuals have contributed to the re-election campaigns of politicians in return for adding a line to our tax code. President Trump doesn’t want the 750-hour rule removed, because he can only serve for a maximum of eight years and will undoubtedly go back to property management when he ends his time as President. This is just one of the many rules designed to transfer the burden of paying taxes from the wealthy to the middle class.

By creating a separate business in an overseas tax haven, a business with a well-known brand name can dramatically reduce its tax liability. As a hypothetical example, imagine that your company’s brand name is “Sterling.” You create a business in an off-shore tax haven and sell your brand name to that new business. Every time you use the brand name “Sterling” you pay your off-shore business a royalty payment. This moves profits overseas and out of the reach of the IRS by creating another “cost” for your home business that then can be used to off-set revenues and lower taxes. Any business with a distinctive and well-known brand name can use this gimmick to virtually eliminate or substantially lower its taxes. It is hard for the IRS to determine the true free market value of such brand names so you can charge almost any value.

A similar method of tax reduction or elimination is used by creating a separate tax-haven company that sells unique inputs to your home company.

Tax deductions and credits can at first appear to benefit the middle class, but ultimately really primarily benefit the rich. For example, the mortgage interest deduction sounds like a great way to help middle class families afford purchasing their first family home. Of course, all persons who do not own a home are automatically excluded from this benefit, which immediately eliminates a lot of young people, a substantial portion of the working class, many members of the middle class and anyone else who rents. More importantly, the mortgage interest deduction can only be used by those who itemize their deductions. The standard deduction removes most middle-class and working-class taxpayers from that group. The more expensive the home purchased up to one million dollars, the greater the benefit from the mortgage interest deduction and the more likely the taxpayer will benefit from itemizing their deductions. In addition, up to \$100,000 of interest paid on a home equity loan can be deducted on your tax return.

At the end of the day the mortgage interest deduction turns out to be just another way in which the rich off-load their tax burden onto middle-class taxpayers. It also encourages further concentration of home-ownership in already densely populated areas by subsidizing the most expensive housing in the United States which tends to be concentrated on the east and west coasts. The mortgage interest deduction is great for Wall Street bankers and Hollywood movie stars but doesn't do much for the rest of us.

The capital gains tax can lower the tax rate paid on long term capital gains and dividends from stocks to as low as 15 percent. Of course, those who own the most stock get the most benefit. The wealthiest top 10 percent of Americans own 84 percent of all the stock so wealthy tax payers generally pay a lower tax rate than that faced by less wealthy taxpayers.³⁰ For example, Warren Buffett claimed that in 2011 his overall tax rate of 17.4 percent was lower than any of the other members of his office staff who presumably own a lot less stock.

The carried interest tax loophole applies to venture capitalists, hedge fund managers and partners in private equity firms. Their salary is renamed "paid compensation" and is treated as a distribution of investment fund profits. As such, it is considered as capital gains and taxed at a much lower tax rate.³¹ At Bain Capital, Mitt Romney's pay was treated as carried interest so he paid taxes at a much lower rate than most of the rest of us Americans.

³⁰ Wolff, Edward N. "Household Wealth Trends in the United States, 1962 to 2016: Has Middle Class Wealth Recovered?" *NBER Working Paper No. 24085*, November 2017.

³¹ Typically, the tax rate is 15 percent as opposed to the 35 percent tax rate paid by working-class and middle-class incomes. Here again, capital is given a dramatic and unjustified advantage over labor.

The problem is not just that some Americans are not paying for their share of the new aircraft carrier, but, in effect, they are transferring their share of those taxes onto the rest of us. We are paying their taxes for them. Our taxes would be lower if they paid their fair share. If you hate taxes and are secretly applauding the guy who got away without paying his, think again. You are paying his taxes for him.

The distortion of the rules and regulations that determine who pays and who benefits from government can be seen at the state level as well as the national level. After serving on the economics faculty of the University of Notre Dame for thirty years, I retired and moved to Kansas City, Missouri in 2005. On our first visit to the state capital in Jefferson City, my wife and I went to a restaurant near the capital for breakfast. Sitting near us were several men in conversation. Another man walked past and stopped to say to one of the men: “Good to see you, senator” and briefly exchanged pleasantries. After a while some of the men left and only the senator and one man remained. From the conversation it appeared that the man represented some business group. Before they got up to leave, we heard the man say to the senator: “You have been good to us, senator, so we want to do something for you.” He then handed the senator an envelope. We then understood why the interests of most regular people may not be so well represented. They fail to show up with envelopes.

CEO pay and the representative agent problem

Market inefficiencies point to broader and more serious interference in our free market system. From the time when Locke’s concept of private property was undermined by the divorcing of sweat equity from capital, the ownership of capital has become more and more separated from the control of capital. This problem is known in economics as the *representative agent problem*. This focuses on how the agent’s interests diverge from the interests of the owners. In particular, as Steven Clifford explained in this book, *The CEO Pay Machine*, corporate boards often formulate CEO pay packages with narrow, short-term incentives that divert chief executives from the long-term development and success of their corporations.³² CEO pay is not determined some anonymous, independent and efficient market mechanism, but by a board largely chosen by the CEO and largely made up of other CEOs who already have a cordial relationship of some sort with the CEO and are, more often than not, a group of older, white males.

The CEO pay package involves determining a peer group percentile ranking, compensation targets, performance measures, bonus ranges with bonus targets called bogeys, and equity awards along with a generous golden parachute in case the whole thing doesn’t quite work out. The board forms a compensation committee of insiders to work with a consulting firm that specializes in formulating CEO pay packages.

³² Clifford, Steven. *The CEO Pay Machine*, New York: Penguin Random House LLC, 2017.

The consulting company may have other business with the company where key decisions are being made by that very same CEO.

In “negotiations” with the board, the CEO has a pay-package consultant who specializes in maximizing the CEO’s compensation package. Every board has an incentive to set a high standard for CEO pay so when board members come up for review of their compensation to their companies, their fellow CEOs will also be generous with them.

In addition, the board has an interest in projecting a positive image for the company so they do not try to offer the fifty-percentile ranking for CEO compensation, but something closer to the seventy-fifth percentile or above. This creates an upward bias to CEO pay as the whole range of comparable CEO peer group pay spirals upward year after year. An inefficient market for CEOs can lead to inefficiencies in other markets.

The idea that the market will automatically correct such a fundamental flaw is naïve and many corporations with different profit-maximizing or revenue-maximizing time horizons coexist for extended periods without any sort of automatic correction.

When ability and sweat equity are separated from ownership, all sorts of inefficiencies can arise and persevere in such a system regardless of mistakenly labeling it as a “free market” system. In this case, not only are the workers and their sweat equity divorced from any ownership right to earn sweat equity in the capital with which they work, but the *representative agent* (CEO) often has interests that are somewhat different from the vast majority of the owners (stock holders) of the company.

When compensation boards are comprised primarily of other friendly CEOs, exactly who is representing the interests of the owners who purchased the company’s stock and the workers who did the work to produce the company’s products? Why are unions striking for higher pay seen as disruptions of the efficient operation of free enterprise while *The CEO Pay Machine* is often dismissed as the efficient working of supply and demand in an open, fair and free market? Exactly how does this process match marginal benefit to marginal cost? The current CEO pay process clearly does not represent the efficient allocation of resources in a free market. Quite the contrary, it is a significant and substantial market distortion.

But if it is wrong for CEOs to stick together to increase each other’s pay, isn’t it also wrong for workers to stick together by forming unions to raise their pay as well. The next section will address this issue.

Do unions restrict competition and free enterprise?

One rule of free enterprise is that resource allocation can become distorted when one party gets too much power in selling products or services such as monopoly, or in buying products or services such as a monopsony. Free enterprise works best when there is balanced and vigorous competition in every market.

There is a natural tendency for companies to act as a monopsony (single buyer of a particular type of labor) or an oligopsony (one of a limited number of buyers of a particular type of labor). Perfect competition assumes a large number of buyers and sellers of any particular type of labor service.

To understand the role of unions in maintaining a balanced and efficient allocation of resources in the face of a company's market power in competitive markets, see the 2018 Economic Policy Institute's research paper by Bivens, Mishel and Schmitt.³³

Consider a hypothetical situation. Imagine an isolated town where the dominant employer is Walmart. But to make this interesting let's assume that the ten Walmart checkout aisles compete with one another in hiring checkout clerks.

At first this works well. When one checkout lane offers too low a wage, it is shunned by potential employees who gravitate to the checkout lanes offering a higher wage. By the same token, if a potential employee demands too high a wage, a checkout aisle will look for some other potential worker who is willing to work for a lower wage. The laws of supply and demand effectively and efficiently solve the resource allocation problem of determining the equilibrium wage rate and employing all those willing to work at that equilibrium rate. For example, out of five workers, four get a supplier's surplus at the equilibrium wage, but one is exactly at his or her indifference wage and would not work for less. Meanwhile the employer is just willing to offer the fifth check-out lane job at the equilibrium wage and would not be willing to pay a penny more. This outcome maximizes employment and is optimal for the economy as a whole.

But then a problem develops. The checkout aisles band together and refuse to employ anyone at the equilibrium wage. Instead they set a wage rate lower than equilibrium. The balance of power has shifted. But everyone needs a job, and no other jobs are available in this small town, so most workers accept the new lower wage rate, although some do not, and others cut back on the number of hours they are willing to work. Of the five workers, one is an old guy who says: "Forget this. I would rather retire than work for peanuts." In this town the Walmart store has become a monopsony. In a monopsony the wage rate is set too low and the quantity and quality of labor is reduced. Labor resources are no longer allocated efficiently.

³³ Bivens, Josh; Mishel, Lawrence; Schmitt, John. "It's Not Just Monopoly and Monopsony: How Market Power Has Affected American Wages." Washington, D.C.: Economic Policy Institute, April 2018.

However, the Walmart workers band together and form a union. They demand that Walmart restore the old equilibrium wage rate. This restores the balance of power. The wage rate returns to its previous level where labor resources are allocated efficiently. The old guy comes back to work once the old equilibrium wage is restored. Technically the monopsony has not been broken up, but its market distorting effects have been countered and efficient resource allocation is achieved nonetheless.³⁴

Even in competitive markets, employers control blocks of jobs or labor “chunks” while each worker is on their own. It is a bit like being an unaffiliated individual in a neighborhood with many competing gangs. The individual does not have much power, no matter how competitive the gangs. Power is inherently unbalanced. Labor resources are wasted whenever jobs are lumped together into blocks or chunks.

Every country has limited resources: water, land, labor, iron ore, et cetera. When 98 percent of all workers worked in farming, land was the most important resource. Now only 2 percent of workers work in farming and highly-educated labor is the most important resource. Immigration can increase the labor resource, and education can increase the productivity of labor. Attracting more-educated people and providing more education to younger, less-educated immigrants can help sustain our national GDP to meet the needs of our rising pool of retirees, given the fall in birth rates in the United States in recent years.

The above discussion helps explain the determination of the wage rate and the quantity of labor supplied at that rate. In the next section we will explore the quality of labor supplied as well as the quantity.

Money flow and labor market productivity

Opportunity cost and productivity are key to money flow. At lower wages the quantity demanded of labor is higher, but the quality of labor is lower. Low labor quality means lower productivity. People often have alternatives in the non-wage sector. Elderly baby boomers may enjoy babysitting for the grandkids. College students may spend more time studying or playing online games. Househusbands or housewives may stay at home even when the kids are busy in school if the prevailing wage is too low. At low wages McDonald’s may find workers that are unreliable and unproductive. They may not get along with fellow employees and are rude to customers. They may show up late for work or not show up at all. Lowering wages is not the panacea that it is often touted to be. *Efficiency wages* offer wages above the market clearing wage needed to attract job candidates with equal or better labor market qualifications.

But what if the job involves knowledge that has to be learned on the job over a longer period of time? In that case it may be in the employer’s interest to pay the current job holder a higher wage than the market clearing wage. This creates a situation where the number of jobs for workers with a specific set of labor

³⁴ Too often the *ceteris paribus* assumption is applied where it is not appropriate, and solutions are proposed for a nonexistent world.

market qualifications is too low at that higher wage to employ the number of workers with those qualifications who are available to work at that wage. This means that unemployment persists because of qualifications that can only be obtained by working that particular job. This creates involuntary unemployment that persists, because firms are not willing to lower their wages, because they are afraid of losing their long-term employees who have acquired the job specific knowledge that has enhanced their productivity beyond that offered by workers who have no way of acquiring that knowledge without the on-the-job experience that only that job experience can provide.

Such unemployment does not go away with time. The economy does not automatically adjust. It is as if your car is running smoothly at 35 miles an hour, but you really need it to be running at 65 miles an hour. Government needs to intervene to stimulate the economy and increase employment beyond the sub-optimal level set by the free market economy. Once the 65 miles an hour level of employment is reached, the government can then back off and let the free market economy take over once again. Both politically and economically it is unacceptable for the economy to be left in a sub-optimal equilibrium where there is a high level of unemployment that has resulted from the setting of efficiency wages that are too high for the employment market to clear automatically on its own.

To maximize the economy's potential, high quality workers need to be enticed to enter the workforce. When wages are too low, workers do not earn enough to buy enough goods and services to keep the economy running at full steam. Employers do not make the profits they would have made if the economy were growing at its maximum potential. Most individual businesses are not large enough to have a substantial impact on their own. Raising wages may help attract better employees, but that increase in wages is dissipated over many other sources of goods and services so overall demand does not increase sufficiently to bring the economy up to its full potential. A larger, more sustained increase in demand may be needed when the economy is particularly weak. As more and more workers reach retirement age, we need to ensure that the remaining workers are fully employed to sustain our national GDP and meet the increasing needs of our population, including our ever-increasing pool of retirees.

Protecting and securing Social Security

In addition to saving for a "rainy day," people must save for retirement. More people are relying primarily on our Social Security System to cover their retirement expenses, and this growing trend is not helpful in ensuring a healthy overall economy. In the late 1970s and early 1980s I worked with my colleague Professor Meredith Scovill at the University of Notre Dame on a system dynamics model of the Social

Security System.³⁵ Using nonlinear systems of differential equations and numerical integration, we simulated the fate of our Social Security System into the future. Given the actual births that took place in the years up until 1975 and adjusting for death rates, we were able to simulate the number of people withdrawing money from the Social Security System into the future. Our analysis suggested that the Social Security Trust Fund would run out of money sometime after the baby boomer generation reached retirement. The system was going to go into the red; but would come back into the black as the baby boomers died off. Although we did our analysis independently, the Social Security Administration research group paid for our travel and hotel accommodations to present our results at their research workshop in Williamsburg, Virginia in 1978.³⁶ Research Director Fritz Scheuren, Wendy Alvey and other social security analysts took note of our results along with their own research and that of other independent investigators, and the Social Security Administration maintained a systematic program of building up the Social Security Trust Fund in anticipation of this revenue shortfall, and Social Security was made immune from general budget deductions by the Balanced Budget and Emergency Deficit Control Act of 1985, also known as the Gramm-Rudman-Hollings or GRH act.

The Social Security Administration has consistently and systematically collected more money through payroll and related sources than it paid out in social security benefits. The Social Security Administration has quietly purchased trillions of dollars in treasury securities over the years to prepare for the baby boomers' retirement. However, baby boomer death rates have been lower than some had expected so the savings are not quite enough to cover benefits until the baby boomer generation is gone.

The viability of Social Security is important not only to ensure adequate money flow to our senior citizens, but also to maintain sufficient demand for goods and services throughout our economy for a healthy and rapidly growing economy.

IV. Money Flow Pitfalls

SUMMARY: Economics is burdened with myths and false narratives. Too often policy is based on a simplistic view of the world where each person is assumed to make rational, independent decisions with perfect information and no transactions costs. Microeconomics is confused with macroeconomics, ignoring such phenomenon as the Paradox of Thrift where increased attempts by individuals to save more during recessions result in less, not more, aggregate savings. Public debt is confused with private debt, and unsuccessful attempts to balance the budget send the economy into a downward spiral. Politicians on both the left and right exhibit the lump of labor fallacy in assuming that the world has a fixed number of jobs to be fought over. A dynamic growing economy in a win-win world is sacrificed in pursuit of an I-win-you-lose economic strategy that brings everyone down.

³⁵ Marsh, L. C. and M. Scovill, "Evaluating the Future of a Self-Financed Social Security System." *Modeling and Simulation: Proceedings of the 1978 Pittsburgh Simulation Conference*. Pittsburgh, Pennsylvania, 1978.

³⁶ Marsh, L. C. and M. Scovill, "Using System Dynamics to Model the Social Security System." *NBER Workshop on Policy Analysis with Social Security Research Files*. Williamsburg, Virginia, March 15-17, 1978.

An imaginary world that distorts and denies reality

There are two worlds. There is the imaginary world and the real world. In the imaginary world, government plays a very minor role and individuals pursue their own self-interests for the benefit of everyone. I love this world. It is a simple world. It places free enterprise at the heart of our economic, social and political system, and rewards hard work and creative entrepreneurial investments. Competition drives businesses and their employees to work together to produce products of increasing quality at ever lower prices.

It is a very democratic world. Everyone is necessarily a consumer who can purchase most anything without regard to race, creed, color, gender, sexual orientation, transgender status, national origin or ethnicity.³⁷ Workers and businesses trip all over one another trying to satisfy the consumer who does nothing except benefit from the turmoil. Everything operates properly and automatically in this world. The economy automatically adjusts quickly to supply shocks and demand shocks. Government's role in this world is limited to national defense and the enforcement of contracts. Everything else is privatized to avoid bureaucracy and inefficiency.

Economists have carefully examined this imaginary world and have unfortunately found a large and substantial number of flaws in this otherwise perfect world. First of all, efficient resource allocation assumes adequate competition and the availability of accurate price and product information. It also assumes that most businesses, workers and consumers are rational, independent decision makers who will adjust their behavior, at least on average, to changing market forces and conditions. Dan Ariely reports on careful scientific experiments that show that not only do people behave irrationally, but their irrationality is sufficiently systematic and consistent that it can be accurately and reliably predicted.³⁸

The imaginary economic world does not adequately allow for contagion effects and systematic mistakes that affect entire markets, and, ultimately, the country and world as a whole for extended periods. It assumes that businesses, workers and consumers have full information and an unlimited amount of mental energy, at least on average, to calculate and recalculate every economic decision that they face.

³⁷ There are some people who argue that it is their religious right or obligation to discriminate against others on the basis of some private, personal characteristic. However, a business transaction is subject to contract law and other regulations. It is an economic transaction that is qualitatively different from a social transaction such as giving someone a gift. Discrimination in economic transactions is not allowed under the law. Social transactions are very different from economic transactions. Don't try to pay your mother-in-law \$50 for the great Thanksgiving dinner she made for your family. It will not be appreciated. People with poor social skills often do not understand the difference between an economic transaction and a social transaction.

³⁸ Ariely, Dan. *Predictably Irrational*. New York: HarperCollins, 2008.

No large, substantial group is ever tricked, deceived or conned to any significant degree for any significant amount of time in this imaginary world. In any case, markets always quickly and automatically adjust to any flaw found in this imaginary money flow system.

This is not just about one-off cases such as the Bernie Madoff affair, but system-wide distortions using financial derivatives in real estate markets that led to the 2007-2008 financial crisis.³⁹ Ever since the invention of money, there have always been distortions and disruptions producing panics and recessions, and occasional extended and extreme country-wide and world-wide depressions. Common sense suggests that we should try to anticipate possible distortions and take effective action to prevent them rather than assuming that it won't happen here, or it won't happen again. A prudent family plans for possible job loss, health emergency, accident or losses from fire, tornadoes or hurricanes. As a nation we should plan for disruptions to our economy, so we can respond more quickly and effectively to maintain proper money flow for a healthier, more stable economy over the long run.

As discussed earlier, one long-term cause of income inequality is the natural tendency for wealth to accumulate at the top as a result of the transition from a largely variable-cost economy to a largely fixed-cost economy. This tendency directs more and more wealth to the owners of capital and relatively less wealth to workers.

Another important cause of income inequality is the decline of the old aristocracy and the rejection of *noblesse oblige* by the *nouveau riche*⁴⁰ and its replacement with the “winner-take-all” and “pay-to-play” system as described above. The old eastern elite maintained a low profile while exhibiting a strong sense of duty to serve others, or at least to not blatantly tout their wealth and exploit others. Their collective memory of the French and Russian revolutions kept them from getting carried away in amassing or displaying too much wealth. However, in the early 20th century new capitalists emerged such as John D. Rockefeller and Andrew Carnegie, who ignored *noblesse oblige* and accumulated vast wealth. They eventually learned from popular outrage and government anti-trust action that they needed to re-route the money flow back to the people through their family foundations. More recently, Bill Gates and Warren Buffett have used the Gates Foundation for this purpose.

³⁹ The largest number and proportion of failed mortgages occurred in the private sector. Attempts to blame Fannie Mae and Freddie Mac, which had a much lower number and proportion of failed mortgages, are misguided at best. The financial crisis of 2007-2008 was largely due to and ultimately triggered by the creation and sale of aggressively marketed mortgages, mortgage-backed securities and other poorly conceived and unstable financial derivatives. The creation and use of such derivatives was a purely private sector operation.

⁴⁰ Deneen, Patrick J. *Why Liberalism Failed*. New Haven: Yale University Press, 2018.

The application of micro solutions to macro problems

In the world of microeconomics, when you spend the money, it's gone! But when an individual spends money in the macroeconomic world, the money is not gone. It just moves on. We often make the mistake of using microeconomic analogies to prescribe macroeconomic policies. Saying "when you spend the money it's gone" may make sense for an individual or a business, or even for a particular governmental unit, but it is not a useful analogy for setting macroeconomic policy. When you pay for your food at the grocery store, the money goes to pay store clerks, to pay growers to replenish inventory and to pay the rent, among other things. The real issue is how strong is the overall demand for goods and services relative to the productive capacity of the economy.⁴¹ Distorted money flows can lead to inflation or unemployment. Understanding money flows is the key to avoiding recessions.

A balanced budget is not the same as a balanced economy. Money flows through the economy as blood flows through the body. Inflation is an aneurism caused by too much money chasing too few goods. The pressure from the money flow outstrips available goods and services. Alternatively, congestive heart failure occurs when money piles up in corporate coffers. This occurs when investment opportunities are unavailable, because demand is inadequate. Why add more plant and equipment and employ more workers if you can't sell all of the product you are already producing?

A healthy economy requires the right balance between the flow of money going into demand and money going into investment. Too much demand leads to inflation. Too little demand reduces investment opportunities and leads to recession. When demand is too strong, the money flow needs to be directed away from consumption and into investment. When demand is too weak, more money needs to flow to consumers to spend.

Achieving optimal money flow requires selecting from a number of possible ways of distributing the money. Infrastructure spending will have a much different effect than tax cuts, especially if the tax cuts primarily benefit the rich. An important aspect is generally knowing where the money is going and whether it will be used primarily for consumption or investment. In addition, the multiplier effect and velocity of money reveal the full impact of an increase in money and how quickly the money will pass from one person or entity to the next person or entity. The velocity of money is different along each path with a different

⁴¹ Imports and exports must also be taken into account. Part of our productive capacity is used to produce exports. Imports help satisfy some of our demand for goods and services without requiring additional productive capacity. There are times when some markets being out of equilibrium (e.g. imports greater than exports) can compensate for other markets being out of equilibrium (e.g. more demand for goods and services than productive capacity to supply those goods and services). The *theory of the second best* tells us that trying to force equilibrium in one market (e.g. balance imports with exports) can make matters worse rather than better. For example, if imports are helping to satisfy demand when our economy is already at productive capacity, restricting imports to balance exports can lead to an imbalance in financial markets (inflation).

multiplier effect so tracing the flow of money is important to determine the ultimate impact of any given economic policy.

In another application of microeconomics, we are told that nations, like families, should be fiscally prudent. We should balance our budgets so that our outflows exactly match our inflows. Some people claim that the government should act like any responsible family. They claim that a responsible and prudent family will always balance its budget. It will make sure that its expenditures always exactly match its income. But this idea is wrong! A prudent family will not match its inflows to its outflows. A prudent and responsible family will save money. It will save some of its income in anticipation of tough times.

When times are good, a prudent family will put aside money in anticipation of hard times to come. When a recession strikes, and the family bread winners lose their jobs or prices rise suddenly, the prudent and responsible family will be able to withdraw from its savings account (deficit spending!) to keep the family expenditures on an even keel. The family will be able to continue to put food on the table, to pay its mortgage and cover their children's needs. It won't be necessary to move to a cheap apartment, withdraw the children from extracurricular activities, skip the holiday presents and cut back on clothing and food expenditures. As long as the recession does not last too long, the prudent family can get by without major adjustments until the breadwinners find new jobs in a revived economy.

Government is in a similar situation. In good times it is not sufficient to balance a government's budget. Savings are essential. When the economy is running on all cylinders, economy-wide tax cuts are not appropriate. That is the time to pay off debt and avoid overheating the economy. Fiscal conservatives recognize that it is not an appropriate time for tax cuts to pay off the wealthy for their political campaign contributions. When unemployment is low and the economy is running at full capacity, that is the time to run a budget surplus and pay down the national debt.

If a city has no savings account, and revenues dry up during a recession, the city will have no choice but to lay off teachers, fire fighters and police. Farsighted states and localities will follow the prudent family's example. Several states from Alaska to Texas have "rainy day" funds. When recession strikes, they do not have to layoff teachers, firemen and police officers. They just withdraw money from their "rainy day" fund until the crisis has passed. Some cities such as Kansas City, Missouri have reserve funds for this purpose. Even my neighborhood homes association has a reserve fund to smooth out payments for snow removal, because the snowfall varies so dramatically from winter to winter.

It would be foolish to think that good times will last forever. While each economic crisis is in some way unique, we cannot expect the economy to maintain full employment and run at full capacity from now until eternity. Every family, locality, state and nation should prepare itself for the next economic downturn.

Treating government as outside the system

Even though government is a major component in the functioning of an economy, some analysts treat government as an outside force that is exogenous to the operation of the economy. Pretending that government is exogenous, or should be exogenous, is not a realistic way to analyze and understand the economy. The Federal Reserve does not make decisions independently of the behavior of the economy. Although the Fed, as currently structured, has a limited and somewhat restricted tool kit to influence the economy, it is not too hard to anticipate how it will react to particular economic conditions. *Ceteris paribus*, the Fed will raise short-term interest rates when excessive inflation threatens. When recession looms, more money will be made available in the treasury securities markets and rates will fall. Any mathematical model of the economy must take the government's behavior into account in forecasting economic outcomes.

The biggest flaw in economic thinking is treating government as an exogenous actor. The problem arose when Kenneth Arrow correctly showed that individual utility functions cannot be aggregated. This is due to not being able to add my units of utility to your units of utility in a meaningful way, but also to the whole being greater than the sum of the parts. Government is treated as an alien force from outside the perfectly competitive world of economics that interferes with the efficient allocation of resources.

But a utility function is just a concept that economists made up to express our willingness to pay for things regardless of whether they are useful or not (e.g. a pet rock) or in our best interest or not (e.g. a dangerous illegal drug). From an economist's point of view, it is a positive as opposed to a normative concept. It is not a goal to be imposed on the individual, but a concept to capture and summarize the individual's actual behavior. Revealed preference is based on this conception of a utility function. By the same token, we can conceive of a national utility function that expresses our willingness to pay for another aircraft carrier. Arrow was correct that this utility function cannot be derived directly from our individual utility functions. But that doesn't explain the choice of an aircraft carrier. Such a choice can be captured in a national utility function. Unlike social welfare functions that express welfare goals, the national utility function merely reflects the tradeoff decisions involved in deciding how much of the nation's resources go into military spending as opposed to education or infrastructure spending, et cetera. In this sense the national utility function is similar to an individual's utility function where no judgment is made about the usefulness or virtue of a pet rock or an illegal drug.

Our national desire for another aircraft carrier is not explained in our voluntary individual allocation of money, but is, in theory, expressed in our votes and those of our democratically elected representatives. When it is time to pay taxes, we do not decide how much we would like to pay the government this year. That choice was made together with our fellow citizens through the democratic process. But a national utility function exists just as surely as each of us has an individual utility function.

As a nation we have a utility function that reflects our choices as a nation. We should recognize our national utility function just as we recognize the utility function of another person in a financial transaction. There exists a contract curve that defines the Pareto optimal points representing the trade-off between maximizing our own individual utility and maximizing the utility of the nation as a whole. The Pareto optimal trade-off plays out when we want to pay less in taxes but get more in government services. That might work in eliminating inefficiencies when we are off of the contract curve, but not when we reach it.

At every level of government, taxation and expenditures reflect the voters' joint utility function. In some cities you have a choice between paying the city to pick up your trash or having a private contractor pick up your trash. I have a neighbor who offers to take my leaves and yard waste to the city dump for a small fee. Why do we treat the neighbor and the contractor as legitimate economic actors, who do not disrupt the efficient allocation of resources, but insist that the government is an external force that creates deadweight loss in almost every situation? If the government actions reflect the joint utility function of the voters, then they are acting like my neighbor who gets some pleasure from helping me and some benefit from the small amount he charges me for the trash removal.

By choosing to live in a particular municipality, I am implicitly or explicitly entering into a contract to be bound by the decisions based on the joint utility function of that municipality's voters. Positive and negative externalities are then internalized such that correcting for them becomes part of the formalized social contract with my fellow citizens. Government then is no longer an external alien force, but a legitimate, albeit powerful, economic player in the story of efficient resource allocation in our economy.

If a governmental unit is the only entity providing a product or service (e.g. national defense), then it should be treated in economics as a monopolist. But instead of maximizing profits, it is maximizing the voters' utility function. If it is the only buyer (e.g. fissional material exclusively used for nuclear bombs), then government should be viewed as a utility maximizing monopsonist. If a police department competes with a large number of other police departments across the country in hiring from a large pool of qualified police officers, then the government is operating in that circumstance in a perfectly competitive market. The industrial organization of the public sector can be just as complicated as that of the private sector.

Recognizing national, state and local governmental utility functions certainly complicates economic analysis, but it incorporates government into the world of economics in a more meaningful way.⁴²

⁴² Hopefully, eventually we will have to add an international utility function, if the United Nations and/or other international organizations reach a point where they achieve a meaningful ability to both command resources and make expenditures in a manner that in some sense reflects the will of the people through their national representatives. Combatting climate change and governing the world's oceans along with avoiding incoming asteroids and extending human civilizations throughout the universe may ultimately bring this into reality.

This requires rewriting economics textbooks to treat government as a legitimate player with its own utility function and not an outside force disrupting the efficient equilibrium established by the legitimate players.

Debt or economic death spiral

The concepts of money, nations and corporations owe their existence to our creative imaginations. As Yuval Noah Harari⁴³ has pointed out, homo sapiens gained superiority over other humans and animals through their ability to create common myths, or what Nobel Prize winner Daniel Kahneman⁴⁴ calls “heuristics.” These commonly shared rules of thumb or mantras control our day-to-day existence much more than we realize. Misguided, shared beliefs such as the sun revolving around the earth, the efficacy of trickle-down economics, or the denial of human involvement in climate change can lead us astray for generations.

Many of our economic institutions and much of our day-to-day economic activities follow from the economic theories of deceased economists. The idea that “you cannot solve a debt problem by adding more debt” is a nice sounding heuristic, but mixes apples with oranges when it confuses private debt at the micro level with public debt at the macro level. Adding public austerity to private austerity does not create prosperity, but just a downward spiral leading to even greater debt and more austerity.

As noted above, a nation in an economic downturn is like a car moving slowly at 35 miles an hour. When entering a highway, to increase the speed of a car traveling at 35 miles an hour to a speed of 65 miles an hour, we have to step on the gas. Once that injection of gas has brought us up to 65 miles an hour, it doesn’t take that much gas to just cruise along at 65 miles an hour. We are better off taking action to restore the health of our economy in the short-run than prolonging a recession to wait for recovery. A longer recovery means less productivity in the long-run.

Ironically, when a recession develops, running a budget deficit in the short term can get us back on track more quickly and enable us to reduce our long-term debt. An economy running at full speed will always be more productive and generate more revenues than one held back by our reluctance to act decisively to bring our economy out of a recession.⁴⁵

⁴³ Harari, Yuval Noah. *Sapiens*. Tel Aviv: Kinneret, Zmora-Bitan, Dvir., 2011.
Harari, Yuval Noah. *Homo Deus*. New York: HarperCollins, 2016.

⁴⁴ Kahneman, Daniel. *Thinking Fast and Slow*. New York: Farrar, Straus & Giroux, 2011.

⁴⁵ Krugman, Paul R. *End This Depression Now!* New York: W. W. Norton & Company, Inc., 2012.
Also see Paul Krugman’s commentary that discusses these issues in more detail at <http://www.economicshelp.org/blog/5342/books/end-this-depression-now-review/>

The lump of labor fallacy

A misguided approach to dealing with unemployment that is based on a static rather than a dynamic understanding of our economy is the *lump of labor* fallacy. According to the lump of labor belief, an economy has only a set number of possible jobs for its population. Low-cost foreign labor and labor-substituting technologies can take jobs out of this static pool leaving a long-term deficit in jobs for our current workers and future workers. Again, the static thinkers see the world as a fixed pie to be fought over in an I-win-you-lose struggle.

Static thinkers complain that China is selling us products at prices that are too low. Would you go to the manager of his neighborhood grocery store and complain that the store's prices are too low? Would you tell the manager that you want to pay more so that the store can afford to hire more employees? But paying more for the same amount of groceries will not induce the grocery store to hire more workers.

Static thinkers on both the left and the right suffer from this lump of labor fallacy. Too many Democrats and Republicans assume that there is a fixed number of jobs in this world, and we need to fight over them. If the Federal Reserve were allowed to make money available to states for infrastructure improvements or some other fiscal stimulus when the economy needs it, we could maintain a proper money flow and keep most people employed. Restricting the Fed to traditional monetary policy is not sufficient to maintain a healthy economy. Under our current system, full employment requires fiscal policy adjustments from time to time to keep the economy on track without triggering excessive inflation.

Don't destroy our automatic stabilizers

Economists have long recognized that what works as an incentive and improves welfare in a person's micro economy can sometimes have the opposite effect in the macro economy. In the typical introductory economics course ("Principles of Economics"), we explain the *Paradox of Thrift*, where in a recession each family cuts back on expenditures out of fear of the family breadwinners losing their jobs. Ironically, each family's attempt to save more at the micro level contributes to a cut back in the demand for goods and services at the macro level, causing additional layoffs and a downward spiral that ultimately results in a reduction (rather than an increase) in total national savings.

Economists have come to understand that the assumption that people are independent decision makers who ignore what others are doing is fundamentally incorrect. People act in concert with one another either intentionally or unintentionally. They warn their neighbors about layoffs at local businesses and try to reduce or even minimize their expenditures at such times accordingly. Ant colonies and birds in flight

are not the only ones who act in unison. Humans do it too. Pretending that contagion effects are not common ignores economic history in its entirety.

It is ironic that doing the right thing at the micro level can cause significant damage at the macro level. Families are right to save more, but politicians are wrong to ignore the aggregate impact of such behavior on the overall economy. You don't have to do a lot of complicated mathematics to understand the need for action to counter contagion effects.

Automatic stabilizers help keep demand from falling too abruptly so that more people can keep their jobs, and government revenues at all levels do not fall off a cliff.⁴⁶ The primary automatic stabilizers include unemployment insurance, food stamps, Medicaid, CHIP (KIDS) and other such programs specifically designed to help people who have been thrown out of work or are otherwise unable to support themselves and their family during economic downturns. Another automatic stabilizer is the progressive nature of our income tax schedule. Under our tax structure when incomes fall, the amount owed in taxes falls more quickly.⁴⁷ This helps keep demand for goods and services from falling too abruptly. When the economy goes south, these programs help maintain essential demand to keep other people employed and stop the downward spiral. Automatic stabilizers have been weakened in recent decades as companies have shifted from reliable defined-benefit retirement pension plans to variable defined-contribution plans which produce retirement accounts that tend to rise and fall with the stock market. There are also more temporary and part-time workers. Such workers are typically not eligible for company retirement plans and end up relying solely on Social Security and Medicare.⁴⁸ Along with contract workers, these workers comprise almost twenty percent of today's workforce.

Setting aside the debate about whether we should be helping people in distress, a healthy economy requires that we prevent a substantial drop in revenues at all levels of government that would throw millions of government workers out of work, which in turn would cause a dramatic drop in demand for goods and services and result in layoffs in private businesses throughout the economy.

A balanced budget amendment to the Constitution of the United States would forbid deficit spending, prevent the activation and expansion of safety net measures, effectively destroy many of our automatic stabilizers, and substantially deepen and lengthen economic downturns. Without the automatic

⁴⁶ McKay, Alisdair, and Ricardo Reis. 2013. "The Role of Automatic Stabilizers in the US Business Cycle." *Econometrica* 84(1): 141-194.

⁴⁷ Auerbach, Alan J., and Daniel Feenberg. 2000. "The Significance of Federal Taxes as Automatic Stabilizers." *Journal of Economic Perspectives* 14(3): 37-56.

⁴⁸ Biewen, Martin; Bernd Fitzenberger; and Jakob de Lazzar. 2018. "The role of employment interruptions and part-time work for the rise in wage inequality." *IZA Journal of Labor Economics*, Vol.7(1), pp.1-34.

stabilizers, instead of a recession with around 10 percent unemployment, we might well end up with a full-blown depression with 25 to 30 percent unemployment.

The liquidity trap

Too often in economics we follow the misguided prescription of prolonging suffering to cleanse the body and make penitence. While it is important and reasonable to allow Joseph Schumpeter's creative destruction to weed out weak businesses and elevate more productive and efficient businesses at the micro level on a day-to-day and year-to-year basis, there is no justification for, and nothing to be gained by, taking the entire economy into a prolonged recession at the macro level.

The problem with waiting for the economy to return to an equilibrium on its own is that it may take a very long time, and it may stabilize at the lower than full employment level due to the *liquidity trap*. The *liquidity trap* exhibits interest rates for risk-free assets that have essentially reached zero and cannot fall any further. Since savers are generally not willing to pay a bank to hold their money, and the bank itself is not willing to lend out money at close to zero interest, the money piles up, and is spent on neither consumption nor investment. Injecting more money into an economy in a *liquidity trap* is like stepping on the gas when your car is in neutral. The gears go around and around, but the car goes nowhere.

The problem is that as currently structured the Federal Reserve system is designed to put money into the hands of investors, not consumers. If the economy is running at full capacity, investors will invest in new plant and equipment to try to satisfy the excess demand. But if the economy is in recession, businesses will not be interested in adding another production line when their existing production lines are not being fully utilized. Moreover, consumers may be slow to respond to price adjustments. Even when prices fall significantly it may take consumers several quarters to fully respond to a lower level of prices. Mankiw and Reis argue that it is information, and not the prices *per se*, that are sticky.⁴⁹

The solution when faced with a *liquidity trap* with sticky prices/information is to use fiscal policy to direct the flow of money to consumers. As mentioned above, consumers will then spend the money on cars, clothes and meals out at restaurants. Unlike the rich, they will not just sit on the cash, or use it to buy expensive paintings and real estate, or trade existing stocks and bonds, all of which do not require additional production of goods and services. The production and productivity improvements forgone in a prolonged recession will never be made up. In other words, the production and productivity lost by an unnecessary delay in returning to full employment will be permanently gone. The unnecessary delay just creates a permanent setback for the economy as a whole and for all of our individual businesses and

⁴⁹ Mankiw, N. Gregory, and Ricardo Reis. "Sticky information versus sticky prices: A proposal to replace the new Keynesian Phillips curve." *Quarterly Journal of Economics*, 2002, 117(4), pp. 1295-1328.

families. It is pointless and unnecessary. Economic policy must optimally intervene, and such a balanced approach is discussed below.

V. Money Flow Solutions

SUMMARY: Our Federal Reserve system must be changed to allow the injection of money directly to consumers to reinforce demand when our economy is operating at less than full capacity. In addition to countering short-term fluctuations in our cyclical economy, many other economic problems need to be properly addressed ranging from protecting and preserving Social Security, discouraging excessive CEO pay and establishing more appropriate levels of taxation including for estate and inheritance taxes. Our founding fathers were unable to anticipate the complexity of a modern economy. Although important changes have been made such as the creation of our Federal Reserve System, additional changes need to be made to protect the independence of that system from presidents and politicians who are too caught up in their own immediate political needs and are not sufficiently knowledgeable about economics to act in the most effective manner to keep our economy on track. Consequently, the United States Constitution must be amended to provide for a separate and independent fourth branch of government tasked with establishing and maintaining prosperity.

Federal Reserve policy prevents high inflation

It is certainly true that issuing too much currency can undermine that currency's value. However, when the United States Treasury sells treasury bills, bonds and notes in the New York treasury market in return for cash, and the Federal Reserve buys an equal amount of treasury securities in that same market, it is not all that much different from the Treasury just printing up money. The only real difference is our current monetary system allows the Federal Reserve to control how much money is in circulation. Whereas if the Treasury printed money and used that money directly in any way it wanted, there would be no independent control of our currency by the professional economists on the Federal Reserve Board. The politicians would be free to water down the value of our currency whenever they chose to do so without interference. Dismantling the Federal Reserve System and allowing the Treasury to directly print money, instead of having to issue treasury securities, could eliminate the debt, but at the expense of losing control of the money supply.

The debt exists as a mechanism in the form of treasury securities to soak up cash from the open market to match the same amount as the Treasury is using to help fund additional federal programs. If the Federal Reserve, or some other government agency such as the Social Security Administration, does not step in to buy treasury securities and, instead, those securities are purchased by the private sector, then money is being transferred from the private sector to the public sector to fund public programs. One difference between that and taxation is that the purchase of treasury securities is voluntary.

No one is forced to buy treasury securities any more than they were forced to buy war bonds during World War II.

Since treasury securities are short-term debt, they can either be sold at any time in the financial markets or held until maturity, which in most cases is one year or less. Treasury securities have very low rates of return, because they are considered to be highly secure in as much as they are directly backed by the Federal government in the same sense that any registered bank's certificates of deposit are backed by the Federal Deposit Insurance Corporation (FDIC).

Financial markets alert to excessive federal debt

Our financial markets will warn us when federal debt starts to become excessive. To understand how this works we must first consider how debt, such as public or private bonds, operate in money flow, and examine the inverse relationship between a bond's price and its interest rate. This is best understood by comparing new bonds with old bonds. Each old bond has a coupon amount that is paid at regular intervals such as monthly, quarterly or annually regardless of that bond's current price on the bond market. The old bond's interest rate is applied to the bond's original price on the day it was issued, which in turn sets the fixed coupon value. For example, say that an old bond was originally sold for \$2,000 with an annual interest rate of 4 percent so it pays a coupon of \$80 annually. If the demand for bonds falls, their prices will fall. The fall in price does not affect the \$80 coupon amount paid by the old bond. That \$80 is still paid annually. An old \$2,000 bond just issued at 4 percent would fall in value to \$1,000 if new \$2,000 bonds were suddenly offering 8 percent because some bad news caused a dramatic drop in demand for \$2,000 bonds. In a relative sense, you can think of it as the price of old bonds falling or the interest rate on new bonds rising. It is just two sides of the same coin. This simple example shows the inverse relationship between the price of the old bonds and the interest rate offered on the new bonds.

Saying that the government has issued too much debt implies that the supply of debt is becoming too great relative to the demand for debt. But if that were true the price of government securities (bills, bonds or notes) would be falling dramatically and the interest rate on government debt would be rising substantially. The open market for treasury securities is not telling us that, but rather the opposite. The interest rates on treasury securities remain quite low, even the longer-term securities that are not directly affected by the Fed's open market operations. Our free enterprise system and open financial markets are still generating plenty of demand for government securities. The interest rates on longer term government securities are at historic lows. The idea that the time is near when we will be overwhelmed by an excessive supply of government securities is not at all verified by the financial markets. The empirical evidence is saying exactly the opposite. That doesn't mean that we should be piling up mountains of more

debt, but only that the size of our debt is not an immediate problem. Paying off public debt in the long run should be secondary to maintaining a healthy economy in the short run. Ultimately these two goals are compatible in as much as maintaining a healthy economy in the short run will maximize tax revenues in the long run when everything else is accounted for.

The key is in determining the optimal money flow. The elite can make America great (again) by investing in America by supporting higher tax rates for higher income categories. Through their generous tax payments on the demand side and investments on the supply side wealthy Americans can help maintain a healthy level of supply and demand. Poor money flow results in the well-known *liquidity trap*⁵⁰ where resources, especially labor resources, go unused, and equilibrium occurs only in a non-existent, theoretical world of negative wages and negative interest rates.⁵¹

Make estate taxes more attractive

The new tax law that passed Congress in December of 2017 doubled the exemption for the federal estate tax to \$11.2 million starting with the 2018 tax year. The estate tax applies to less than two-tenths of one percent of deaths in the United States. Ninety-nine and eight-tenths of Americans pay no estate tax whatsoever. Even though the tax is supposed to help create a level playing field and equal opportunity for each new generation of Americans, it is reviled as the “death tax” by some of its detractors.

Perhaps a way to make the estate tax more palatable to the wealthy would be to allow them in advance of their death to direct their future estate tax payment to particular federal programs with a check list of such programs on IRS estate tax forms or on the IRS website. Those expecting to pay especially large sums could request that a bridge, road, school or federal building be named after them. If the program required at least a ten-million-dollar tax payment and the wealthy person or business owed less in taxes than the required cut-off amount, then that person would be allowed the option of requiring the executor of their estate to pay an extra amount out of their estate to make them eligible for the program.

Wealthy individuals, who want some sort of edifice to memorialize their life work, but who don't want to raise their family's ire by failing to give all their wealth to their heirs, might secretly welcome such a tax program. Unlike giving away their money to charity, their heirs can't be mad at them if the IRS was going to take the money anyway. In fact, heirs might be proud that a nearby school is given the family name, especially if it was paid for with money that the heirs were not going to be able to get anyway.

⁵⁰ Krugman, Paul R. “It's Baaack: Japan's Slump and the Return of the Liquidity Trap.” *Brookings Papers on Economic Activity*, 1998, (2), 137-205.

⁵¹ Real interest rates can be negative when nominal interest rates fall below the rate of inflation, but a negative nominal interest rate economy is not realistic.

Instead of feeling like a sucker for paying such a substantial portion of federal tax revenues, a wealthy tax payer might feel some pride in contributing to the nation. Of course, the deceased taxpayer would have to either indicate their willingness to participate in the program in advance in their will or delegate that responsibility to the executor of their estate.

If states created similar programs for their inheritance taxes in recognizing those who make substantial tax payments, we may see a dramatic change in the attitude of those who pay the most in those taxes. As an heir to a massive inheritance, you could have the choice of either having a government structure named after the deceased or after yourself. For a formula for establishing an optimal level of inheritance taxation see Piketty and Saez (2013).⁵²

But would such a plan be practical? Wouldn't it introduce a lot of complicated bureaucracy and red tape and cost more than it would be worth? In effect, the answer to these questions has already been provided by kiva.org and in the fact that money is fungible. Years ago, my wife and I loaned money to microfinance projects run by some poor women in a developing country through kiva.org. When the money was paid back, we would then designate our loan money for another project. But after a few years we got busy and didn't get around to designating someone to be the recipient of our loan money. It didn't matter. The funding process was separate from the labeling process. Funding was done first and labeling came after the fact.

If Warren Buffett were to indicate his willingness to participate in the program on the appropriate IRS form for designating a future estate tax payment in his name, then somewhere in the United States (hopefully near Omaha, Nebraska) an elementary school might be designated the "Warren Buffett Elementary School." Alternatively, based on Buffett's ordered preferences and current project availability, authorities might dedicate the "Warren Buffett Bridge," the "Warren Buffett Tunnel" or the "Warren Buffett Federal Building." A section of some interstate highway could be designated the "Warren Buffett Expressway." Of course, you only get to die once so you would only get one such edifice named in your honor. Kiva.org already has this labeling process highly computerized. The IRS could create similar software as a small addition to the computers in the IRS public relations office.⁵³

⁵² Piketty, Thomas and Emmanuel Saez. "A theory of optimal inheritance taxation." *Econometrica*, September 2013, 81 (5), pp. 1851-1886.

⁵³ For less wealthy individuals, we could follow the example of India which each year emails taxpayers who have paid more than 100,000 rupees in taxes a formal "Certificate of Appreciation" for their patriotic contribution to the nation.

Protecting and securing Social Security

In 2015 the annual surplus was \$23 billion which brought the combined Old-Age, Survivors, and Disability Insurance (OASDI) trust fund reserves to a total of \$2.81 trillion at the beginning of 2016 which corresponded to a 303 percent increase over the estimated annual Social Security payments and related expenditures for 2016. The OASDI fund is expected to rise to around \$2.9 trillion by the end of 2019.⁵⁴

Falling fertility rates and lower immigration rates are reducing the earnings tax revenues generated from the 6.2 percent Social Security tax rate on earnings. At the same time the baby boomer bulge has begun entering the retirement years placing an ever-increasing demand for retirement benefits from the system. The Social Security administration estimates that by 2034 Social Security benefits will need to be reduced to approximately 79 percent of their current values if nothing is done to augment the flow of money into the system. The system can either be sustained at lower benefit levels or adjusted to increase revenues.

One way to solve or help solve the temporary shortfall in Social Security revenues would be to remove or raise the \$132,900 earnings cap that was set for 2019 and thereafter. Another would be to increase the tax rate from the 6.2 percent tax on earnings to 7.2 percent. An increase in the number of working age immigrants entering the United States labor force would also help increase the Social Security payroll tax revenues and help replace baby boomers in the work force as they retire. Less popular options would be to raise the retirement age from 65 to 70 or to significantly reduce Social Security benefits.

Extend Medicare to replace inefficient private health care system

Implementing Senator Bernie Sander's single-payer Medicare-for-all proposal could substantially reduce health care costs. Senator Sander's claim that Medicare administrative costs were only 2 percent while private insurance administrative costs have ranged from 12 to 18 percent has largely been verified by a Politifact investigation by Manuela Tobias.⁵⁵ Tobias reported that the 2017 Annual Board of Trustees Report for the Medicare Trust Funds showed Medicare expenditures of \$678.7 billion for 2016 with \$9.2 for "administrative costs." Tobias points out that this comes to a ratio of 1.4 percent (lower than the Sander's claim). She also noted from various official sources that private insurance administrative costs ranged from a low of 11 percent in the large-group market to 20 percent in the individual market. However, she also points out that Medicare benefits from individual data already maintained by Social Security and by a less aggressive approach to restricting payments. None-the-less, along with the substantially lower health care

⁵⁴ Pattison, David. "Social Security Trust Fund Cash Flows and Reserves." *Social Security Bulletin*, 2015, 75(1), pp. 1-34.

⁵⁵ Tobias, Manuela. "Comparing administrative costs for private insurance and Medicare." *PolitiFact*. www.politifact.com/truth-o-meter/statement/2017/sep/20/bernie-s/comparing-administrative-costs-private-insurance -a/

costs for equal or better treatment in other industrialized countries, these results indicate that a lot of money could be saved both by switching to a single-payer Medicare-for-all program and negotiations with pharmaceutical companies to lower drug prices. Providing for the health care needs of all Americans could reduce the incidence of illness allowing them to lead more productive lives.

Need to coordinate monetary and fiscal policy

Economic policy at the macro level must offset excesses at the micro level to get our economy back on an even keel. When our economy is operating at full capacity with strong demand and low unemployment, we need to fend off inflation by cutting back on unnecessary government expenditures and getting more money into the hands of businesses seeking to expand their plant and equipment to satisfy the excess demand for their products and services. In that circumstance, more money needs to flow to investment. Government should avoid crowding out private business. To increase productive capacity when demand is generally threatening to outstrip supply, investment incentives such as business tax cuts may be appropriate to encourage business to expand plant and equipment. If demand is getting too strong relative to supply, tax increases on individuals may help reduce inflationary pressure and restore a more appropriate level of money flow. Congress needs to pre-authorize tax and spending adjustments, so the economy can stay on an even keel regardless of which political party is in power. We must act to keep politics out of decisions that affect the health of our economy and allow the government to act quickly and decisively to counter economic downturns.

When demand for goods and services is weak and unused capacity is widespread, inventories rise and businesses start cutting back production and laying off employees. The Federal Reserve buys treasury securities through its New York offices to release more money into the economy and bring down short-term interest rates. However, businesses have no incentive to expand plant and equipment when they already have unused capacity. They are not using all of the plant and equipment they already have. There is no incentive to add plant and equipment in such circumstance no matter how much “confidence” businesses might gain through additional tax incentives or nice sounding pro-business government sound bites. Without a substantial increase in demand for goods and services, the Federal Reserve’s expansionary monetary policy will be like pushing on a string unless it adds individual accounts for each person with a social security number and injects money into those accounts to directly stimulate demand.

In addition to monetary policy, fiscal policy should play its role in reviving the economy. One way to get the economy back up to speed is through temporary government expenditures such as for infrastructure spending on repairing roads, bridges and tunnels. Where possible, these expenditures should involve public-private joint ventures to get the economy back up to speed. As long as the economy has substantial unused

capacity, public expenditures complement, rather than crowd out, private expenditures. Once unemployment has fallen substantially and the economy is back up to full capacity, government should back off of excessive unnecessary expenditures to avoid pushing the economy beyond what it is capable of producing. It must avoid generating inflation as when too much money chases too few goods and services.

The nonaccelerating inflation rate of unemployment (NAIRU) is the lowest rate that can be achieved without triggering excessive inflation. In the past the NAIRU was assumed to be somewhere between 4.5 percent and 5 percent. However, the expanding global supply chain, more rapidly advancing technologies and increasing automation have pushed estimates of the NAIRU significantly lower. It might now be possible to reach 4 percent unemployment or lower before wages and prices start rising rapidly. This is particularly true because in the past, energy shortages played an important role in generating inflation. The energy for our economy was primarily based on oil and natural gas, which were fixed in supply. But the combination of hydraulic fracturing and rapidly falling prices for renewable energy have kept energy costs significantly lower for longer. Moreover, with hydraulic fracturing the United States is poised in the near future to produce more oil than any other country on earth. This along with more economical renewable sources of energy may enable us to sustain an unemployment rate below 4 percent and, at the same time, a moderate inflation rate of up to 4 percent without triggering run-away inflation.

Government's role in maintaining good money flow

Expecting business to automatically respond by investing more as our economy declines into a recession is counter-intuitive. Expecting businesses to automatically adjust to pull us out of a recession is naïve in ignoring the natural history of booms and busts and the natural tendency for wealth to accumulate at the top. Adding another production line when your business is unable to sell all it produces with its existing lines of production makes no sense. The direction of causality is clear. Business confidence grows as demand increases and not the other way around. When money flows only upward to the elites, the economy stagnates. When there is also sufficient money flow downward to the workers, the economy thrives.

Government sets the rules at the heart of our economy. In a healthy body, blood flows upward to the heart, which then pumps it back out to our extremities. The continual upward and downward flow of money makes for a healthy, efficient economy. Government is not peripheral to a free enterprise system. Government is essential to establish the conditions for a healthy money flow to maintain course and speed and keep the ship from capsizing in the rough seas of a turbulent economy.

It is important to recognize the perverse nature of the free market's response to a downturn. At the micro level, when a business is faced with a significant drop in the demand for its products or

services, it naturally cuts back work hours and jobs along with production. But this is exactly the opposite of what is needed to restore demand at the macroeconomic level. The economy needs more money flowing to workers to increase, not decrease, consumption at such times.

Those who assume that wages will quickly and automatically adjust, fail to recognize, much less address, this problem. Their story, about cleansing the economic body of its sins through wage reductions in order to shrink the economy to match an inadequate money supply, fails to recognize the obvious solution of just increasing the money supply and making sure that more of that money flows to workers with high marginal propensities to consume.

When a downturn is severe enough, just pumping more money into the financial markets through the New York Federal Reserve Bank's open market operations is not always effective. The current Federal Reserve system of monetary policy is too slow to avoid recessions when consumer demand is inadequate and avoid inflation when consumer demand is excessive. Manipulating the money supply through adjusting interest rates through open market operation in the New York financial markets is too slow. Would you want a car where turning the steering wheel only turned the wheels on the car after a delay of twenty or thirty seconds? Under such circumstances, car crashes and economic crashes would have much in common.

A simple solution is to create Federal Reserve money market accounts for every American age 18 or older with a social security number.⁵⁶ Such accounts could be referred to as "My America" prosperity accounts. Put one thousand dollars in each "My America" account which cannot be withdrawn. Allow individuals to add their own money to the account up to an annual limit and withdraw any interest earned on the total account value and any funds above the base amount of one thousand dollars. When consumer demand wanes and a recession threatens, the Federal Reserve could inject money directly into these "My America" accounts which individuals could withdraw at any time using their smart phones.⁵⁷ This would allow for smart-phone to smart-phone transactions as in Kenya's M-Pesa system of smart-phone money transfers. Internal Revenue Service (IRS) tax refunds would be sent to these accounts to help make

⁵⁶ Other papers that propose Central Bank Accounts include:

Berentsen, Aleksander; Schär, Fabian. "The Case for Central Bank Electronic Money and the Non-case for Central Bank Cryptocurrencies, 100 FRBSL REV. 97, 2018.

Ricks, Morgan; Crawford, John; Menand, Lev. "A Public Option for Bank Accounts (Or Central Banking for All)", Vanderbilt Law Research Paper 18-33; UC Hastings Research Paper No. 287. June 6, 2018.

⁵⁷ Each smart phone would be pre-registered with the Federal Reserve through any bank. Transactions would be verified by both smart phone identification as well as eyeball and/or face recognition using the camera on the smart phone along with a sixty-digit alphanumeric password generated by an algorithm unique to the user and coordinated with the corresponding algorithm for that account at the Federal Reserve. After each transaction the sixty-digit password would change on both the smart phone and in the corresponding Federal Reserve account so that no password would be used more than once. A blockchain across all the devices (smart phone, laptop computer, desktop computer, et cetera) used by the individual could record each verified transaction in sync with their "My America" Federal Reserve Bank account.

consumers familiar with using their “My America” accounts and motivate them to use their accounts. When inflation threatened, the interest rate on the accounts could be increased and the annual limit on individual contributions to the account could be raised to motivate consumers to delay consumption in favor of earning a good return on their money. After all, the whole purpose of interest rates is to get individuals to trade off current consumption for future consumption.

Fourth branch of government for economic policy

The major problem facing the economic system in this country is the political system. Presidents and politicians with vested interests and conceptions of economics with little or no relationship to the real world currently threaten to undermine prudent economic policy. One solution would be to create a fourth branch of government in addition to the executive, legislative and judicial branches. A constitutional amendment could convert the Federal Reserve System, the Congressional Budget Office, the General Accountability Office and other similar government agencies concerned with our economic well-being into a new Prosperity Branch controlled by a board of professional economists.

The Prosperity Branch could then inject money directly into the Federal Reserve Bank “My America” accounts to provide stimulus as needed whenever a downturn developed, and recession threatened. These bank credits would be created by the monetary authority of the Prosperity Branch out of “thin air” with no taxation required. There would be no addition to the debt, because there would be no government securities issued. As long as the economy has unused capacity, the injection of cash would not trigger inflation. Econometric analysis can provide the Fed with guidance on setting policy to achieve the new Prosperity Branch objectives.

The Prosperity Branch could be mandated to estimate the multiplier effect of each government program and proposed expenditure. It could then evaluate tax-expenditure combinations that could provide a balanced budget multiplier as needed to keep the economy on an even keel without increasing, and possibly even decreasing, the federal debt.

The board would serve for life or until voluntary resignation as in the Supreme Court. To avoid a banking industry takeover of the board and to ensure their professional qualifications, candidates for the board should be proposed by the board of the National Bureau of Economic Research (NBER), nominated by a vote of the NBER research associates, and approved by the United States Senate. The Prosperity Branch could be tasked with an overall mandate to maximize our collective prosperity in our pursuit of life, liberty and pursuit of happiness as called for in our Declaration of Independence in addition to the current mandate to minimize unemployment and avoid excessive inflation.

In the past when computers were not so fast and data were limited or unreliable, economic models were relatively simple. However, with extensive data collection and high-speed computers, economists can now begin using much more elaborate and flexible models in applying artificial intelligence algorithms to better tract the economy. Much more sophisticated algorithms are available such as those employing artificial neural networks, Bayesian decision tree models, multidimensional fractional spline regression models, nonlinear systems of differential equations and hierarchical hidden Markov models such as that used by IBM's Watson to defeat top-ranked human contestants in Jeopardy. Data scientists from the Econometric Society and other professional econometric and statistical groups could be recruited to develop hybrid artificial intelligence system dynamic models that combine expert systems with pattern recognition and time series analysis. Separating the timing and application of aggregate monetary and fiscal expenditures from the political selection of those expenditures will enable us to successfully overcome the wasteful booms and busts of the business cycle and high levels of unemployment and inflation that have characterized the 20th and early 21st centuries.

Conclusion

Unlike classical and neoclassical economists who believe that ultimately in the long run the economy adjusts to whatever amount of money is available, instead we find that the flow of money throughout the economy makes a real difference in the production and distribution of goods and services. There is no single generic consumer with a given marginal propensity to consume goods and services. The multiplier effect of a given monetary or fiscal stimulus can be substantially different depending upon which path the money flow takes. There is both a time series dynamic and a cross sectional dynamic to the flow of money. From a long-term perspective, the relative money flow has been shifting from variable costs (labor) to fixed costs (capital). From a short-term perspective, the impact of the money flow depends upon the stage of the business cycle and the nature of the fiscal or monetary stimulus. From a cross sectional perspective, the flow of money across the distribution of income and wealth can make a substantial difference in its effects. The flow of money into “pay-to-play” politics has greatly altered the ultimate well-being of the nation. The establishment of a fourth branch of government, tasked solely with economic prosperity, could help fix the biases and distortions that misdirect the money flow and undermine the health of our economy. A key tool would be the individual Federal accounts for everyone 18 years or older with a social security number. These “My America” accounts would allow the Prosperity Branch to directly adjust consumer demand to keep the economy close to its maximum capacity utilization without generating excessive inflation. The goal should be to maintain a dynamically growing stable economy with sufficient money flow so that all may prosper in a “win-win-win” for the rich, middle class, and the working class.

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