LAWRENCE C. MARSH

OPTIMAL MONEY FLOW

A New Vision of How a Dynamic-Growth Economy Can Work for Everyone

NEW FED POLICY TOOL

HOW EXTREME INCOME INEQUALITY CAUSES INSTABILITY

REPLACE INEFFICIENT WALL STREET STIMULUS WITH NEW APPROACH

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PREFACE

My wife and I had just gotten back from the bank. As we pulled into the garage, I saw some papers blowing around the front yard and told my wife I would go and get them. We left the garage door open as she swept the walk and I chased the papers.

We had seen the stranger in the alley behind our home earlier that day. But we didn't see him sneak into the garage, grab my wife's purse, and steal her cash.

The next day I saw him again. This time I followed him down the alley. When I caught up with him, I explained that anyone stealing small amounts of money here and there was making a mistake. I told him what he really needed was not money but money flow. These neighborhood families were making six-figure salaries, but he was just getting occasional crumbs. Fighting over the crumbs is no way to get rich, neither for an individual, nor for a country. I never saw him again. Perhaps he was afraid of getting caught or wanted to avoid another boring lecture.

Money flow is important in the international economy, in the domestic economy, and in state, city, and local economies, just as it is in our own family's economy. Too often we think of money as a static concept. We fight over the economic pie. But, in reality, money is a dynamic flow. Money flows through our economy just as blood flows through our body.

Our economic well-being and that of our fellow citizens is more closely defined by our money flow than by the amount of money we have at any particular time. Just as getting money flow right is important for us as individuals, it is also important for us at the local, state, national, and international levels.

Market efficiency requires that marginal benefits match marginal costs. College courses in introductory economics focus on the purest form of market equilibrium, where there are no externalities; no common property resources; no public goods; no fallacies of composition; no deviations from transparent, full-information, competitive markets; and where, at least on average, consumers behave as rational, independent decision makers. Traditional economic theory treats government as exogenous to the system with, at least in theory, no essential role to play other than to maintain the peace and enforce contracts.

Of all these sins of commission or omission, one of the worst is the fallacy of composition that confuses microeconomics with macroeconomics. Too often people make the mistake of assuming that individual-level microeconomic incentives can simply be aggregated to determine economy-wide macroeconomic effects. A simple example is what economists call the *paradox of thrift*, where everyone trying to save more during a recession (an example of microeconomic activity) leads to a reduction in total savings as the economy shrinks (a macroeconomic effect). In other words, more people trying to save more during a recession leads to a fall, rather than a rise, in total savings. Understanding microeconomic incentives does not automatically inform us about which macroeconomic policies will lead to efficient resource allocation.

Money flow dynamics are subject to the laws of mathematics. This is especially important for achieving economic stability and equilibrium. When you square a number between zero and one, it gets smaller. But

squaring a number greater than one makes it bigger.[1] We have learned from *The Black Swan*[2] and other such analyses that the parameters that control our economy do not always stay between zero and one and, therefore, do not always move us toward convergent stability and equilibrium. Instead, our economy can be driven by contagion effects and other automatic processes toward divergent instability in the face of either irrational exuberance or a downward recessionary spiral.

George Cooper has proposed a wealth flow—or money flow—paradigm with government at the center of capitalism and the free enterprise system.[3] Cooper points out that before 1628, the medical profession mistakenly followed a blood flow paradigm (framework for thinking) that assumed that our blood originated in the liver and flowed outward where it evaporated at our extremities (fingers and toes). Previous economic paradigms have followed a similar path in assuming that government is, or at least should be, just an outside observer with no essential role to play in economic activity, when in reality, government is the heart of the free enterprise system, with money flowing in a circular loop.

The new money flow paradigm replaces the classical, neoclassical, Austrian, monetarist, and Keynesian schools of economic thought, which are all based on the old "exogenous" government paradigm and assume that government generally detracts from the efficient allocation of resources. In contrast, the money flow paradigm sees government as playing a key role in bringing about economic efficiency. There are many

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1 More generally, squaring parameters that lie between minus one and plus one (the unit circle in multidimensional space) drives the effect toward zero, but squaring parameters that lie outside the unit circle drives it farther from zero.

2 Taleb, Nassim Nicholas. *The Black Swan: The Impact of the Highly Improbable*. New York: Random House, 2007.

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

circumstances where government corrects free market allocations and brings marginal benefits in line with marginal costs.

In an earlier book, Cooper rejected the efficient market hypothesis that is explicitly or implicitly endorsed by most of the previous paradigms.[4] Under his financial instability hypothesis, Cooper notes that while markets for goods and services generally operate efficiently, with negative feedback loops slowing demand as prices rise and increasing demand as prices fall, financial markets tend to do the opposite using positive feedback loops: rising prices increase demand, and falling prices drive investors to sell their shares and leave the market.

To fully understand the impact of economic policy, we must follow all the various paths that money takes in flowing through our economy with the different multiplier effects and different monetary velocities in each path. And we must consider the role government plays. The balanced budget multiplier only works if higher taxes are paid by those who spend less as a group on new products and services, and government expenditures go to those who spend more as a group in increasing the demand for goods and services. In other words, money is simply being transferred from a group of people with a low marginal propensity to consume goods and services to one with a high marginal propensity to consume. This enables the federal government to maintain a balanced budget and not add to our national debt while, at the same time, stimulating our economy to get out of a recession.

A contractionary policy could be devised to do the opposite when the economy is booming and inflation is getting out of hand. In that case, the money flow to investors (who will use it to expand our economy's productive capacity) should be increased while reducing the money flow

4 Cooper, George. *The Origin of Financial Crises*. New York: Vintage, 2008.

to consumers who are causing too much money to chase too few goods and services (which causes excessive inflation).

Money has a natural tendency to pile up at the top of the economic pyramid. Government plays an essential role in keeping money flowing back down to the middle and lower classes, who otherwise would be unable to buy back the goods and services they are producing. This is in sharp contrast to the traditional paradigms that have prevailed in economics for hundreds of years, which view government as an outside force whose interference is seen as alien to capitalism and free enterprise, and which must be kept to a minimum.

Under the old paradigms, when individuals or businesses spend money, they are seen as attempting to increase their utility or profits; but when government taxes and spends to benefit the community as a whole, the tax is seen as a waste of resources, disassociated from the corresponding public expenditure that increases public utility and improves the common good.

The fundamental flaw in the old paradigms is the failure to recognize that government plays a large and essential role in correcting capitalism's inherent distortions and defects. In a mistaken interpretation of Adam Smith's *The Wealth of Nations*,[5] a blind pursuit of one's own self-interest was thought to make everyone better off. Economists have carried out scientific experiments demonstrating that this is not the way people actually behave and that such self-interested behavior does not always make everyone better off. Yes, competition can work to provide high-quality products at low cost; but it can sometimes become distorted by a multitude of factors that can lead to an unhealthy, underperforming

5 Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: Printed for Thomas Dobson, at the stone house in Second Street, 1789.

economy with inefficient resource allocation and extreme wealth and income inequality.

If I owned the only store and restaurant on a remote island, I would profit by paying my employees, local farmers, and fishermen well so that they could afford to come back again and again to buy goods at my store and eat at my restaurant. Good money flow would work to my advantage.[6] I would have a clear self-interest in maintaining money flow in my community. But if my restaurant is in a larger community, I can't directly generate more business for myself by paying my employees and suppliers more. The money I pay them gets dispersed out into the broader community. Our free enterprise system naturally leads to an ever-greater accumulation of wealth at the top of the economic pyramid that can only be alleviated by government intervention. The money flow paradigm takes into account the common property resource nature of our economy and proposes policies that redirect the money flow to restore efficient resource allocation and maximize our productive capacity.

Neoclassical economists assume that prices, wages, and interest rates will adjust automatically and relatively quickly to correct this problem. Keynesian economists and others recognize problems such as the liquidity trap, where the economy can sometimes get stuck and needs a little help from the government (fiscal or monetary stimulus) to get back on track.

Only the new money flow paradigm sees this as a permanent problem that is not going away. It will get worse until we finally change our

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6 Until available resources are fully employed, the faster money turns over in a given time period, the more goods and services are produced and distributed. Everyone works more, and everyone gets more. Getting the money flow right is key to maintaining a healthy, dynamically growing economy to maximize the production and distribution of goods and services.

view and understand that the very nature of economics itself leads to a distorted money flow that requires a new mechanism (see "My America" prosperity accounts in chapter 3) to keep money flowing throughout the economy. Under the money flow paradigm, government must take up its role as the heart of the free enterprise system to keep money properly and adequately circulating to maintain full employment and stable prices.

What we have failed to recognize is that the broader economy is, by definition, a common property resource, because we all benefit from it, but as individuals we do not want to pay the taxes for the public investments needed to maintain it. When I was a child, everyone in our neighborhood burned their leaves by the side of the road in the fall. Any one family who stopped burning leaves did little to clear the air, as others continued to burn theirs. The only solution was for the town of Westfield to ban all leaf burning to clear the air, which was, by definition, a common property resource. Professors Elinor Ostrom and Oliver Williamson won the Nobel Prize in economics in 2009 for their work in explaining the role of common property resources in economics.[7] Just as we destroy value by overfishing a commonly owned lake until the fish are all gone, as individuals and businesses we fail to put enough money back into the economy to maintain an adequate money flow. We fail to invest in our future, like a farmer who does nothing in the spring in the hope that the crop will somehow seed, fertilize, and water itself. At a time when other countries throughout the world are investing a lot of money in their digital and physical infrastructure, in the education and health of their citizens, and in basic research for national defense, we are letting our lead in all these important areas slip away.

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7 Ostrom, Elinor. *Governing the Commons*. Cambridge: Cambridge University Press, 1990. Williamson, Oliver. *The Mechanisms of Governance*. Oxford: Oxford University Press, 1996.

This raises some important questions. Why would a pharmaceutical company invest a lot of time and money into a breakthrough cancer drug if the potential medical benefit could be obtained from ingredients readily available to the average person, or if the return on its investment took too long to achieve? The answer: the company wouldn't bother. Therefore, why not consider funding medical and scientific research through the National Institutes of Health and the National Science Foundation, which provide financial support to university researchers who are more interested in enhancing their professional reputations than achieving monopoly profits?[8]

Do patents encourage innovation or suppress it? Has the "starve the beast" philosophy gone too far in shrinking government resources to the point where we are no longer able to compete in these vital areas? In clinging to the past and failing to invest in our future, are we transforming American exceptionalism from America first to America last? We need to answer these questions to achieve an optimal money flow in health, education, infrastructure, research, and in our economy overall.

During a recession, when demand is insufficient to ensure full employment, continuously falling prices do not generate more demand for goods and services, because people come to expect lower future prices and hold back on immediate expenditures in anticipation of even lower prices to come. Traditional static economic analysis misses this point. Only a truly dynamic analysis of how anticipated inflation affects money flow can fully incorporate this. Why pay a high price now if you see that prices are going down? Buying anything other than the bare essentials will make you a "loser" for paying too high a price for a good or service.

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8 This contrasts with Paul Romer's endogenous growth theory that assumes new ideas are generally produced by the private sector in for-profit businesses.

As a medium of exchange, a unit of account, a store of value, and a method of deferred payment, money is retained rather than spent when consumers expect prices to continue falling. Stimulating the economy can only be achieved by getting money into the hands of people who will actually spend it right away on immediate necessities rather than hold off purchasing luxuries until prices stop falling precipitously. Slowly rising prices will encourage people to spend more money now to move the economy back toward full employment. However, monetary authorities must continuously monitor the money flow to keep inflation within a narrow target range. Left to its own devices, without government intervention, an overly stimulated economy will inherently and perversely generate faster and faster spending when excessive inflation drives consumers to anticipate higher and higher prices.

Taxation is not an interference with an otherwise efficiently operating economy; rather, government taxation and expenditures are essential components of the money flow needed to maintain and adequately grow a healthy economy. A properly designed fiscal policy can contribute to economic growth with a balanced budget multiplier by taxing those with a low marginal propensity to consume and getting money flowing by making appropriate investments, such as in infrastructure, basic research, education, and health. Government taxation and expenditures overcome the common property resource problem by providing the necessary investments in the community. Properly designed fiscal policy can improve rather than detract from efficient resource allocation.

Local, state, national, and international economies can interact to achieve an optimal money flow to maximize efficient resource allocation. By establishing an optimal money flow, we can maintain a healthy economy by improving the efficiency of our economy, reinvigorating productivity, and enhancing our lives.

CHAPTER 1

INTRODUCTION TO THIS BOOK

This book introduces the money flow paradigm that explains the dynamic, interdependent nature of our economy and the causes of the tendency toward extreme income and wealth inequality that inherently lead to inefficient resource allocation and instability. It emphasizes how 21st-century technology, greatly enhanced by the internet, has produced an underlying transformation from a variable-cost economy—where each additional unit of output costs a great deal to produce—to a fixed-cost economy—where the initial setup costs are quite high, but each additional unit of output (e.g., another Facebook user account) requires very little additional cost—that has shifted the money flow from labor to capital over time. Moreover, failure to invest in our economy for the long run will leave us behind the world in general, and China in particular, as we rapidly advance into the 21st century. Education, basic research, and infrastructure require substantial investments.

Recognizing differences in the marginal propensity to consume by

income and wealth is central to effective economic policy in dampening our economy's boom and bust cycle. 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. In contrast to the classical, neoclassical, monetarist, and Keynesian paradigms, the new government-centered money flow paradigm views such forces as a natural part of the economic system and not as some exogenous shock to the system. Such perverse forces are just as central to and inherent in the free market system as its helpful, self-correcting forces and should be recognized as such.

It is important to recognize that each human being has both an *individual identity* and a *collective identity*. We are constantly being torn between these two identities. Think of the basketball player who must choose between self-promotion by taking the long shot or passing to a teammate much closer to the basket. Collectively we are most often represented according to where we live. Our neighborhood association, our city, our county, our state, and our country, as well as the world as a whole, are there to represent our collective identity to some degree or another. All of our identities—individual and collective—play a role in economics.

Treating government as an outside, alien force is naïve at best. Recognizing the existence of an implicit national social welfare function would enable us to rewrite economics textbooks to recognize the common-property nature of our economy and treat government as a legitimate player—alongside individual persons and businesses. Under the law, the power of government is limited, just as the power of businesses over their employees is also limited. Treating government as endogenous (within the system) rather than exogenous (outside the system) is more realistic and provides a much better understanding of how our economic system actually operates.

International trade has an ever-greater impact on our economy as the global supply chain has become increasingly complicated and interdependent. Productivity spillover effects and the law of comparative advantage play an important role in our national money flow and in our economic well-being. The international arena is another realm where the "win-win" strategy wins and the "I-win-you-lose" strategy loses. Countries that build bridges to reach out and help one another will have better money flow and healthier economies than those who wall off their neighbors to go it alone.

The special interests that often control our governmental policies and legislation frequently promote the idea that there are a fixed number of jobs in this world. But what they are really worried about is that low unemployment means having to pay higher wages, which, in turn, may bring on an inflation in prices that would undermine the real value of their enormous accumulated wealth.

Nothing limits the quantity and quality of jobs more than a government policy designed to protect special interests at the expense of everyone else. In truth, the economy would be better off with a little inflation, because it enables a faster transition from old, out-of-date technologies to new, up-to-date technologies. The current Federal Reserve target of 2 percent inflation was chosen with this in mind.

The special interest "starve-the-beast" strategies at best inhibit and at worst block our government's efforts to maintain a stable and healthy economy for everyone. We need to disentangle our economic policies from the stranglehold of politics. This means protecting our economy from distorted money flow policies that restrict economic growth and produce large unsustainable deficits.

A major problem with monetary policy is the long time lag between when the Federal Reserve takes action and when the full impact of that action is felt by the economy. The Fed may hit the brakes too hard by

raising interest rates in response to inflation, resulting in an unnecessary recession. In response to a recession, the Fed may find that releasing money into the financial markets by buying Treasury securities is as ineffective as "pushing on a string." The Fed's large purchases of Treasury securities primarily produce a stock market bubble, with a relatively small, lagged effect on consumer demand, which constitutes about 70 percent of the economy. Clearly, a more efficient method of controlling money flow is needed.

In its responsibility for carrying out monetary policy, the Fed needs direct and immediate control of the level of consumer demand for goods and services. All banks already have accounts (directly or indirectly) with the Federal Reserve System. Every person with a Social Security number should be issued a Federal Reserve Bank account that they could access with their smartphone.[1]

By establishing individual accounts for every person with a Social Security number, the Fed would be able to expand (by injecting money) and contract (by raising account interest rates) the money supply directly, having an immediate impact on the money flow throughout the economy, without needing to raise or lower taxes or increase the national debt, all the while maintaining a tight grip on any chance of excessive inflation.[2]

This direct method of injecting money into the economy requires considerably fewer dollars and has a quicker and more substantial impact

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1 For those younger than 18 years old, the accounts could be used to provide a basic universal income or create "baby bonds," as proposed by Senator Cory Booker and a number of economists.

2 A voluntary public option for Federal Reserve individual accounts was proposed by Morgan Ricks, John Crawford, and Lev Menand in "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.

on consumer demand than buying Treasury securities in the New York financial markets. It offers much more "bang for the buck."

Chapter 2 ("History of Money Flow") describes how economic power evolved from primitive times through the Industrial Revolution and the rise of capitalism. It discusses how John Locke's concept of private property as a function of sweat equity was undermined by the separation of labor from capital. Moreover, money flow was diverted from labor to capital as technological advances have reduced variable costs (labor) relative to fixed costs (capital), leading to ever-greater extremes in income and wealth inequality.

Chapter 3 ("Money Flow Dynamics") reviews the creation and use of money and the key role it plays in determining both employment and inflation in a dynamic economy. Static analysis focuses on fighting over a fixed pie following an I-win-you-lose strategy, while dynamic analysis follows a win-win strategy where a dynamic money flow leads to a healthy, rapidly growing economy that benefits everyone.

Chapter 4 ("Money Flow Coopetition") examines money flow between businesses, as well as that between businesses and government. The traditional assumption in economics of rational, independent decision makers is shown to be misleading. Mistakes include applying microeconomic conclusions to macroeconomics and treating government as exogenous to the economic system.

Chapter 5 ("Government") concerns the role of government in using money flow to achieve efficient resource allocation. Market failures include positive externalities, negative externalities, common property resources, public goods, and asymmetric information, as well as monopolies, oligopolies, monopsonies, and oligopsonies. Each requires public or private collective adjustments to properly match marginal benefits to marginal costs.

Chapter 6 ("Distorted Money Flow") explores how the American tradition of *noblesse oblige* inspired by the French Revolution was replaced

by the *nouveau riche* with a winner-take-all strategy that led to maximizing the wealth of special interests. The Supreme Court's *Citizens United* decision certified "pay-to-play" through tax loopholes, lower taxation on earnings from capital than from labor, and a host of other regulatory and spending adjustments favoring the special interests. As a result, large corporations and special interests often pay little or no taxes, while small businesses and middle-class taxpayers pay substantially more.

Chapter 7 ("Macroeconomic Policy") promotes fiscally prudent money flow, which would keep the economy on an even keel to avoid extreme oscillations from high unemployment to high inflation. The analysis covers the national debt, automatic stabilizers, Federal Reserve policy, the liquidity trap, and a proposal for the creation of individual "My America" Federal Reserve accounts for everyone over 18 who has a Social Security number.

Chapter 8 ("International Money") examines the impact of international trade on jobs, prices, competition, and investment returns. The lump of labor fallacy is explained, and alternative job creation policies are discussed. Population growth, education, and technology play key roles in affecting the money flow both within and between nations. Foreign aid is used to promote exports. Energy, natural resources, and the *Dutch disease* all play important parts in international money flow.

Chapter 9 ("Summary") focuses and reiterates the discussion and analyses from all the previous chapters.

CHAPTER 2

HISTORY OF MONEY FLOW: TECHNOLOGY FAVORS FIXED COSTS AND LABOR LOSES OUT

In prehistoric times the freedom of cave dwellers depended on physical strength. If you had a chicken, the big guy was free to take your chicken. If you had a pear tree, the big guy was free to take your pears. Today our brains are still wired to submit to the winner. Our submission to authority and acquiescence to the winner-take-all outcome reasserts itself again and again throughout our lives.[3] A single leader has traditionally dominated, starting in primitive times with a large, powerful male.

3 This effect is evident in our adulation of leaders in sports and entertainment. See Rosen, Sherwin. "The Economics of Superstars." *The American Economic Review*, Vol. 71, No. 5 (December 1981): 845–858.

In most societies the tribal leader, the chief, the king, the pharaoh, the emperor, or the tsar controlled everything. You were free to do as you were told, but not free to do what you wanted.

The Greeks were the first civilization in recorded history to try a version of democracy. Northern Europeans didn't crack the authoritarian ceiling until the Magna Carta in 1215. The American and French Revolutions overthrew the king's rule, but we still have a tendency to revert back to a system of political and economic autocracy. As in Russia today, an autocratic leader can divert the money flow to benefit special interests who use their power and money to control the political system and the economy. And yet such a leader can still be popular with a majority of citizens.

People can be kept under control with nice-sounding slogans and threats of foreign domination, as occurs in North Korea, where very little money trickles down to the common person. People can be deceived into accepting such a system, because they do not really understand how money flow works to establish and maintain a healthy economy.

ORIGINS OF MONEY FLOW

Originally, both European and Native American cultures viewed land as belonging to God or the divine spirits. People could occupy land, but not own it. Eventually kings, pharaohs, emperors, and tsars were said to have been granted dominion over the land by God. You could not hunt deer in the forest or take fish from a stream without permission from the king. Rulers could then allocate lands for the nobility. For example, in Colonial America, King George allocated land in New Jersey to early settlers under the Elizabethtown Grant. Even in early years of the United States of America, only land-owning Caucasian men could vote, while non-Caucasians, women, and the landless had no say in government.

The need to enclose land for agriculture and to motivate people to work the land required the creation of a more broadly based concept of private property.

Before the Industrial Revolution, John Locke (1632–1704) introduced the basic principle establishing the right to own private property.[4] He argued that people owned their own labor, and that by putting their labor into the land, they created their right of land ownership or private property. In the second part of his *Two Treatises of Government* (1689), Locke 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. Initially this logically established the foundation for ownership in farming and the craft trades. The peasants worked hard on the land they now owned but still had to pay royalties to the king and nobility.

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. As a result, the broken link between sweat equity and the ownership of capital (e.g., machines) is systematically and inevitably causing more and more money to flow to the owners of capital and relatively less money to flow to workers.

Workers were no longer entitled to the fruits of their labor. No matter how long and how hard they worked with a machine, they failed to gain any ownership over that machine. They could imbue their labor

4 Locke, John. *Two Treatises of Government*. London: Awnsham Churchill, 1689.

into the machine they were working or the truck they were driving for their entire career of many, many years, but their autonomy and rights, as defined by Robert Nozick in his book *Anarchy, State, and Utopia*, were not respected.[5] They were denied the fruits of their labor just as surely as if taxed away by the state. Yes, they chose their employer, just as they chose what country, county, state, or locality to live in, but that does not justify breaking the link between sweat equity and capital.

To be fair, some companies recognize that the workers, as well as the original investors, have a legitimate claim on capital as it is used by the workers over time. Yet many companies ignore the workers' right of autonomy over the fruits of their labor and sweat equity and give all of the return on capital to the original investors, who over time add nothing more as they reap the rewards of other people's labor. We talk of the importance of incentives, but where is the incentive for workers to work hard for a company that denies their right to earn capital from sweat equity? All the return on capital is given to the original investors, whose only incentive is to spend their days watching the stock ticker as their money grows without any additional effort on their part.

Throughout most of human history, economic change has proceeded slowly. The invention of the wheel, the development of human language, and the establishment of agriculture were separated by long periods of little or no change. If you wanted to plant another row of corn, you found a big stick and worked up the soil. Labor was in great demand and capital was almost nonexistent. Most costs were variable costs, which were dominated by labor. Fixed costs representing capital were usually relatively small. Eventually, if you could afford it, you

5 Nozick, Robert. *Anarchy, State, and Utopia*. New York: Basic Books, 1974.

bought or borrowed a horse or mule to pull the plow. But, generally, more corn output meant a lot more labor input.

ADAM SMITH CONCERNED ABOUT WEALTH DISTRIBUTION

This was the world that Adam Smith (1723–1790) faced when he wrote his books *The Theory of Moral Sentiments*[6] and *The Wealth of Nations*.[7] Smith explained how free enterprise in a competitive environment can improve the economic well-being of the nation as a whole. Businesses compete to provide the nation with the best-quality products at the lowest possible prices.[8] Smith implicitly assumed competitive markets where full information was readily available to all market participants. He did *not* "advocate unbridled greed and selfishness in the name of allowing the invisible hand of the market to work its magic."[9] Instead, he advocated for the poor and felt that too much attention was given to the rich. Smith noted that people like to think about happy conditions and not sad conditions, so they look to the rich, rather than the poor, for inspiration.

He saw that specialization and division of labor increased productivity but was concerned that it would go too far and leave workers with merely mechanical jobs where they had no sense of self-worth. Smith

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6 Smith, Adam. *The Theory of Moral Sentiments*. Edinburgh: Andrew Millar, in the Strand; and Alexander Kincaid and J. Bell, 1759.

7 Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: W. Strahan and T. Cadell, 1776.

8 A more comprehensive summary of Smith's book can be found at https://en.wikipedia.org/wiki/The_Wealth_of_Nations.

9 See article by Dennis C. Rasmussen in the June 9, 2016, issue of *The Atlantic* at https://www.theatlantic.com/business/archive/2016/06/the-problem-with-inequality-according-to-adam-smith/486071/.

seemed to anticipate the production line and the robotic role that people would later play in the Industrial Revolution.

He did not advocate laissez-faire and capitalism. While he saw that the invisible hand was increasing output and productivity, he was concerned about the plight of the poor in society.

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 each other. 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.

SWEAT EQUITY TO CAPITAL LINK BROKEN

At the beginning of economic time, variable costs dominated fixed costs in the absence of any significant capital investments. Initiative, hard work, and enterprise paid off in ownership of your physical capital. If you made an arrowhead, it was your arrowhead. If you made a cutting tool, it was your cutting tool. Workers owned their own capital. The concept of private property was then extended to other physical and intellectual products. In the 19th century, the Industrial Revolution began an

acceleration in economic development that has changed the very essence of the economic problem. The sweat equity path to ownership broke down with the advent of a more remote form of capitalism.

Money came into existence when bartering became too complicated and inefficient. Money made the transfer of property easier. But money was essentially just a promise to pay. Under the gold standard, all money was backed by gold. Later, when the government levied a substantial amount of taxes, the value of money was in part based on the need to pay your taxes with money.

The money flow debate began with the need to decide how much money the government should issue. But how the money flows through the economy depends upon all the fine print in the laws and regulations. Tax loopholes and incentives have unintended consequences that can alter the money flow.[10]

At one point in the 19th century, Argentina and the United States were at roughly the same stage of development and had somewhat comparable natural resources at their disposal. The United States looked westward to the Great Plains and Rocky Mountains while Argentina looked toward the broad fertile Pampas grasslands and the Andes Mountains. But their economic policies followed distinctly separate paths. In Argentina the land on the western frontier was allocated to the elite. Workers could farm the land under the tutelage of the elite, but the

10 Too often we ignore the central role of government in determining money flow in our economy. We naïvely follow the golden path to the Emerald City and ignore the wizard behind the curtain who is pulling all the strings that determine how money flows to each and every one of us. Simplifying the tax code was supposed to replace the system of tax loopholes with a lower overall corporate tax rate. The 2017 tax law passed by Congress and signed into law by the president failed to remove the vast majority of tax loopholes and instead allowed corporations to combine their array of tax loopholes with the lower corporate tax rate, thus eliminating or at least dramatically reducing their corporate tax liability.

chances of their gaining ownership of any parcel of land were remote at best. This followed the tradition of the king awarding land to aristocrats in Colonial America. In Argentina, Locke's link between sweat equity and ownership was broken.

However, in the United States, especially after the Civil War, the prospects of acquiring "forty acres and a mule" drove Americans westward.[11] A Union soldier who died in battle was said to have "bought the farm," as his descendants were awarded sufficient funds to pay off a modest mortgage as compensation for that soldier paying the ultimate price in service to his country. Money flowed to those who successfully worked the land. It was that money flow that ultimately enabled the United States to develop much more rapidly than Argentina, which remained dominated by elites for a much longer period.

As the Industrial Revolution proceeded, John Locke's original concept of private property broke down. A craft worker had indeed established ownership over his or her tools of trade in the early years. But soon the size and expense of industrial equipment, such as a lathe or water wheel, became too large for the individual worker to acquire through sweat equity. Only persons with sufficient capital could afford to acquire the industrial equipment that was then used by workers who were generally denied equity for their labor. Instead of motivating workers by enabling them to share in the risk-reward enterprise, workers were off-loaded to a separate labor track with a much lower return for their effort.

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11 "Forty acres and a mule" refers to a proposal made by Union General William Tecumseh Sherman on January 16, 1865, for formerly enslaved African American farmers.

THE DEBT-DEFLATION CYCLE EMERGES

Once the link between sweat equity and capital was broken, money flowed more and more to capital. Workers had to go into debt to afford to buy back the goods and services they were producing, as capitalists accumulated enormous wealth in the late 19th and early 20th centuries. Occasionally government stepped in to break up monopolies and protect worker unions to counter excessive corporate power. Money flow became erratic as rapid economic expansions were followed 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 (as individuals and businesses got overextended by borrowing beyond their means), followed by debt deflation (as the bubble burst with a torrent of mortgage defaults and bankruptcies).[12] Fisher's key argument is that these debt cycles are inherent in our free enterprise system, with the buildup of excessive debt ultimately leading to a collapse in the debt bubble as entities reach a tipping point.[13]

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,

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12 Fisher, Irving. "The Debt-Deflation Theory of Great Depressions." *Econometrica*, Vol. 1, No. 4 (October 1933): 337–357.

13 For an excellent discussion and explanation of our debt cycles, see Dalio, Ray. *Principles for Navigating BIG DEBT CRISES*. Westport, CT: Bridgewater Associates, LLP, 2018.

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.[14]

Zanny Minton Beddoes and her colleagues at *The Economist* have provided a concise and well-written analysis of the debt-deflation cycle and how, starting in the mid-1980s, the "Great Moderation" was maintained by central banks by adjusting short-term interest rates. But the global financial crisis of 2007–2008 revealed a deeper and inherently more difficult money flow problem.[15]

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 with a growing debt bubble as consumers and businesses take on more and more debt. 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 falls precipitously.[16]

While cycles in the stock market might be driven by "Minsky moments," the real economy is occasionally disrupted by technology

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14 This is in sharp contrast to the Austrian paradigm, which argues for austerity in letting the economy contract and prices fall (especially wages) following Schumpeter's *Creative Destruction*. Instead of righting the ship, they would let it capsize.

15 Beddoes, Zanny Minton, et al. *Debts, Deficits and Dilemmas*. London: Profile Books, Ltd., 2014.

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

shocks. Randall Wright[17] and others have explained real business cycles in terms of abrupt changes in technology. Automation in manufacturing, such as in automobile production, has dramatically and abruptly reduced the demand for labor. Another major business cycle may be forthcoming due to a combination of autonomous vehicles and artificial intelligence algorithms replacing large numbers of workers.

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 builds up and creates financial instability. This financial instability often results in a stock market correction and a dramatic drop in output and employment. This cycle has repeated itself again and again throughout US history.

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, which vary with the amount of output (in this case bushels of corn) being produced. In addition to seed and fertilizer, variable costs include lots of farmer labor hours of work. Over time the costs shifted to investments in farm equipment, which are fixed costs because the farm equipment has to be

17 Wright, Randall. "On the Future of Macro: A New Monetarist Perspective." *Oxford Review of Economic Policy*, Vol. 34, Nos. 1–2 (2018): 107–131.

paid for regardless of the level of corn output. If corn production drops to zero, the cost of seed, fertilizer, and labor hours drops to zero, but the fixed cost of the farm equipment still has to be paid.

Today, a farmer can sit in the farmhouse and monitor her self-driving plow at her computer—a plow that uses GPS to follow the correct path, all while measuring soil nutrient content and dispensing fertilizer as needed. 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 form of work hours and, ultimately, jobs. In addition to disrupting the vehicle manufacturing industry, 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.

In other words, using a website, which represents the fixed cost of capital investment, usually does not require interacting with a website worker, who represents the variable cost of labor. Even brick-and-mortar stores make ever-greater use of self-service and self-checkout, relying more and more on fixed-cost capital investment and less and less on store employees, who represent variable labor costs. Increasingly, capital is winning at the expense of labor. Replacing labor hours with fixed capital equipment reduces the money flowing to labor and increases the money flowing to capital investment. As technology advances, capital wins and labor loses.

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 still required labor to operate it. At that time the exploration, development, and extraction of natural resources took a great deal of labor. In manufacturing, labor played a major role and a significant part of the cost of products and services. Sometimes this shift from labor meant a shift to self-service, in which the customer provided the labor. For example, self-service gasoline stations emerged late in the century, as did self-service checkout in retail stores.

In the 21st century, as the shift toward automation continues, the role of fixed costs has increased dramatically. Giant earth-moving equipment is used to extract coal by removing mountaintops 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. In recent decades, interstate highways, the internet, and globalization have enabled capital to become much more mobile than ever before. Money moves around the planet at the click of a mouse or a tap on a screen, whereas people are often reluctant to move from their home region to another region or country with a different culture and language.

Politicians railed against foreigners who were "taking our jobs" when, in reality, those jobs were destined for automation anyway. Even globalized jobs in low-wage markets will be overcome by the relentless march of technological progress. Wages have already risen sufficiently in Chinese factories to spur factory owners to consider saving money on labor by replacing it with capital, in the form of greater automation.

In the end, it is technology and not globalization that challenges our economic system. The stability of this system is at risk if we don't fully understand the impact of technology on money flow and fail to replace economic policy based on political interests with one centered

on empirical, scientific evidence and innovative artificial intelligence methods of analysis.

Blaming the foreigners might make for good sound bites at political rallies, but it does nothing to help solve the real problem that is looming before us. The way we transfer goods across the country is a case in point. There are 3.5 million licensed professional truck drivers who will be losing their jobs before long. At first it will just be a small convoy of three or four driverless trucks, all automated except for one backup driver in the lead truck. After covering hundreds of miles on the highways, they will finally reach a truck stop near their final destination, where they will pick up local drivers for the short remaining trips. But even that part will ultimately be taken over by automation. Another million drivers will serve as local around-town drivers, such as local bus drivers, taxi drivers, and pizza delivery drivers. Sometime within the next ten years, many of them will begin to be replaced. Driverless trucks with vending machines will begin appearing at work sites and sports events. Automated drones will drop packages into home delivery boxes or down home delivery chutes.

As IBM's Deep Blue beat the established chess champions, Watson beat the best *Jeopardy!* contestants, and DeepMind's AlphaGo beat the best Go champions, the shift to physical and mental automation has picked up speed. IBM has recently announced major advances in quantum computing, which will enable computers to solve heretofore impossibly complex problems. Nor are changes limited to computer labs. Even in medicine, physicians will more and more depend on computer algorithms for diagnoses, recommended protocols, and prognoses.

The theme of the 20th century was mass production and one size fits all. The theme of the 21st century has become diversity and the uniqueness of the individual. This focus on uniqueness has required more complicated algorithms in almost every realm—from targeted advertising to individualized teaching and learning. The ever-increasing demands for

mental skills have required even greater automation. In our digital life, variable costs have fallen dramatically as the cost of adding another user to Facebook is essentially zero. Jeremy Rifkin has astutely labeled this the "zero marginal cost society."[18]

SUMMARY, OVERVIEW, AND TRANSITION

This chapter has reviewed the history of how money, which originally flowed primarily to labor, has shifted over time to flow more and more to capital. The battle between labor and capital continues, with more education designed to enhance the power of labor, which economists call human capital[19] (i.e., labor enhanced through education), followed by greater application of artificial intelligence that improves robotics and adds to the power of capital.

While the benefits of additional education are diminished over time, the debt bubble grows as the middle class falls deeper and deeper into debt; this happens as those who derive their incomes from labor try to compete with those who derive their incomes from capital. Meanwhile, the continual decline of variable costs keeps labor at a disadvantage as the growing shift to fixed costs directs more and more money to capital. The continual buildup of debt for labor and massive savings for capital creates economic

continued

18 Rifkin, Jeremy. *The Zero Marginal Cost Society*. New York: St. Martin's Press, 2014.

19 Becker, Gary. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago: University of Chicago Press, 1964.

instability with simultaneous consumer debt bubbles and investor stock market bubbles.

The next chapter will explore the broader context of the role of money in our overall economy. It will discuss the common property resource nature of our overall economy, which prevents unassisted free enterprise from maintaining a proper money flow. A common property resource is a shared community resource, such as a publicly owned lake, the air we breathe, or the total demand for goods and services. Just as people may benefit as individuals from overfishing a lake, polluting the air, or decreasing their demand for goods and services during a recession, society as a whole would benefit from less excessive fishing and polluting, and from increasing consumer demand during economic downturns. The money flow paradigm presents government as the essential component in maintaining a healthy money flow in overcoming the common property resource problem and the natural booms and busts inherent in the free market system.

As George Cooper has made abundantly clear, the free market works great in nonfinancial markets with the buying and selling of consumer products and services, but it fails miserably in financial markets in the buying and selling of stocks, bonds, and a host of financial derivatives with perverse tendencies toward instability and disequilibrium. Under the money flow paradigm, the government takes direct control of the overall money flow as the key to maintaining a stable and healthy free market economy.

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OPTIMAL MONEY FLOW

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