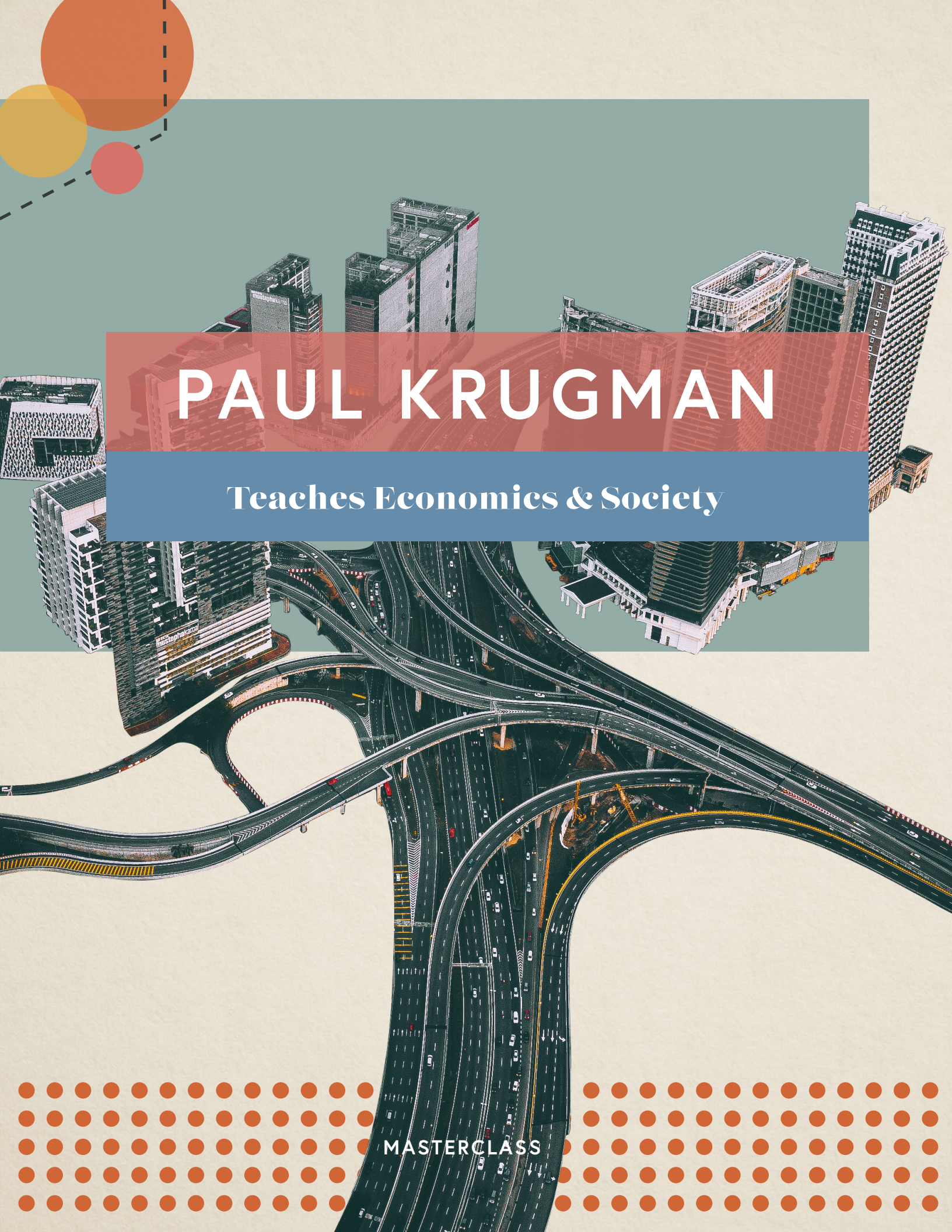

PAUL KRUGMAN

Teaches Economics & Society

MASTERCLASS

Meet Your Instructor:
Paul Krugman

Paul Krugman won the 2008 Nobel Memorial Prize in Economic Sciences for his groundbreaking work on international trade and economic geography. He is the author or editor of 20 books and more than 200 papers in professional journals and edited volumes. Paul is one of the founders of the "new trade theory," a major rethinking of the theory of international trade, for which he also received the John Bates Clark Medal in 1991 from the American Economic Association, a prize given every two years to "that economist under forty who is adjudged to have made a significant contribution to economic knowledge."

As one of the world's best known and most acclaimed economists, Paul writes on the leading issues of the day affecting the world economy. An insightful, outspoken op-ed columnist for *the New York Times*, his twice-weekly op-ed pieces for *the New York Times* reflect his depth of insight and unflinchingly outspoken style. The most recent of Paul's many books, *End This Depression Now!*, is a call for action. In it, Paul has a powerful message for anyone who has suffered during the Great Recession—a quick, strong recovery is just one step away, if our leaders can find the "intellectual clarity and political will" to end this depression now. His previous books include *The Conscience of a Liberal*, *The Great Unraveling*, a bestseller, and *The Return of Depression Economics and the Crisis of 2008*, an updated edition of his 1999 book, *The Return of Depression Economics*.

In addition to the Nobel Prize, Paul's work in economics has earned him broad acclaim from the economic press, several prestigious awards, and worldwide recognition as a leader in the fields of economic geography and the role of increasing returns in shaping international trade. He is recognized worldwide as a leader in the fields of economic geography and the role of increasing returns in shaping international trade.

Paul is a Professor of Economics and Distinguished Scholar at the Graduate Center's Stone Center at City University of New York (CUNY). He previously taught at Princeton University, MIT, and Stanford. He was chosen as one of *Bloomberg*'s 10 Most Influential Thinkers in 2013 and has been named one of *Bloomberg*'s 50 Most Influential People in Global Finance four times, in 2011, 2012, 2013, and 2015. He has been honored to be one of *Foreign Policy*'s Top 100 Global Thinkers for five straight years, plus one. (2005, 2008-2012).

Introduction

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It's never been more important
to educate yourself.

Introduction

Chapter Review

Economics is an enormous part of our daily lives and touches nearly every decision that business and government makes. This course is designed to help you think like an economist. In today's world, self-proclaimed experts issue contradictory opinions on topics ranging from health care to taxes to international trade. It's up to us to sort out what's reliable and what's not. Paul will share the insights that he's developed from decades as one the world's most prominent economists, as well as his methods for analyzing complex topics. This MasterClass will cover many of the issues you see in newspaper headlines everyday—financial crises, health care, taxes, international trade, urbanization, and globalization—and provide tools to help you make sense of it all.

Learn More

Thinking like an economist can be strange and difficult at first. This article by Richard Nisbett helps explain why.

What Is Economics?

> Economic theory is mostly just a collection of stories.

What Is Economics?

Subchapters

Chapter Review

At its heart, economics is about people—specifically, it's about how people make their way in the world. It's about how they earn a living and how they spend their income. By restricting focus to these basic elements of human life, economists are able to identify a few primary motivations such as the desire to provide for one's family, or the need for a business to earn a profit. These motivations are simple, but from them economists have been able to generate very complex and insightful stories about issues ranging from how people save for retirement to how the growth of China will affect US wages. These stories are the heart of economic theory. Economic theory is often presented in mathematical models, which ensure that economists are rigorous in their thinking and logical in their conclusions. However, those complex equations are nothing more than stories translated into the language of mathematics.

Using those stories or theories, economists are able to predict a wide variety of human behavior. In our ordinary lives, it may seem impossible to predict what anyone will do next, even those who are closest to us. Yet, if there weren't some underlying predictability to our collective human story, life as we know it wouldn't be possible. For example, you predict that when you go to the supermarket there will be eggs and milk for sale. The supermarket in turn predicts that the distributors will deliver eggs and milk regularly to their warehouses and lastly the distributors predict that farmers will offer eggs and milk for sale. All of this has to happen regularly—every day in fact—to ensure that fresh eggs and milk are available all across the country. Who controls this process? No one, it turns out. It happens because each person or company is predictable enough in their behavior to make the whole system run. Adam Smith referred to this process as the "invisible hand" of the market.

"[Each individual] generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it...He intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention."

—Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, Book 4, Chapter 2.

Economists study this predictability—and they try to understand how it works and why sometimes it goes wrong. The theories that economists present may seem like an oversimplification—but this is on purpose. Simplification makes it possible to see through to the heart of what makes the economy tick. Otherwise there would be too many factors.

Good economists, however, realize the limits of their oversimplifications. They know that their theories hold only an average. They look for exceptions to the rule and then study those exceptions. Economists who specialize in a particular type of exception can add

richness to the more basic theories that all economists use. For example, behavioral economists study how things like stress at home or automatic enrollment into 401ks can affect how families decide how much to save.

Looking honestly at human motivations and the consequences of human actions sometimes involves investigating the darker features of society. Economics has been labeled the "dismal science" for its tendency to wade into these matters. Most famously, Thomas Malthus, a late 18th century economist, predicted that overall progress was impossible. He argued that all efforts at progress would end up reducing mortality rates, which would lead to a larger population. A larger population would put greater strain on the fundamentally limited food supply. That strain would drive down standards of living until they were the same as before.

Although Paul points out that Malthus's theory didn't hold up in the contemporary world, understanding it can help us be better thinkers overall. The driving forces of the world typically work in amoral ways. Even if our goal is to build a more moral or just society, in order to do that we have to understand in a clear-eyed way how these forces work.

Learn More

Paul discusses Adam Smith's text, *An Inquiry Into the Nature and Causes of the Wealth of Nations* (often called, more simply, *The Wealth of Nations*) in this chapter, and will do so in more detail in later chapters. Familiarize yourself with the landmark text, which you read for free online via Project Gutenberg.

Economists collect and analyze tons of data. Much of that is organized by the Federal Reserve Economic Data project, or "FRED." This is a tool Paul uses often, and he will use it later in this MasterClass. Familiarize yourself with it now by browsing through their interactive graphs.

Interested in the economic history of the United States? Check out the Smithsonian's online exhibit "American Enterprise," which details the history of business in America.

Two Fundamental Principles of Economics

Most economic thinking comes down to just two principles.

Two Fundamental Principles of Economics

Subchapters

Chapter Review

There are two fundamental insights at the heart of economics. The first is that people respond to incentives. Obvious opportunities to be better off are rarely left unexploited. The second is that every economic transaction has two sides: each side gets something and each side gives up something. When we consider the whole economy, those two sides have to add up. For everything we buy there must be something that we sell. For every good imported into our country something must be exported. These two rules taken together can provide tremendous insight into how economies work.

For example, any story which implies that people pass on an opportunity to improve their economic standing is likely missing something. The Victorian economist David Ricardo used this insight to understand how landlords and farmers negotiated rents. Farmers want to cultivate the best possible land, where they can raise the most crops. Landlords want to charge the highest rent that farmers will be willing to pay. What then determines how much produce a farmer will have to pay to his landlord in rent and how much he will get to keep for himself? Ricardo reasoned that all farmers would get to keep an amount roughly equal to what could be produced on the worst plot of land under cultivation and any amount over would be paid in rent to the landlord.

Why? Suppose a landlord tried to charge so much rent that the farmer actually ended up with less than he could produce on the worst plot of land. In that case, the farmer could get a better deal by offering a very tiny amount to rent land that was so bad no one was currently cultivating it. The owner of that uncultivated plot isn't receiving any rent now, so even a tiny amount of rent makes him better off. Thus the farmer leaves his old landlord and rents the uncultivated plot (see figure 1).

On the flip side, suppose another farmer demands that his landlord lower the rent, so that the farmer can keep more than what could be produced on the worst plot of land currently under cultivation. In that case, the landlord can threaten to evict his current farmer and rent the plot out to whoever is farming the very worst plot of land instead. The opportunity for farmers to find a new landlord or landlord's ability to find a new farmer keeps the income of all the farmers roughly the same. They all fall in a fairly narrow range around the amount that a farmer could produce on the worst plot of land. Neither the actual productivity nor the actual needs of any individual farmer plays much of a role in determining his income. His income is set by the quality of a plot of land that might be very far away, farmed by someone he will probably never meet.

The second principle—that economies have two sides and that every sale is also purchase—can lead us to equally powerful insights. For example, people are often worried that the United States runs a trade deficit year after year. It seems like we're buying more from the rest of the world than they are buying from us. Economics tells us this story must be missing something. When we buy footwear from China, they send

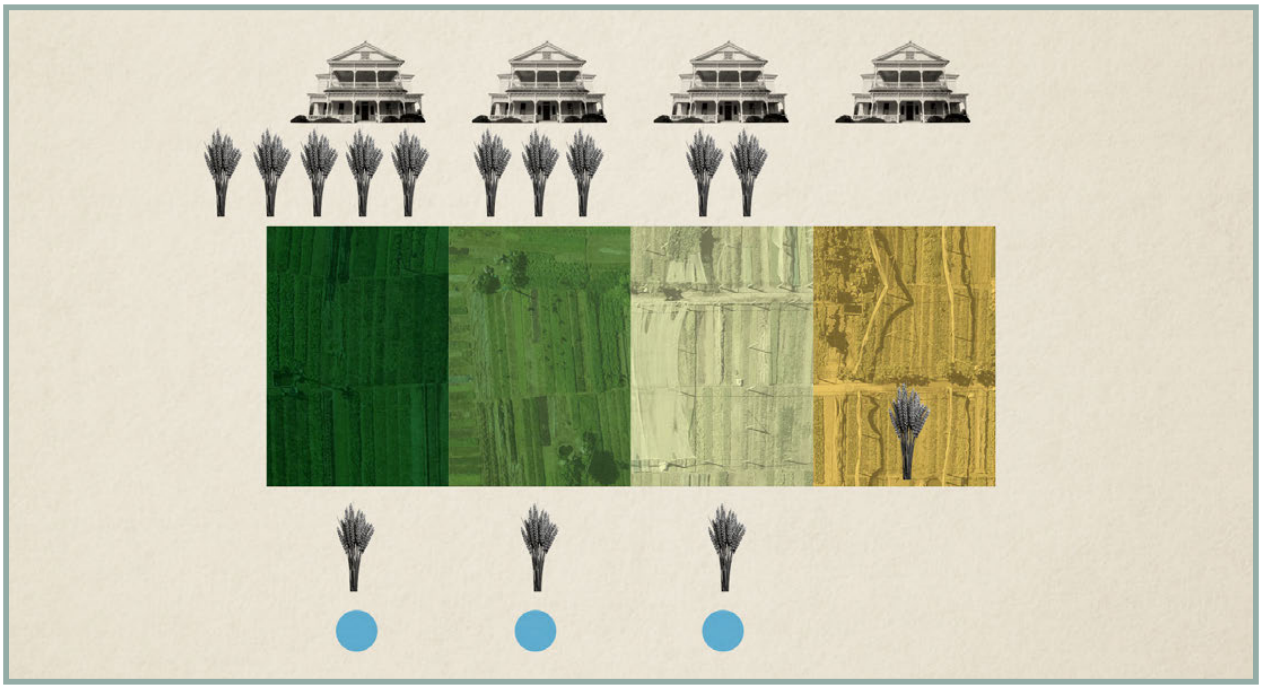

FIGURE 1

us shoes and we send them dollars. What does China do with the dollars? Some they use to buy US exports like soybeans. The rest, however, they use to buy US government bonds.

The story of the Great Capitol Hill Babysitting Co-Op Crisis is a simple and true story that illustrates this principle in action. The story concerns a group of parents who worked on Capitol Hill. Babysitters in downtown DC can be expensive, so they decided to form a co-op to trade babysitting responsibilities. They printed coupons, each good for a half-hour of babysitting. When a couple wanted to go out for a night they would find another couple who was staying in and willing to babysit. The couple that went out would give the couple who stayed in a coupon for each half-hour they babysat that night (see figure 2).

All couples started out with a fixed number of coupons, so that no couple would be able to abuse the system by always going out more than they babysat. The system worked great for a while, until a bunch couples stopped going out, all at the same time. That meant it was easy to find a sitter but hard to find an opportunity to sit. The couples who were still going out started to run low on coupons. Some of them began to get nervous and they started saving their coupons for special occasions. That resulted in even fewer couples going out, making it even harder to find an opportunity to sit.

The cycle fed on itself. Eventually, all the couples were afraid of potentially running out of coupons and so they only rarely went out, making it nearly impossible for a couple to earn coupons to use when they needed them. The lack of opportunity to earn created a scarcity mindset, which made couples too afraid to use the coupons they had. Needless to say this defeated the entire purpose of the co-op, which was to allow couples to go out more. This happened not because there weren't enough sitters, but because there weren't enough coupons. This shortage of coupons changed the incentive to go out.

We think of the couples who go out as "buying" a night of babysitting from the couples who stayed in. However, they were also "selling" extra coupons to the couples who stayed in. Both getting a babysitter for the night and having extra coupons were desirable.
In this example, the essential principle modeled here—that every sale is also a purchase—also helps us understand why economies go into recessions,

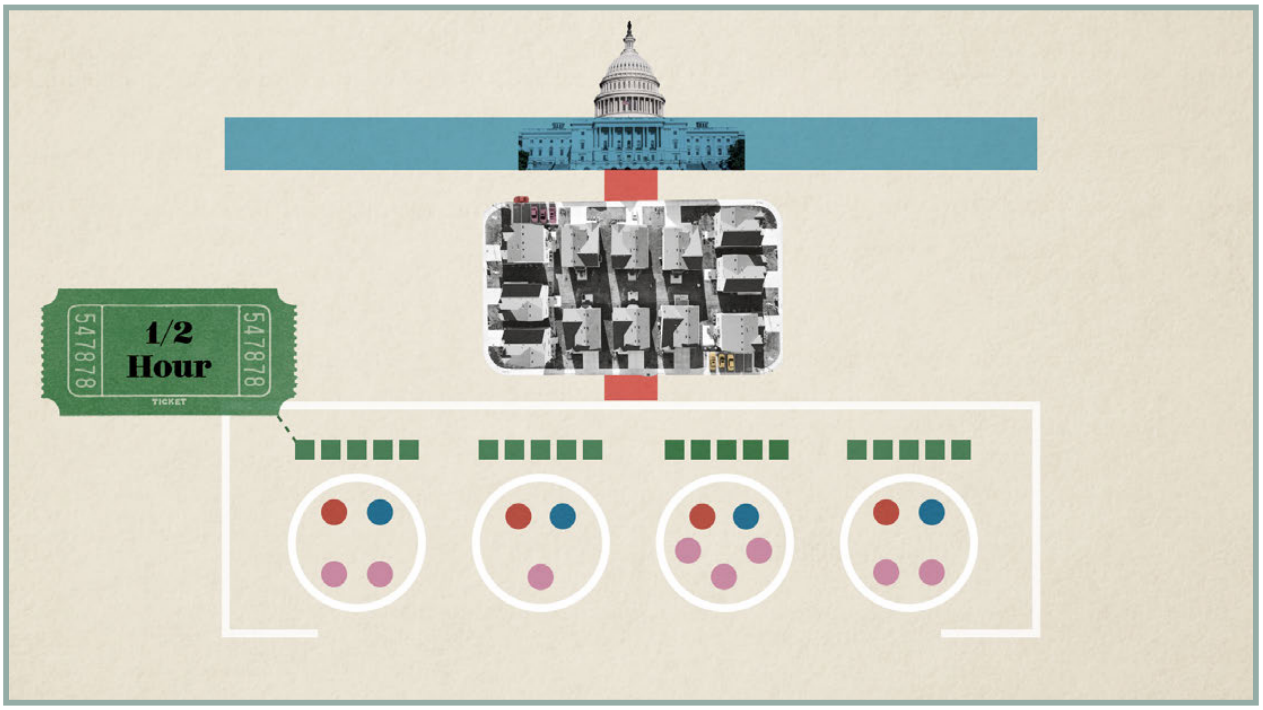

FIGURE 2

which are periods in which economic activity declines overall. We'll revisit the Babysitting Co-Op crisis when we discuss the economics of recessions in more detail. It's a marvelous example of how a simple story can illustrate the essential principles of complex phenomena. For economists, this is a thing of beauty.

Learn More

Many economists consider David Ricardo one of the most important classical economists, after Adam Smith. Ricardo was able to articulate through words and simple examples concepts that would come to be fundamental tools of economic analysis. He outlined the Law of Comparative Advantage, which explaines how trade is beneficial to all parties involved. He also offered probably the first analysis of how automation could hurt workers.

As Paul discusses, Ricardo also articulated the Law of Diminishing Returns, which today underlies economists' understanding of supply and demand, and how prices and wages are determined. Learn more about Ricardo's life and work.

The Great Capitol Hill Baby-Sitting Co-Op Crisis is a classic in economics. Read the original here.

Paul's second principle is often illustrated using the circular flow model. The economy can be thought of as two cycles moving in opposite directions. In one direction, we see goods and services flowing from individuals to businesses and back again. This represents the fact that, as workers, we go to work to make things people want or provide a service that people need. Then, as consumers, we receive the things we want and need from other businesses. In the opposite direction, we see money flowing from businesses to households and back again. This represents the payments that we make for the things we buy and the income from the work that we do. The key takeaway is that both cycles are needed to make the economy work. When we buy things, we give up money for the things we want. When we go to work we make things in exchange for money. It's easy to allow the money flow to fade into the background, but if something disrupts it, then the result can be an economic recession. Take a look at economist Jodi Beggs's rendering of the circular flow model for more information.

Major Developments in Economic Thought

> The wealth of a country consists not in gold and silver, but in its ability to produce stuff.

Major Deveopments in Economic Thought

Subchapters

Chapter Review

Economists have been creating, debating, and testing theories about the economy for more than 250 years. Almost every "new" idea anyone has about the economy has probably been debated and discarded long ago. That doesn't mean that it's impossible to have genuinely original insights. It simply means that to do so, one must study an enormous amount of economic history. As unique as today's events seem, they often have close parallels in the past. The Panic of 1893 was remarkably similar to the Great Recession of 2008. The current era of globalization shares much in common with the wave of globalization that occurred in the late 1800s.

The field of economics itself developed alongside a dramatic shift in the way economies operated in general. Before the Industrial Revolution, the economy in most places looked nearly the same century after century. Suddenly, in the mid 1700s, the technological innovations in manufacturing and transportation brought rapid growth and change to England's economy. Adam Smith, who is widely credited with creating the discipline of economics with his book *The Wealth of Nations* (1776), realized that this dramatic transformation in the way economies worked was driven in large part by the division of labor. He used the example of a pin factory to show how a group of workers, each specializing in one aspect of pin manufacturing, could produce more pins faster than the same number of master craftsmen working alone. Thus, he argued, countries were rich or poor not based on their levels of precious metals or other stores of wealth, but based on their capacity to produce the everyday things their citizens needed and wanted.

Smith's theory created a prevailing belief among economists that prosperity was assured if productive capacity was increased using the types of processes that Smith identified. If the prosperity of an entire economy declined, it was assumed that something had gone wrong with its productive capacity. There was also a general belief among economists in something called Say's Law. Say's Law states that supply creates its own demand. By "supply" economists mean the creation of goods and services. By "demand" economists mean the desire to purchase goods and services. Say's Law suggests that on average the quantity of goods created will be equal to the quantity people want to buy.

It may be the case that not many people want to buy a particular type of good and individual suppliers can go out of business. However, economists used to believe that the lack of demand for one good simply means that people prefer to spend their money on a different good. Indeed, it's the desire to buy goods that induces people to offer goods for sale. When someone offers goods for sale they are hoping to earn money to buy something else. In this way, the supply of one good represents the demand for some other good.

Say's Law suggests that there could never be a general lack of demand. That is, it could not be the case

that consumers simply didn't want to buy as many goods as were being offered for sale. This creates a puzzle, however, because economists observe what is known as the business cycle: at times it seems like almost all businesses are able to sell as much as they want, while at other times virtually all business are having trouble selling as much as they want.

John Maynard Keynes eventually solved this puzzle by connecting several dots. First, people like to have a little extra money in reserve in case of an emergency. Second, if everyone becomes fearful at once, everyone will attempt to increase their reserves at the same time. Third, if everyone increases their reserves at the same time, there will not be enough spending to buy all the goods and services for sale. Fourth, if there is not enough spending to buy all the goods and services for sale, the level of fear in the economy will increase. This fear will, in turn, cause people to want to increase their reserves of money and the cycle will build on itself. This cycle is difficult to stop because people cannot get the very thing they want—more money in reserve—because the only way to get money is by selling something to other people. Those people will be reluctant to buy because they too are trying to increase their reserves.

It is no accident that Keynes developed his theory during the Great Depression. Economists were perplexed by business cycles prior to the Great Depression, but the length and intensity of this recession created a sense of profound urgency to finally solve the mystery. Keynes explained that the prosperity of whole economies could decline even if their capacity to produce was undiminished. Even productive economies could get caught in a trap where a lack of spending could cause businesses to cut back on production. The cuts in production would then lead businesses to reduce the number of workers they employed. The reduction in employment opportunities would then lead families to cut back on spending, worsening the original problem.

The story of the Great Capitol Hill Babysitting Co-Op Crisis, discussed in Chapter 3: Two Fundamental Principles of Economics, helps illustrate Keynes's insight on a smaller scale. Economists before Keynes would have said that all that is needed for the Babysitting Co-Op to prosper is for there to be enough couples willing and able to babysit. In fact, however, the Babysitting Co-Op has two sides. In addition to being willing and able to babysit, couples also have to be willing and able to go out and spend their babysitting coupons.

This second problem, the unwillingness to spend coupons, has a solution so straightforward that it seems too good to be true. Indeed, even today many economists who haven't specialized in studying money or recessions find it hard to believe. The solution is simply to print more coupons and give them to people. If for some reason giving the coupons away is problematic, then the Babysitting Co-Op could offer to pay coupons to its members for services other than babysitting, such as sending out announcements or hosting meetings.

These solutions match exactly the options available to real governments. In most cases, governments can mitigate and reverse downturns by printing more money and effectively loaning it out at cheap interest rates. If that solution is problematic, then government can pay people to build public works, cut taxes, or expand safety net programs.

Learn More

Economists still debate why the Industrial Revolution occurred when and where it did. Read economist Robert Allen's argument that high wages were crucial in sparking the Industrial Revolution.

Keynes is widely credited with creating macroeconomics as a distinct sub-discipline from the rest of economics, with his book *The General Theory of Employment, Interest, and Money* (1936). Find out more about him in his obituary in *The Economist*. Dive even deeper by reading Nobel Laureate Richard Posner's thoughts on reading Keynes's *General Theory*.

Read the opening chapter of *The Wealth of Nations*, in which Adam Smith analyzes the division of labor in a pin-making factory, reproduced on the following page.

AN EXCERPT FROM

THE WEALTH OF NATIONS

Adam Smith

The greatest improvements in the productive powers of labour, and the greater part of the skill, dexterity, and judgment, with which it is anywhere directed, or applied, seem to have been the effects of the division of labour. The effects of the division of labour, in the general business of society, will be more easily understood, by considering in what manner it operates in some particular manufactures. It is commonly supposed to be carried furthest in some very trifling ones; not perhaps that it really is carried further in them than in others of more importance: but in those trifling manufactures which are destined to supply the small wants of but a small number of people, the whole number of workmen must necessarily be small; and those employed in every different branch of the work can often be collected into the same workhouse, and placed at once under the view of the spectator.

In those great manufactures, on the contrary, which are destined to supply the great wants of the great body of the people, every different branch of the work employs so great a number of workmen, that it is impossible to collect them all into the same workhouse. We can seldom see more, at one time, than those employed in one single branch. Though in such manufactures, therefore, the work may really be divided into a much greater number of parts, than in those of a more trifling nature, the division is not near so obvious, and has accordingly been much less observed.

To take an example, therefore, from a very trifling manufacture, but one in which the division of labour has been very often taken notice of, the trade of a pin-maker: a workman not educated to this business (which the division of labour has rendered a distinct trade), nor acquainted with the use of the machinery employed in it (to the invention of which the same division of labour has probably given occasion), could scarce, perhaps, with his utmost industry, make one pin in a day, and certainly could not make twenty. But in the way in which this business is now carried on, not only the whole work is a peculiar trade, but it is divided into a number of branches, of which the greater part are likewise peculiar trades. One man draws out the wire; another straights it; a third cuts it; a fourth points it; a fifth grinds it at the top for receiving the head; to make the head requires two or three distinct operations; to put it on is a peculiar business; to whiten the pins is another; it is even a trade by itself to put them into the paper; and the important business of making a pin is, in this manner, divided into about eighteen distinct operations, which, in some manufactories, are all performed by distinct hands, though in others the same man will sometimes perform two or three of them. I have seen a small manufactory of this kind, where ten men only were employed, and where some of them consequently performed two or three distinct operations. But though they were very poor, and therefore but indifferently accommodated with the necessary machinery, they could, when they exerted themselves, make among them about twelve pounds of pins in a day. There are in a pound upwards of four thousand pins of a middling size. Those ten persons, therefore, could make among them upwards of forty-eight thousand pins in a day. Each person, therefore, making a tenth part of forty-eight thousand pins, might be considered as making four thousand eight hundred pins in a day. But if they had all wrought separately and independently, and without any of them having been educated to this peculiar business, they certainly could not each of them have made twenty, perhaps not one pin in a day; that is, certainly, not the two hundred and fortieth, perhaps not

the four thousand eight hundredth, part of what they are at present capable of performing, in consequence of a proper division and combination of their different operations.

In every other art and manufacture, the effects of the division of labour are similar to what they are in this very trifling one, though, in many of them, the labour can neither be so much subdivided, nor reduced to so great a simplicity of operation. The division of labour, however, so far as it can be introduced, occasions, in every art, a proportionable increase of the productive powers of labour. The separation of different trades and employments from one another, seems to have taken place in consequence of this advantage. This separation, too, is generally carried furthest in those countries which enjoy the highest degree of industry and improvement; what is the work of one man, in a rude state of society, being generally that of several in an improved one. In every improved society, the farmer is generally nothing but a farmer; the manufacturer, nothing but a manufacturer. The labour, too, which is necessary to produce any one complete manufacture, is almost always divided among a great number of hands. How many different trades are employed in each branch of the linen and woollen manufactures, from the growers of the flax and the wool, to the bleachers and smoothers of the linen, or to the dyers and dressers of the cloth! The nature of agriculture, indeed, does not admit of so many subdivisions of labour, nor of so complete a separation of one business from another, as manufactures. It is impossible to separate so entirely the business of the grazier from that of the corn-farmer, as the trade of the carpenter is commonly separated from that of the smith. The spinner is almost always a distinct person from the weaver; but the ploughman, the harrower, the sower of the seed, and the reaper of the corn, are often the same. The occasions for those different sorts of labour returning with the different seasons of the year, it is impossible that one man should be constantly employed in any one of them. This impossibility of making so complete and entire a separation of all the different branches of labour employed in agriculture, is perhaps the reason why the improvement of the productive powers of labour, in this art, does not always keep pace with their improvement in manufactures. The most opulent nations, indeed, generally excel all their neighbours in agriculture as well as in manufactures; but they are commonly more distinguished by their superiority in the latter than in the former. Their lands are in general better cultivated, and having more labour and expense bestowed upon them, produce more in proportion to the extent and natural fertility of the ground. But this superiority of produce is seldom much more than in proportion to the superiority of labour and expense. In agriculture, the labour of the rich country is not always much more productive than that of the poor; or, at least, it is never so much more productive, as it commonly is in manufactures. The corn of the rich country, therefore, will not always, in the same degree of goodness, come cheaper to market than that of the poor. The corn of Poland, in the same degree of goodness, is as cheap as that of France, notwithstanding the superior opulence and improvement of the latter country. The corn of France is, in the corn-provinces, fully as good, and in most years nearly about the same price with the corn of England, though, in opulence and improvement, France is perhaps inferior to England. The corn-lands of England, however, are better cultivated than those of France, and the corn-lands of France are said to be much better cultivated than those of Poland. But though the poor country, notwithstanding the inferiority of its cultivation, can, in some measure, rival the rich in the cheapness and goodness of its corn, it can pretend to no such competition in its manufactures, at least if those manufactures suit the soil, climate, and situation, of the rich country. The silks of France are better and cheaper than those of England, because the silk manufacture, at least under the present high duties upon the importation of raw silk, does not so well suit the climate of England as that of France. But the hardware and the coarse woollens of England are beyond all comparison superior to those of France, and much cheaper, too, in the same degree of goodness. In Poland there are said to be scarce any manufactures of any kind, a few of those coarser household manufactures excepted, without which no country can well subsist.

This great increase in the quantity of work, which, in consequence of the division of labour, the same number of people are capable of performing, is owing to three different circumstances; first, to the increase of dexterity in every particular workman; secondly, to the saving of the time which is commonly lost in passing from one species of work to another; and, lastly, to the invention of a great number of machines which facilitate and abridge labour, and enable one man to do the work of many.

First, the improvement of the dexterity of the workmen, necessarily increases the quantity of the work he can perform; and the division of labour, by reducing every man's business to some one simple operation, and by making this operation the sole employment of his life, necessarily increases very much the dexterity of the workman. A common smith, who, though accustomed to handle the hammer, has never been used to make nails, if, upon some particular occasion, he is obliged to attempt it, will scarce, I am assured, be able to make above two or three hundred nails in a day, and those, too, very bad ones. A smith who has been accustomed to make nails, but whose sole or principal business has not been that of a nailer, can seldom, with his utmost diligence, make more than eight hundred or a thousand nails in a day. I have seen several boys, under twenty years of age, who had never exercised any other trade but that of making nails, and who, when they exerted themselves, could make, each of them, upwards of two thousand three hundred nails in a day. The making of a nail, however, is by no means one of the simplest operations. The same person blows the bellows, stirs or mends the fire as there is occasion, heats the iron, and forges every part of the nail: in forging the head, too, he is obliged to change his tools. The different operations into which the making of a pin, or of a metal button, is subdivided, are all of them much more simple, and the dexterity of the person, of whose life it has been the sole business to perform them, is usually much greater. The rapidity with which some of the operations of those manufactures are performed, exceeds what the human hand could, by those who had never seen them, be supposed capable of acquiring.

Secondly, The advantage which is gained by saving the time commonly lost in passing from one sort of work to another, is much greater than we should at first view be apt to imagine it. It is impossible to pass very quickly from one kind of work to another, that is carried on in a different place, and with quite different tools. A country weaver, who cultivates a small farm, must loose a good deal of time in passing from his loom to the field, and from the field to his loom. When the two trades can be carried on in the same workhouse, the loss of time is, no doubt, much less. It is, even in this case, however, very considerable. A man commonly saunters a little in turning his hand from one sort of employment to another. When he first begins the new work, he is seldom very keen and hearty; his mind, as they say, does not go to it, and for some time he rather trifles than applies to good purpose. The habit of sauntering, and of indolent careless application, which is naturally, or rather necessarily, acquired by every country workman who is obliged to change his work and his tools every half hour, and to apply his hand in twenty different ways almost every day of his life, renders him almost always slothful and lazy, and incapable of any vigorous application, even on the most pressing occasions. Independent, therefore, of his deficiency in point of dexterity, this cause alone must always reduce considerably the quantity of work which he is capable of performing.

Thirdly, and lastly, everybody must be sensible how much labour is facilitated and abridged by the application of proper machinery. It is unnecessary to give any example. I shall only observe, therefore, that the invention of all those machines by which labour is so much facilitated and abridged, seems to have been originally owing to the division of labour. Men are much more likely to discover easier and readier methods of attaining any object, when the whole attention of their minds is directed towards that single object, than when it is dissipated among a great variety of things. But, in consequence of the division of labour, the whole of every man's attention comes naturally to be directed towards some one very simple object. It is naturally to be expected, therefore, that some one or other of those who are employed in each particular branch of labour

should soon find out easier and readier methods of performing their own particular work, whenever the nature of it admits of such improvement. A great part of the machines made use of in those manufactures in which labour is most subdivided, were originally the invention of common workmen, who, being each of them employed in some very simple operation, naturally turned their thoughts towards finding out easier and readier methods of performing it. Whoever has been much accustomed to visit such manufactures, must frequently have been shewn very pretty machines, which were the inventions of such workmen, in order to facilitate and quicken their own particular part of the work. In the first fire engines {this was the current designation for steam engines}, a boy was constantly employed to open and shut alternately the communication between the boiler and the cylinder, according as the piston either ascended or descended. One of those boys, who loved to play with his companions, observed that, by tying a string from the handle of the valve which opened this communication to another part of the machine, the valve would open and shut without his assistance, and leave him at liberty to divert himself with his play-fellows. One of the greatest improvements that has been made upon this machine, since it was first invented, was in this manner the discovery of a boy who wanted to save his own labour.

All the improvements in machinery, however, have by no means been the inventions of those who had occasion to use the machines. Many improvements have been made by the ingenuity of the makers of the machines, when to make them became the business of a peculiar trade; and some by that of those who are called philosophers, or men of speculation, whose trade it is not to do any thing, but to observe every thing, and who, upon that account, are often capable of combining together the powers of the most distant and dissimilar objects in the progress of society, philosophy or speculation becomes, like every other employment, the principal or sole trade and occupation of a particular class of citizens. Like every other employment, too, it is subdivided into a great number of different branches, each of which affords occupation to a peculiar tribe or class of philosophers; and this subdivision of employment in philosophy, as well as in every other business, improve dexterity, and saves time. Each individual becomes more expert in his own peculiar branch, more work is done upon the whole, and the quantity of science is considerably increased by it.

Understanding Macroeconomics: The Fed and IS-LM (Wonkish)

People doing practical macroeconomics, stuff that deals with the whole economy, mostly end up thinking in terms of what's called the IS-LM model.

Understanding Macroeconomics: The Fed & IS-LM (Wonkish*)

Subchapters

Chapter Review

It's the job of the Federal Reserve, or Fed, to keep the economy healthy. Technically the Fed's mandate from Congress is to achieve full employment and price stability. Economists have long debated what the terms "full employment" and "price stability" mean in practice. The understanding today is that price stability means keeping the inflation rate around 2% per year. Full employment means getting unemployment as low as it can go without driving up inflation (see figure 1).

*Wonkish" means "in the details," especially in regards to theory and policy. Paul often labels a column "(wonkish)" when it contains a bunch of jargon and theory.

An economy that produces too little will suffer from high unemployment, since the low rate of employment opportunities will be inversely proportional to the high number of able-bodied workers. An economy that produces too much will see widespread increases in the prices of nearly all goods and services as the demand for them outpaces production capabilities. This general increase in prices is known as inflation.

To predict how much the economy will produce, the Fed and other professional economists use a model called IS-LM. The IS stands for Investment and

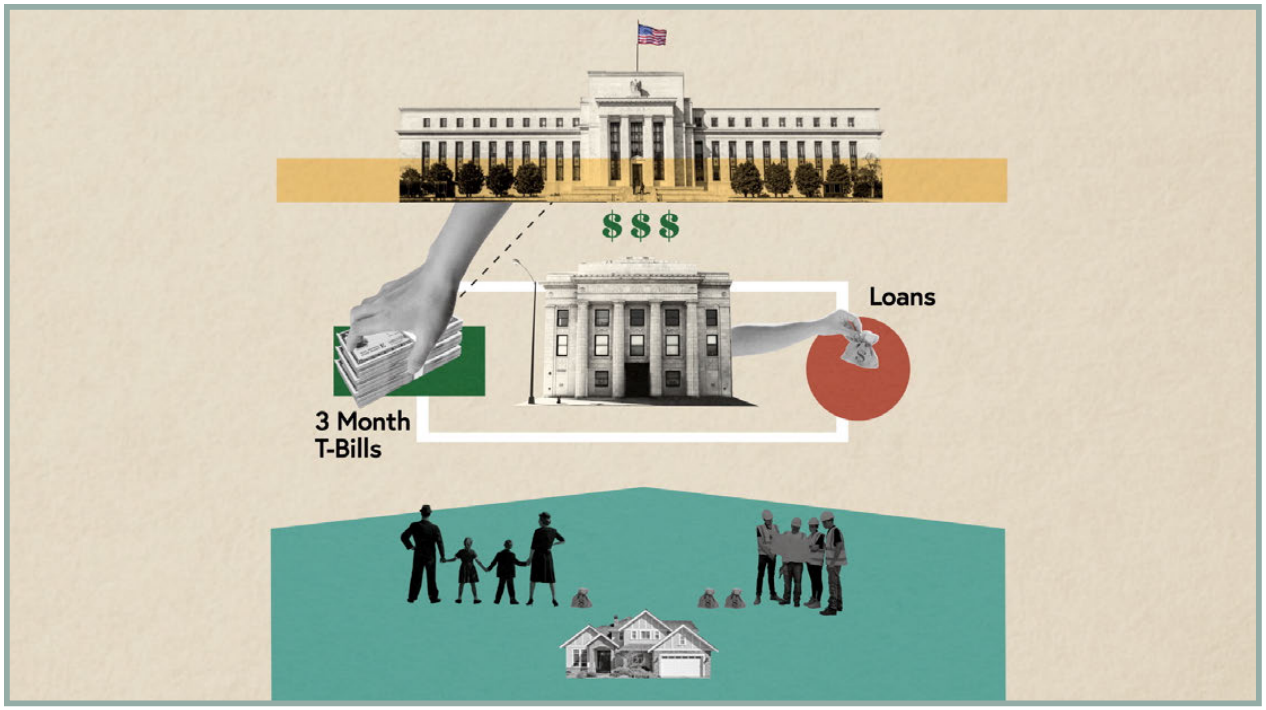

FIGURE 1

Savings. The LM stands for Liquidity and Money. The IS-LM model is based on the work of the legendary economist John Maynard Keynes. It attempts to distill many of his insights into a single graph (see figure 2).

On the vertical axis of the graph, 'r' represents the interest rate on government bonds. On the horizontal axis, 'Y' represents Gross Domestic Product, or GDP.

GDP is one of the most important statistics in economics. It represents three separate conceptions of the strength of an economy: (1) the value of everything that is produced within the country, (2) the value of everything that is purchased within the country plus that country's net exports to other countries, and (3) the income of all the individuals and businesses within the country. These three values are the same because everything that we purchase must be first produced and then sold. Then, through the selling of products and services, we earn our income. Therefore, total production, total purchases, and total income for the whole country are the same. Measuring GDP tells us an enormous amount about how we are doing as a nation. If GDP is rising, it signifies that incomes are rising, and consumers are purchasing more. All of this means a stronger economy.

The IS curve slopes down and to the right, representing the fact that as interest rates fall, people and businesses try to invest more in long-lasting goods like houses, cars, and equipment. When interest rates fall, families also tend to put less away for savings and spend more on consumer goods. Thus the effect of a falling interest rate is an increase in GDP through greater investment and less personal savings.

The LM curve slopes up and to the right. It represents what economists call the money market. As the economy expands, banks and other financial institutions need funds to support the extra investment. To get those funds, they encourage consumers to deposit more of their cash into longer term deposits like certificates of deposit or bonds.

Checking accounts pay very low interest rates and cash doesn't pay any interest rate at all. So the higher interest rate consumers can get on CDs or bonds, the more they are willing to deposit their cash in those types of longer term investments. Thus, as the economy expands, interest rates tend to rise.

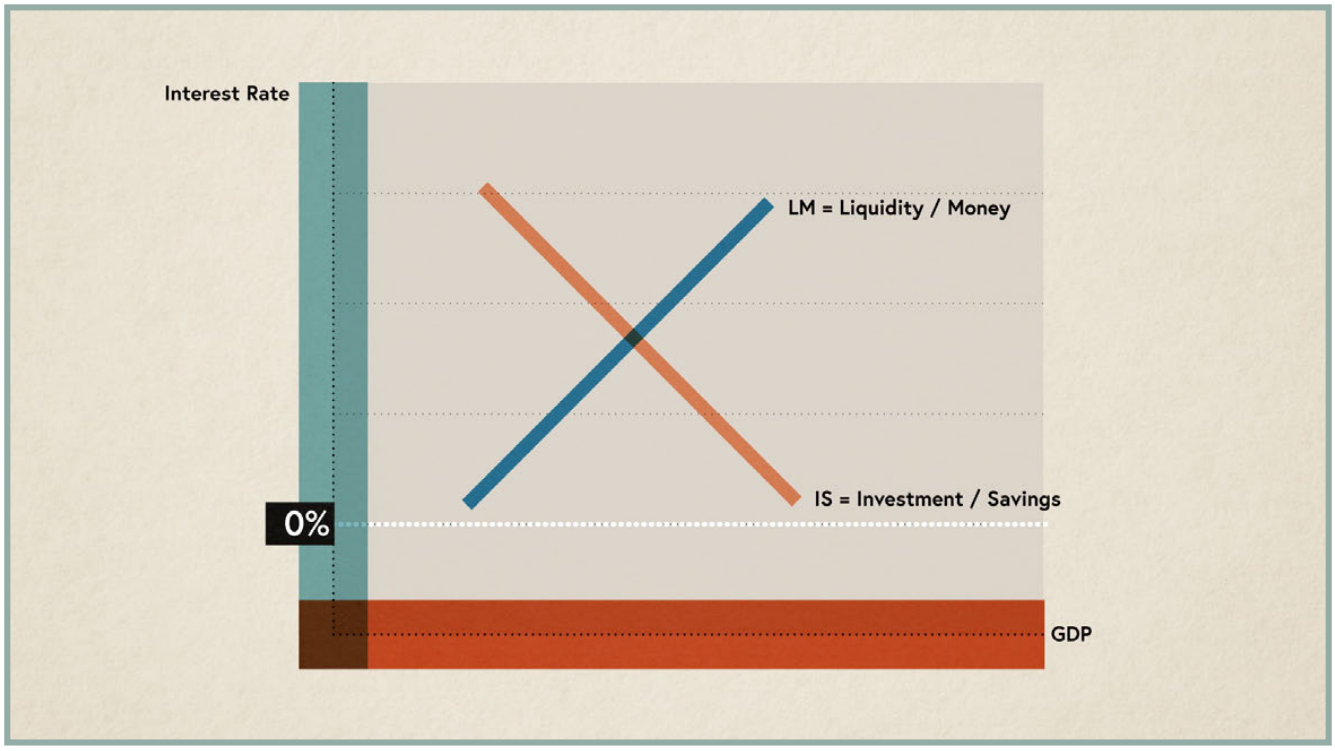

FIGURE 2

The IS relationship and LM relationship create opposing forces. On the one hand, a falling interest rate tends to cause the economy to expand. On the other hand, an expanding economy causes interest rates to rise. Where the two curves meet, the forces are balanced and the economy is in equilibrium (see figure 3).

The Federal Reserve can move the LM curve by printing money. The more money the Fed prints, the less aggressively banks have to raise interest rates to attract deposits. This causes the LM curve to shift outward.

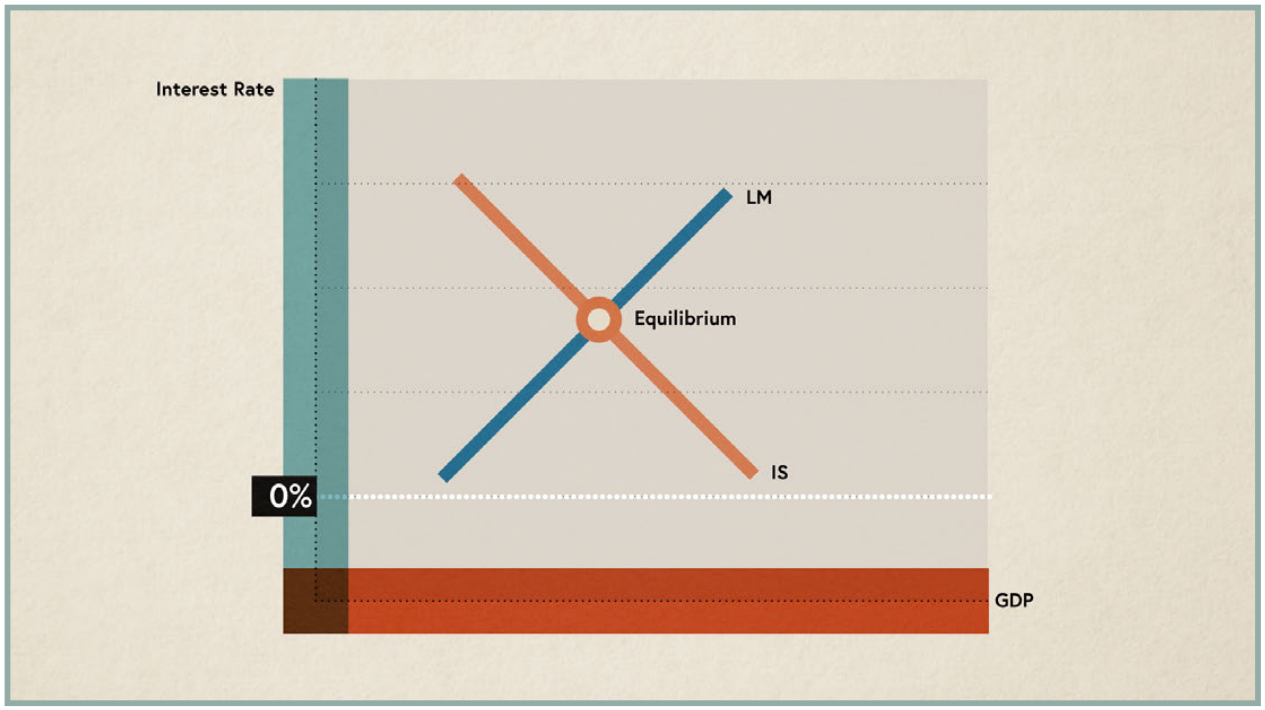

FIGURE 3

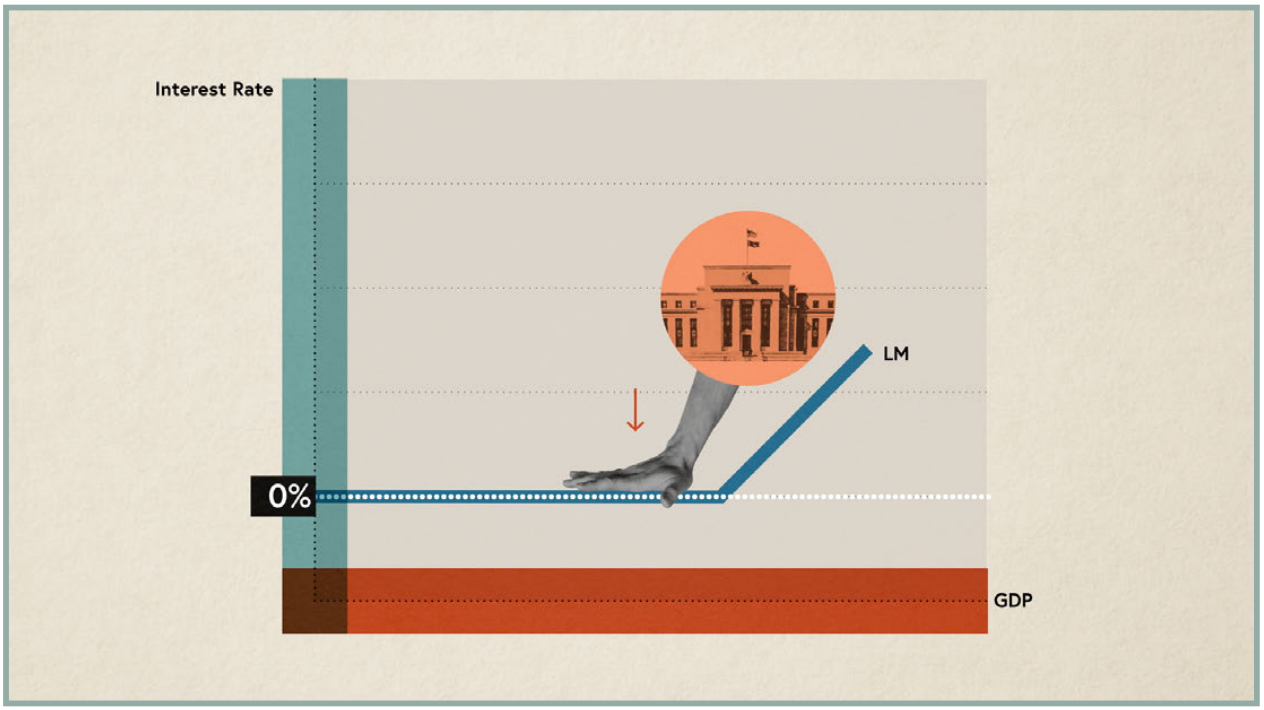

FIGURE 4

The lines now cross at a new point—one where the interest rate is lower and the economy is larger. In this way the Fed has the power to control the level of GDP (see figure 4).

Although the Fed can increase the strength of the economy by printing money, that comes at the cost of a higher rate of inflation. Higher inflation causes the IS curve to shift inwards. This causes interest rates to rise again and the economy to slow. If the Fed is not careful, its actions can backfire and lead to an economy with high rates of inflation but not very high GDP growth.

In the 1970s, the United States experienced precisely that outcome. Inflation rose throughout the 1970s while economic growth slowed. That experience left a mark on many Americans—so much so that there are people who believe that trying to increase GDP by printing money is so dangerous that it borders on evil.

Economists understand that while high inflation is a real danger, low inflation is dangerous as well. Just as high inflation can lead to permanently high interest rates, low inflation can lead to permanently low interest rates. Permanently low interest rates limits the Fed's ability to increase the strength of the economy in very bad times, which can lead to long, deep recessions.

Economists often draw the LM curve as a straight line. In fact, it has a kink at zero (see figure 5).

Interest rates cannot go below zero no matter how much money the Fed prints. Economists call this the Zero Lower Bound. When the 2008 crisis came along, the Fed attempted to counteract the economic collapse by printing money and driving down interest rates. When interest rates hit zero, however, printing money had no additional effect. In a severe depression like the one in 2008, printing money is not enough to save the economy (see figure 6).

Learn More

Read more about the mathematics behind the IS-LM model and how to use it to solve macroeconomic problems.

The Fed's inability to strengthen the economy at the Zero Lower Bound is also known as a liquidity trap. Read a discussion between two Fed economists about the Federal Reserve's efforts to combat the liquidity trap during the last crisis.

Even before the 2008 crisis, Paul warned about the reality of liquidity traps. Take a deep dive with his celebrated 1998 discussion of the phenomenon for the Brookings Institution.

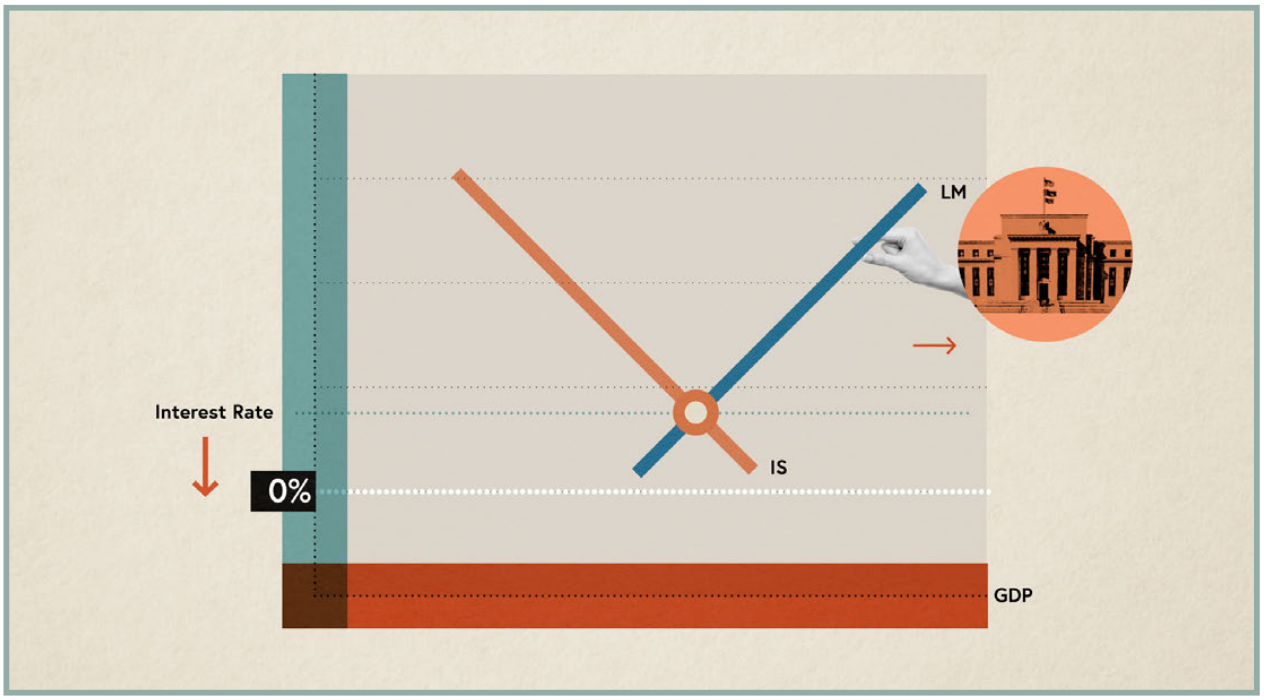

FIGURE 5

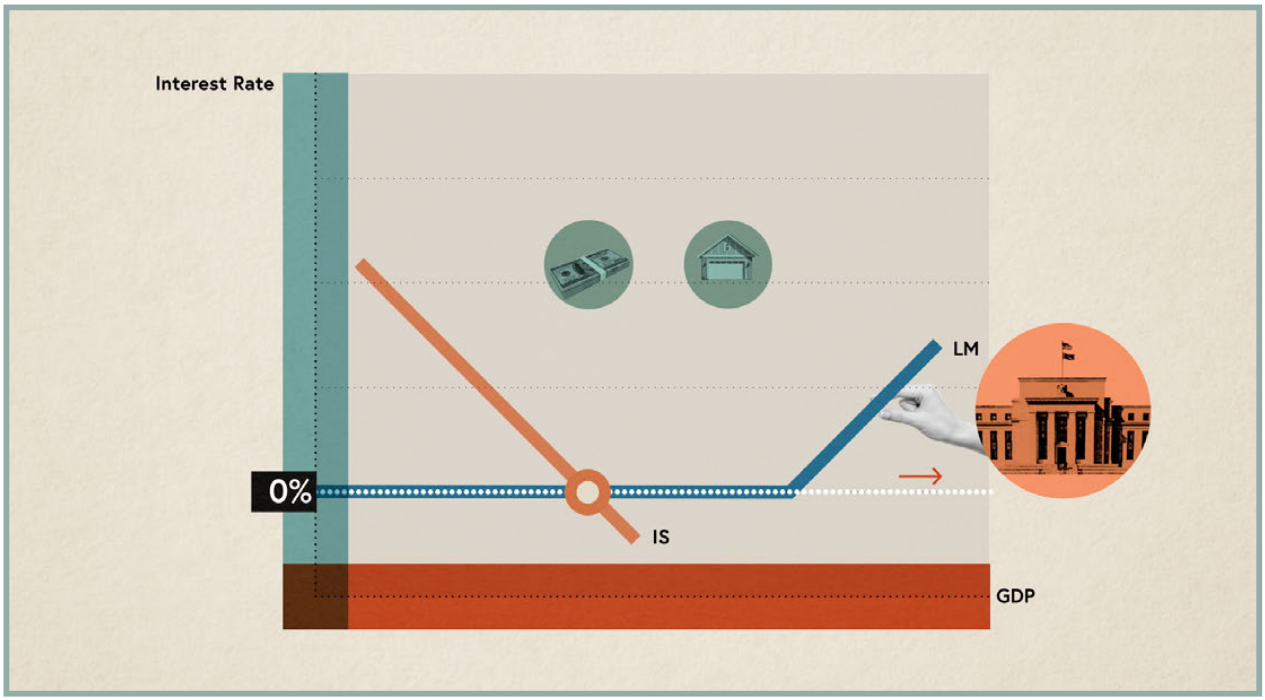

FIGURE 6

How '08 Happened

> We managed to recreate the conditions that made the Great Depression possible by creating this unregulated shadow banking system.

How '08 Happened

Subchapters

Chapter Review

In 2003, Nobel Laureate Robert Lucas addressed the American Economic Association and said: "For all practical purposes the problem of the business cycle has been solved." It was his belief that, using modern economic models, the Fed would be able to prevent both unsustainable booms and recessions. But in 2008, the United States entered the worst recession in 75 years and the rest of the world soon followed. Lucas, along with many other economists, had become complacent about the possibility of not just garden variety recessions, but the type of major recessions caused by banking crises.

Banks take in deposits from their customers and lend those deposits out to borrowers. The banks promise their depositors that they can get their money back whenever they want, and at the same time they promise their borrowers that they only have to repay their loan slowly on a fixed schedule. This system gives both depositors and borrowers the sense of certainty they need to plan their lives. But to accomplish this the bank must absorb and then manage a very specific type of risk: the risk of a run.

If all of a bank's depositors decided to withdraw their money on the same day, the bank would not be able to honor all or even most of the requests. Normally, of course, this would be extremely unlikely. It can happen, however, as a the result of a type of self-fulfilling prophecy known as a "bank run."

Suppose that—rightly or wrongly—depositors become afraid that the bank has made bad loans and soon will not have enough money to honor its deposits. They will rush to take their money out before the bank runs out of money. Other depositors see this happening and rush to get ahead of the first wave of depositors. Soon every depositor is asking for their money back and the bank is unable to honor all of the withdrawls. If a bank run happens at one bank, it can frighten customers at another bank causing a bank run there as well. This type of cascade can soon lead to a wave of bank failures.

Waves of bank failures occurred during the Great Depression. After the Depression, the government began insuring deposits and requiring banks to follow strict safety guidelines to ensure this wouldn't happen again. Slowly, however, new institutions popped up that weren't officially banks but nonetheless made their money by taking bank-type risks. These institutions created a shadow banking system, and by 2008 they handled almost ten times more money than the regular banking system.

Bank runs are often associated with asset bubbles. The fundamental value of an asset is the return an investor believes he or she would receive if he or she bought an asset and never sold it. For real estate, the fundamental value is based on the rent the property will earn over its lifetime. For stocks, the fundamental

value is based on the profits the company will earn. Asset bubbles occur when investors are willing to pay far more than a reasonable estimate of fundamental value in the hopes that they will be able to sell the asset later to other investors for even more money.

This process can continue for a while, but eventually the flow of new investors slows. As it becomes harder to find new investors, old investors panic and sell all at once. This is sometimes called a Wile E. Coyote moment, after the famous cartoon character who would run off a cliff but only begin to fall when he noticed the ground was no longer beneath him. In the same way, the price of an asset in a bubble continues to rises above its fundamental value until investors notice that they are running out of new investors to whom they can sell.

The subprime crisis combined the elements of a bubble with a bank run. The shadow banking system took loans from subprime borrowers. It then combined thousands of those loans into a single pool. As long as all borrowers didn't default at once, the pool would collect a relatively predictable number of payments each month. When the housing bubble burst, however, many of the subprime borrowers defaulted all at once. Payments into the pools stopped. Without that income, shadow banks such as Accredited Home Loans or Freedom Mortgage Company could not honor their obligations (see figure 1).

Shadow banks were providing a lot of the economy's credit; when they went down that credit was cut off. This caused spending in the economy to fall. The fall in spending led to a fall in prices of not only houses

FIGURE 1

but commercial property, automobiles, and other assets. The fall in prices made it even more difficult for borrowers to get or repay loans, which led to further declines in spending and prices. Economists refer to this as "debt deflation." This type of crisis is too large even for the Fed to stop.

As a result of this snowball effect, unemployment soared from 4.5% to around 10%. An unemployment rate of 10% meant that roughly 15 million Americans who wanted to find a job could not. Now referred to as the Great Recession, this was the worst economic crisis since the Great Depression. Millions of manufacturing jobs were lost during the Great Recession. This wasn't a result of anything that the workers did or even anything that their employers did.

The crisis of 2008 negatively impacted millions of people. The massive job loss and potential scarring of entire career paths means that a recession is more than just an abstract economic concept. Recessions take an enormous toll on those who live through them.

Learn More

Watch this clip from the film *It's a Wonderful Life* (1946), which depicts a classic bank run during the Great Depression. Created by filmmakers who lived through real life bank runs, it demonstrates that even the honest and well respected bank president George Bailey is vulnerable to rumors, in this case started by the unscrupulous financier Henry Potter.

Paul focuses on the run in the shadow banking system as the central cause of the Global Financial Crisis and the ensuing Great Recession. Read this collection of 24 other factors that contributed to fragility in the global system.

In the aftermath of the Great Recession, researchers have investigated ways to keep the system safe. Dive deeper into the difficulties of regulating the shadow banking system with this article by Columbia Law professor Kathryn Judge.

The Economic Theory of Crises

People are people. Countries are countries.
A lot of the same rules apply.

Chapter Review

The financial crisis that began in 2007 pushed the US into a recession by the end of that same year. That recession in turn worsened the financial crisis as more people lost their jobs and were unable to repay mortgages and other loans. This deepening of the financial crisis in turn led to an even worse recession, and on it went. It's natural to ask, "what can be done about this?" For most recessions, the answer is straightforward. The Federal Reserve is able to lessen the blow and even turn around a recession by printing more money. When the babysitting co-op, discussed in Chapter 3: Two Fundamental Principles of Economics, went into "recession," the problem was solved by issuing more babysitting vouchers (see figure 1).

This strategy, however, faces a limitation. To increase the amount of money circulating in the economy, the Federal Reserve lowers interest rates. Lower interest rates make it easier for households and businesses to borrow money from banks. The loans that banks make inject more money into the economy and allow it to recover from the recession. When interest rates hit zero, however, increases in the money supply have no effect. Households and businesses no longer have an increased incentive to take out loans. The extra money sits in banks without being spent. This is the reason the LM curve, discussed in Chapter 5: Understanding Macroeconomics: The Fed and IS-LM (Wonkish), is flat at zero. Economists call the inability of interest rates to go below zero the Zero Lower Bound.

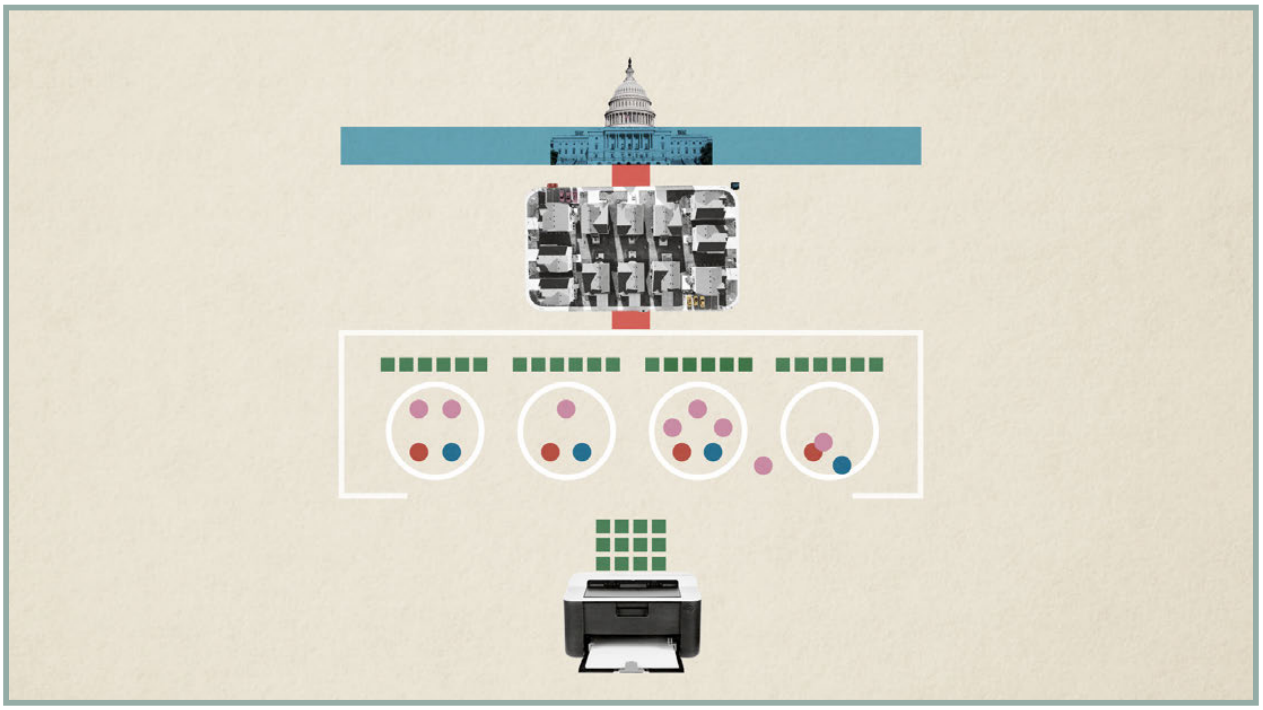

FIGURE 1

If you recall, LM stands for Liquidity and Money. Liquidity refers to the amount of money circulating in the economy. When the economy is liquid, households and businesses can easily find the cash they need to make the purchases they want. They can then make purchasing decisions based on long term considerations about their budget and what they can afford. Households and businesses do not have to worry that even though a purchase is a good long term idea, they may not have enough cash in the short term to buy it outright or make the payments on a loan.

When the economy reaches the Zero Lower Bound, printing money no longer increases liquidity. If the economy reaches the Zero Lower Bound during a recession, it is said to be in a liquidity trap. The Federal Reserve would like to increase economic activity to bring the economy out of recession but it can't because its primary tool, printing more money, is no longer effective.

In the 1930s, most of the world's economies were mired in a liquidity trap. The massive government borrowing which accompanied World War II brought the world out of the liquidity trap. For another six decades, there were no major liquidity traps anywhere.

In 1998, however, the Japanese economy hit the Zero Lower Bound following the collapse of their stock and real estate markets. The Japanese economy become ensnared in a liquidity trap. The Bank of Japan, Japan's equivalent of the Fed, attempted to rescue the economy by printing more money. However, the printing had no effect. One Japanese economist joked that the only consumer durables—that is, manufactured goods—that were selling well in Japan were safes for holding all the extra cash that the Japanese Central Bank was printing.

When the Great Recession began in the United States, some economists, including Paul, recognized the similarity to the Japanese situation. Ben Bernanke, the Chairman of the Federal Reserve, knew the Japanese situation well. He was aware that there was only a very small chance that he would be able to turn around the United States economy before it hit the liquidity trap. Bernanke responded by printing money aggressively. Economists and other commentators who were not familiar with Japan's experience became frightened that he would cause extreme inflation. However, just as in Japan's case, most of the money sat in banks and did not circulate in the wider economy. There were huge increase in the money supply but only a very small increase in prices.

Bernanke's efforts had helped slow the economic collapse, but the shock the financial system experienced was too great to be overcome entirely. Like Japan the United States found itself in a liquidity trap.

Learn More

The Zero Lower Bound and liquidity traps can be difficult to understand. Review the concepts with this post from the UK-based site EconomicsHelp.org.

For more information about the financial crisis that Japan experienced, read this classic paper authored by former Fed Chair Ben Bernanke. Then, read this analysis he authored for Brookings on how the Fed can respond to the Zero Lower Bound and liquidity traps in the future.

Dive deeper into the concept of liquidity traps with Gauti Eggertsson, one of the leading researchers on the topic today.

Economic Solutions to Crises

> We did not revisit the full horrors of the 1930s. If you asked, 'Why not?' the answer was, 'Well, we learned something.'

Economic Solutions to Crises

Subchapters

Chapter Review

During the Great Recession that followed the 2008 financial crisis, the Federal Reserve was unable to stop the economic downturn by printing money. The Fed is our primary government agency tasked with managing the economy as a whole. It is staffed by professional macroeconomists who are constantly on guard for the next recession. The Chairman of the Fed at that time, Ben Bernanke, was aware of the lessons of Japan. He attempted to act quickly and decisively, but nonetheless could not avoid a liquidity trap. Once in the liquidity trap, the Fed's tools are useless.

At that point, we have to turn to politicians in the hopes that they can use fiscal policy to help stimulate the economy. Fiscal policy can come either in the form of increased government spending on things like infrastructure or in the form of lowering taxes. Either of these methods will inject more demand into the private economy and strengthen economic growth.

It is always a danger that politicians may favor their own constituents or the special interest groups they align with over the good of the nation as a whole. Even when they are focused on the good of the nation, however, we should remember that most politicians are not trained economists. Oftentimes they have deep ideological convictions regarding economics. Other times, they are beholden to donors who themselves may have strongly-held ideological convictions. In almost all cases, politicians are strongly influenced by the types of pundits who thought Bernanke's actions would lead to runaway inflation. Those pundits might be highly intelligent and well-trained, but they are not experienced macroeconomists. Even if macroeconomists are able to convince politicians that more spending can help the economy, there is immediately a political fight over what the money is spent on and where. Politicians have a natural incentive to fight for their district and the projects that they personally believe in, even if that spending is not the most effective during a recession.

Despite the difficulties, however, the United States did enact a stimulus plan in 2009. Known as the American Recovery and Reinvestment Act, the stimulus contained approximately $288 billion in tax cuts and $499 billion in spending. That plan, combined with Bernanke's efforts, prevented the United States from repeating the Great Depression. Though it wasn't strong enough to avoid the liquidity trap completely, it was able to alter the economy's trajectory.

When the Great Recession first began in 2007, it was following nearly exactly the same track as the Great Depression. Yet, by early 2010, the descent leveled off. The unemployment rate peaked at 10 percent in October of 2009 and hovered around 9.9 percent until April of 2010, when it dropped to 9.6 percent. From there it began a downward trend that so far has lasted through the summer of 2018. The downturn was difficult, but for the United States, it didn't approach the depths that occurred during the Great Depression.

Stimulus only works if it leads to an increase in the budget deficit. The budget deficit is the difference between how much the government spends and how much revenue it takes in taxes. Either spending increases or tax cuts will expand the budget deficit and can stimulate the economy. However, if the government increases spending, but increases taxes to pay for that spending, there will be little net stimulus. Likewise, if the government decreases taxes but

decreases spending to balance the budget, there will be little, if any, net stimulus.

Most people think of the budget deficit as bad. It's worth asking, though, why exactly that's so. There are two basic reasons, neither of which applies when a country like the United States is in a liquidity trap. The first reason is that in normal times when the government borrows money, that leaves less money available for households and businesses who also need to borrow. If the government borrows too much it will crowd-out that private spending. In a liquidity trap, however, money is piling up with no one borrowing. Thus the government is not crowding anyone out. The second reason is that if the debt grows too large, a country may find it difficult to pay back. This can be a problem for less developed countries but it is not a problem for an industrialized, well-developed nation like the United States.

Unlike developing countries, the United States borrows in its own currency, which means that the Fed can simply print dollars to pay off the debt if it's absolutely necessary. This option reduces the fear of US bondholders because it means that the United States government will not one day default simply because it cannot come up with the money to pay back their loans, and makes bondholders more willing to lend to the US at low interest rates. Low interest rates make it possible for the United States to repay even a very large debt.

Learn More

The Great Recession forced economists to reconsider using fiscal policy to fight unemployment. Learn more about the basics of fiscal policy.

The Obama administration's fiscal stimulus was politically contentious, yet experienced macroeconomists from across the spectrum recognized the gravity of the situation and endorsed the plan. Read former Reagan administration advisor Martin Feldstein's case for stimulus.

Dive deeper on the budget deficit with this guide from the Brookings Institution that explains when deficits help the economy and when they hurt.

Inequality: The Growing Gap

We have this long period, this long, flat stretch of a pretty equal society. That's the America I grew up in. Then woof, it takes off, starting in the late 70s....more and more of the income gets concentrated in the hands of a few people.

Inequality: The Growing Gap

Subchapters

Chapter Review

Over the last several decades a large portion of the economics gains in wealthy countries have gone to a small minority of the population. Paul, like many economists, considers this to be one of the biggest economic challenges facing us today. When Paul grew up during the 1950s and 1960s, the United States income was much more evenly distributed. During the 1970s and 1980s, that began to change. Income gains at the top especially the top 1 percent, outpaced the rest of the country. Meanwhile income for the middle class percent stagnated.

This gap has created a society that is far more stratified by income than the one that existed 50 years ago. Paul credits this increase in stratification for the increase in economic anxiety that we have seen over the same period.

Before World War II, income inequality in the United States was roughly equivalent to where it is today. During and after World War II, income inequality fell rapidly and drastically. It stayed at this low level until about the 1970s, when inequality began rising again (see figure 1).

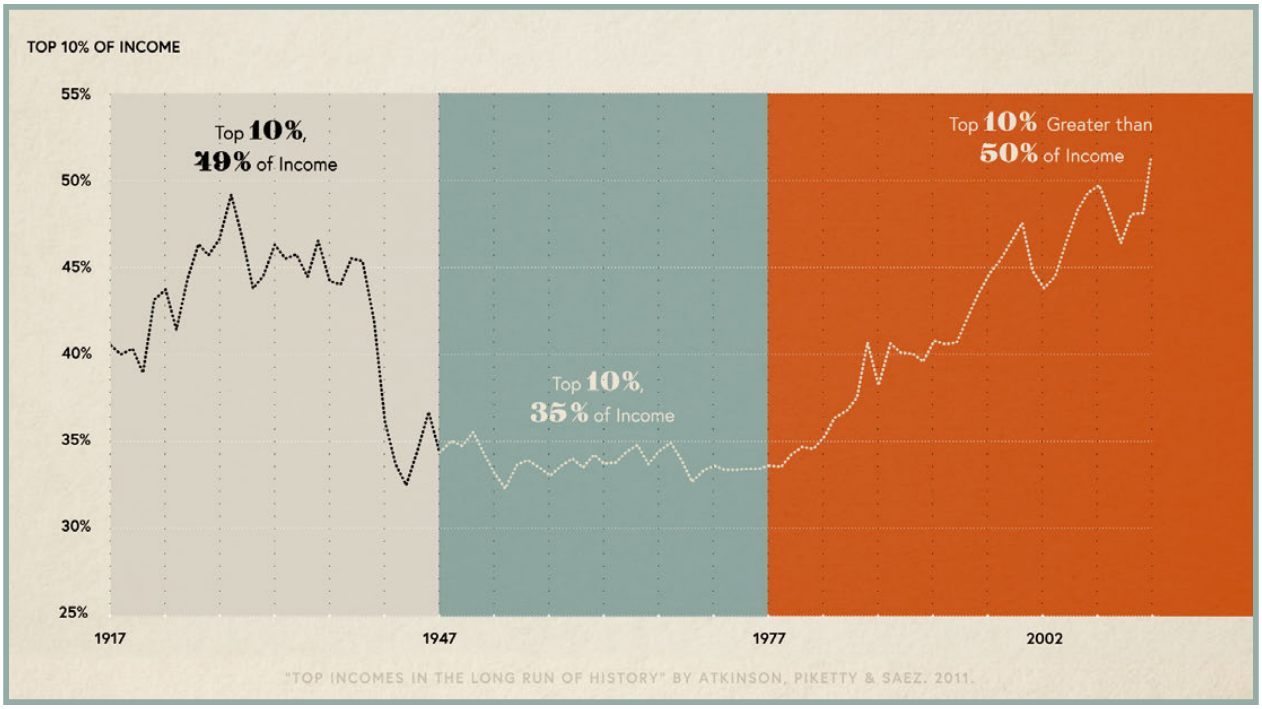

FIGURE 1

It can be easy to confuse income inequality with wealth inequality. Income represents how much you earn in a given year both from work and from the yearly return on your investments. Wealth is your total net worth. The income inequality that existed prior to World War II was largely caused by wealth inequality. Some families had large fortunes which produced large returns every year.

The income inequality that we have today mostly comes from wide differences in salaries. At the very extreme are C-suite executives who have seen their average compensation grow nearly tenfold between 1960 and 2010. College-educated workers in general have fared far better than average, seeing their wages nearly double over that same period. By comparison, workers with less than a high school diploma have seen no growth in real wages over that same period. That income inequality from salary differences is beginning to lead to income inequality from wealth differences. Few high income people spend all of what they make in a year. Over time, that built up savings produces vast wealth that will eventually pass onto their children (see figure 2).

Rising inequality tends to have disproportionately strong impact on people who are not white. One theory for why America tends to have less economic redistribution to reduce inequality than Europe is that many white voters do not see these policies as helping people who are like them. Instead they see them as taking away from their community and giving to another community.

Most economic crises tend to drive down income inequality. This happens because stock market collapses not only bring down the wealth of the richest Americans but because CEOs of public corporations and financial executives are often paid based on the performance of the market. The last crisis, however, was concentrated in the housing market. The most valuable asset that most middle class people own is their home. Therefore, the crisis hit the middle class much harder than previous crises. It has also meant that many middle class families have not yet recovered from their loss in wealth.

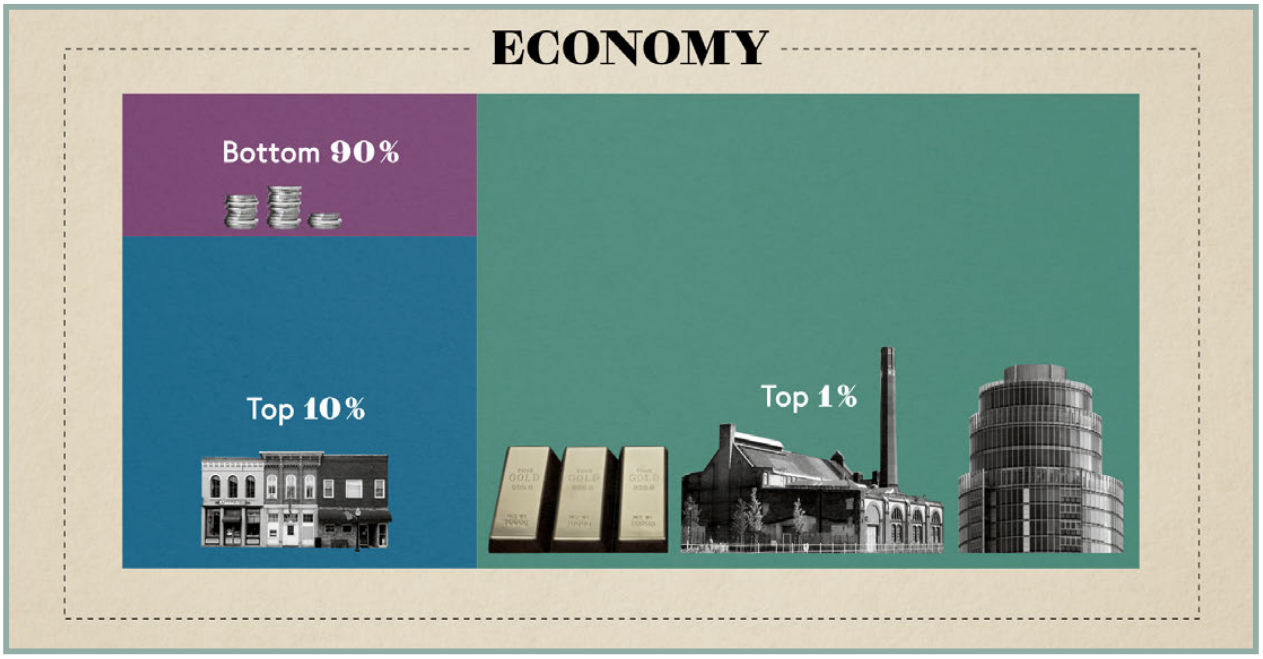

FIGURE 2

Learn More

Income and wealth inequality have become major topics in economics and politics over the last decade. See more facts about the growing gap at inequality.org.

Read the report on CEO compensation that details the exponential growth in executive salaries over the last 50 years.

French economist Thomas Piketty's book *Capital in the Twenty-first Century* (2013) jump-started the national debate on inequality. Marshal Steinbaum is Research Director of market power and inequality at the Roosevelt Institute, and co-editor of *After Piketty: The Agenda for Economics and Inequality.* Read his argument that Piketty's conclusions are still not being taken seriously enough.

Recently Piketty's conclusions have come under fire. Dive deeper with Vox's review of the arguments.

The United States has lower taxes and less generous healthcare and welfare benefits than other wealthy economies. Explore the argument that this is a result of America's racial and ethnic diversity.

Inequality: Our Divided Society

“

We sort of thought that the society I grew up in—with a broad middle class—was just what an advanced economy looked like. It turns out [it was] created by government policies.

Inequality: Our Divided Society

Subchapters

Chapter Review

Economists are still working to figure out exactly why inequality rose in over the last half century. It's not that they don't have any theories—on the contrary, they have *lots* of theories. Many of them are mathematically plausible. Some of them are almost certainly true. However, ascertaining what percentage of inequality was caused by each particular mechanism is an ongoing challenge.

Changes in technology and trade are almost certainly part of the story. Recent technological advances have tended to favor educated workers over less educated workers, driving the wages of the former up while holding stagnant or even driving down the wages of the latter.

International trade undoubtedly also plays a role. Like technology, international trade has tended to favor highly educated workers at the expense of workers with lower educations. When economists measure the effect of these two causes, however, the size is not large enough to explain all of the inequality that has occurred. The timing is also not perfect.

Some economists, including Paul, point to factors like culture and politics to help explain the rise in inequality. The decline in inequality happened during the presidency of Franklin Roosevelt. The rise in inequality began just before the election of President Ronald Reagan. Paul argues that these political shifts are signs of shifting underlying norms.

There are several reasons why the rise in inequality is particularly troubling to Paul. First, in purely mathematical terms, if more national income goes to those at the top, that implies that less may be going to those at the bottom. Second, there has been an enormous rise in political polarization. This trend occurred over roughly the same time period as the rise in inequality and followed the same pattern (see figure 1).

Paul further argues that the equality of mid-century America was created by government policies of that era. The roll back in some of those policies and the failure to enact new ones has led to the rise in inequality we see today.

Paul is an advocate for lower inequality. If you share his point of view, he offers several insights about advocating for equality. First, understand that the market itself can't create more equitable outcomes. That will require government intervention. Second, policies like universal health care and nutrition assistance can do an enormous amount to reduce inequality by improving the long term prospects of poor children. Third, it is also important to focus on policies that prevent wages from getting so unequal in the first place.

Learn More

Economists have several theories on what caused the rise in income inequality. Read former Council of Economic Advisers Chairman Jason Furman's analysis on the causes of income inequality and what can be done about it.

Economists have long recognized that unions reduce inequality within a company by lowering wages for their higher paid members and raising wages for

their lower paid members, a process known as wage compression. Many economists also believe that unions reduce inequality nationally. Explore some of the evidence with this piece at *The Atlantic*.

Some economists argue that inequality actually stems from the rise in housing prices and the inability of workers to afford to move to cities with high job growth. See Richard Florida's case that housing is largely to blame.

There is some research to suggest that the ability of the wealthy to buy influence with politicians has driven the parties apart. Read the full argument in *Polarized America: The Dance of Ideology* and *Unequal Riches* (2008).

See Steve Horwitz's argument that not all of the increase in income inequality is bad. When low skilled immigrants move to the United States, they increase the measured inequality even though their living standards go up.

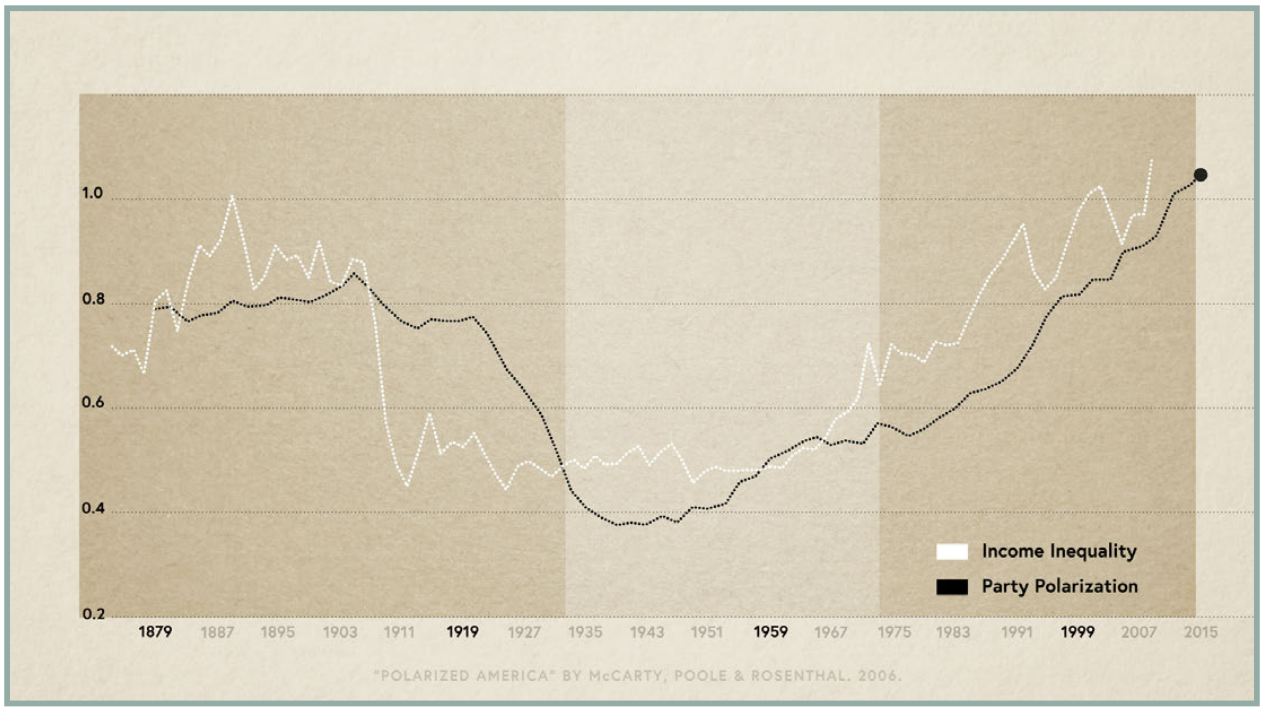

FIGURE 1

Understanding Taxes

> On the whole, we should just be talking a lot less about taxes.

Understanding Taxes

Subchapters

Chapter Review

The issue of taxes is highly contentious. Although they are a major political issue, they are a less significant determinant of economic growth than is often assumed. History has shown that countries like the United States can do very well under a variety of different tax schemes. Indeed, the best period of growth in US history came just after World War II, when taxes were among the highest we have experienced in our nation's history. The US tax code is overly complex in many ways, but not so much that it threatens economic growth. The United States also collects less in taxes than do most other developed countries, such as France, Denmark, or Germany. These countries with higher tax rates are nonetheless prosperous, well-functioning economies, so the first question one should ask when designing a tax system is not how high taxes should be, but what services should the government provide and how best can we pay for them.

Polls suggest that most Americans want to keep or expand our three most important safety net programs: Social Security, Medicare, and Medicaid. Social Security and Medicare are targeted specifically to the elderly. Medicaid covers low-income Americans of all ages, but spends disproportionately more on the elderly because the elderly have higher health care needs.

Our society is aging. This implies that our social safety net programs will face increasing costs in the years to come. To pay for them, many economists believe we will have to raise taxes. Some of that can come from taxing the wealthy. The marginal tax rate—the rate on the last dollar of income—of the wealthy is around 55 percent, when federal, state, and local taxes are combined.

Considering that a country like Denmark has taxes amounting to more than half the country's income, Paul suspects that the United States could raise its taxes on the rich without worrying about any effects on the economy. We could probably raise our corporate tax rate as well. Though those two things together will help fund our future safety net, Paul notes that it's just a start. We will probably have to enact very broad-based taxes like a Value Added Tax, or VAT.

Paul contrasts this to an opposing position, often called supply-side economics, which suggests the government can actually cause a large sustained increase in growth by cutting taxes. It's called supply-side economics because it focuses on what the government can do to increase the overall supply of goods and services that are created in the economy. Supply-side economics was first applied under President Reagan in the 1980s. Conservatives credited tax cuts for the rapid recovery of 1982-4, although this probably mainly reflected monetary policy. President Clinton, however, raised taxes in the early 1990s and the economy experienced an even bigger boom. George W. Bush then cut taxes again in the early 2000s and there was hardly any boom. President Obama raised taxes again in 2013 and it seemed to have no effect on the economy at all. From these historical episodes many economists, including Paul, have concluded that taxes probably just don't matter that much (see figure 1).

In 2017, President Trump signed a major tax cut, a feature of which was an attempt to make the US

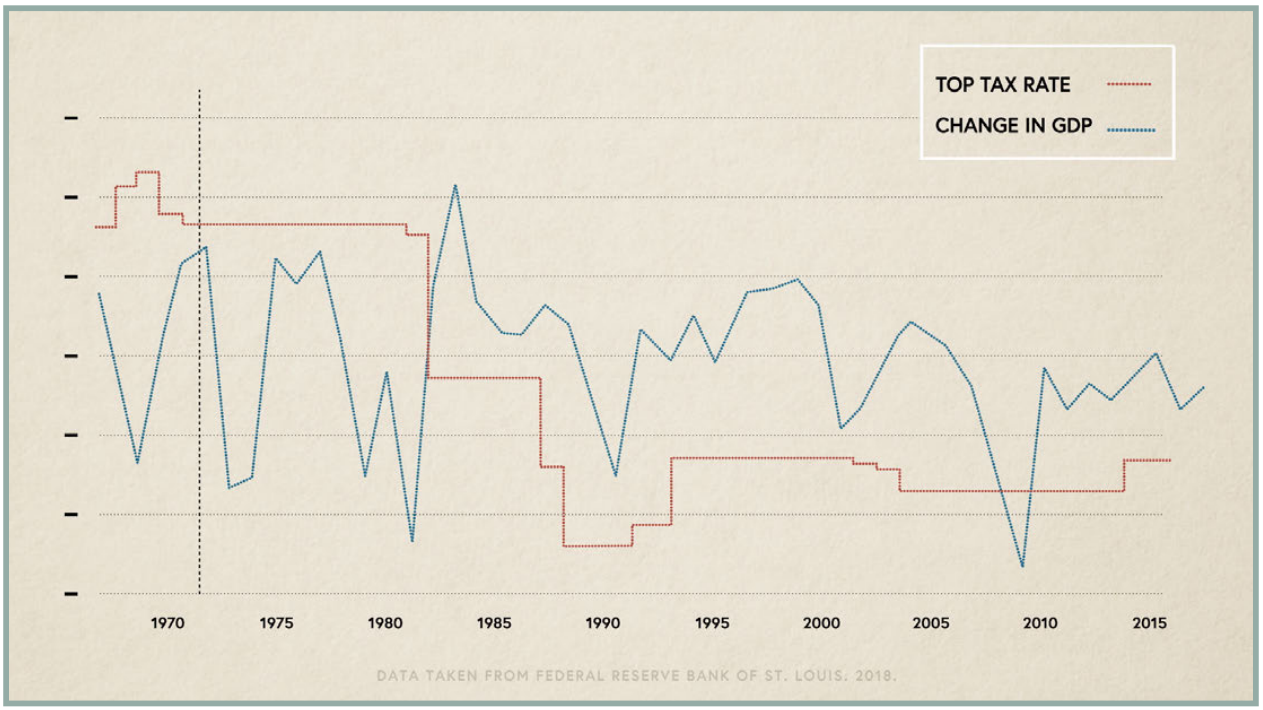

FIGURE 1

corporate tax more internationally competitive. The idea was that if US corporate taxes were lower, investors around the world would be more likely to build factories and other facilities in the US. This would provide more high-wage jobs for US workers within the States.

Paul and other Democratic economists have argued that while the theory behind these cuts may sound persuasive, it's not supported by evidence. When other countries have tried similar tax cuts they have found only limited amounts of new investments, which take decades to fully materialize.

Learn More

Paul focuses on the macroeconomic impact of taxes, which is how taxes affect a nation's overall Gross Domestic Product (GDP). (GDP is a measure of the total production, total purchases, and total income for the whole country. For more information on GDP, see Chapter 5: Understanding Macroeconomics.) Economists also study the microeconomic impact of taxes, which is how taxes affect consumers and businesses. Looking at the microeconomic impact can show some surprising effects. For example, the person who is legally responsible for paying a tax may not be who ends up paying it in an economic sense. When property taxes are increased, for example, landlords often pass on that increase to their tenants. Even though the landlord is legally responsible for paying the tax it is the tenant who ends up paying in an economic sense. Learn more about the microeconomic effects of taxes with this video from George Mason University economists Tyler Cowen and Alex Tabarrok.

Economists are divided over whether taxes matter for growth. Read a discussion of some of the reasons why in *The Atlantic*.

The term supply-side economics is often used to describe the economics philosophy of the Reagan administration. Unlike Keynesian economics, however, there is no central figure whose work could be thought of as the canonical supply-side theory. The economist most responsible for shaping the ideas behind supply-side economics is Nobel Prize winner Robert Mundell. Mundell, however, considered his supply-side

theories to be only part of a holistic understanding of economic policy that also embraced the theories of John Maynard Keynes and Milton Friedman. Read more about Mundell's complex approach to economic policy with this profile in the *New York Times,* written just after the Reagan administration's tax reform was passed.

Learn more about the ideas behind the supply-side economics movement with this article from economist James D. Gwartney.

Tax policy remains a contentious topic among economists and policy makers. Explore the conservative Tax Foundation's analysis that the 2017 Tax Reform will have a significant impact on growth and jobs in the United States.

Also, check out the Congressional Budget Office, which reflects most economists' far less optimistic views.

The Economics of Technological Progress

We want the economy to become more productive, which means adopting new technologies, new ways of doing business.

The Economics of Technological Progress

Subchapters

Chapter Review

Throughout history, technological change has altered our conception of which sector in the economy is the most important. In the early days of economics, agriculture formed the fundamental basis of the economy. Manufacturing, by contrast, was seen as a little more than a minor activity riding on agriculture. From the middle of the 19th century to the middle of the 20th century, the US economy changed rapidly. Advances in farming technology meant that far fewer people were needed to produce the same amount of food. Instead, millions of people moved into the manufacturing sector. By 1960, automotive manufacturers like GM were the biggest companies in the world. People began to think of manufacturing as the heart of the economy. The economy, however, has continued to evolve.

The same process that reduced the number of farmers has over the last few decades drastically reduced the number of manufacturing workers. It's commonly thought that manufacturing has declined because of globalization. Yet, the United States actually manufactures vastly more goods than it did in 1960. Advances in technology mean that manufacturing now requires fewer workers to produce that same number of goods.

Today our economy is transitioning to one based mainly on services. Health services, such as nursing, are among the fastest growing occupations. These shifts in our economy, from agriculture to manufacturing and from manufacturing to services can be extremely difficult for workers who began their careers

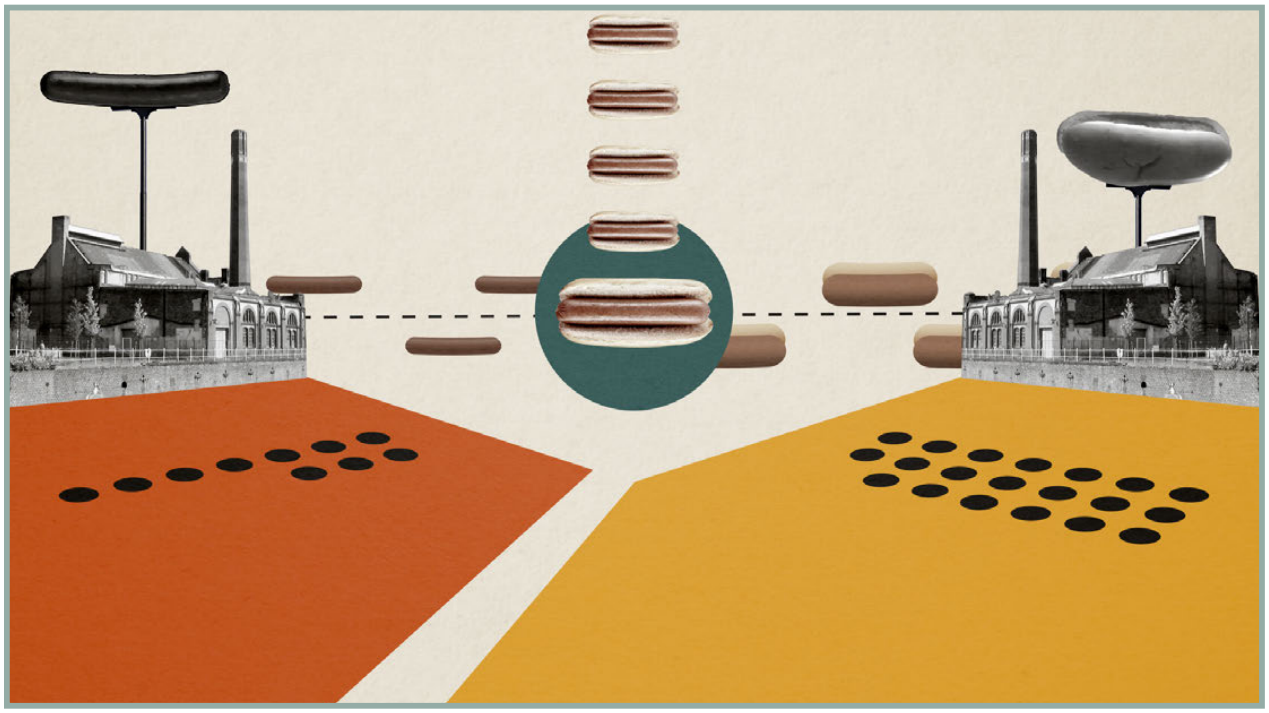

FIGURE 1

in one era but find the economy shifting to another era before they retire. Overall, though, our economy is seeing higher average incomes and increased productivity, despite the pains of transition.

It's easy to look at the job losses in manufacturing and wonder what will happen if and when automation comes to services. Paul uses a hotdog analogy to point out that what we are seeing is not job destruction but job re-balancing. Manufacturing is losing jobs and services are gaining jobs for the same reason. Technological progress in manufacturing is faster than technological progress in services (see figure 1).

If the automotive industry had not declined in employment, then we would currently be producing more cars than we have drivers. If nursing had not expanded in employment, then finding care for the sick and elderly would be even harder than it is today. If labor productivity in the nursing sector were to take off, then families would see their medical costs fall and may use the savings to buy an extra vehicle just for recreation. In that case, we would have both more automobiles and greater access to health care. We would be wealthier overall (see figure 2).

Manufacturing technology is progressing so rapidly though, it is unlikely that we will ever rebalance back to the type of economy we had in the 1950s. When you do the actual math, an economy that heavily focused on manufacturing would mean not only multiple cars per driver but dozens of TVs for every family and more furniture than you could even fit in the typical house.

Therefore, it's unlikely we will ever turn the clock all the way back. That means significant pain as the economy evolves, but in the long run it means more prosperity as well.

Learn More

Paul Krugman's parable of hotdogs and buns is a classic among economists. Read the original at Slate.com.

Dive deeper with this essay by Nobel Laureate Robert E. Lucas, Jr. on the central importance of technological change and economics growth.

Familiarize yourself with the data on manufacturing, courtesy of FRED.

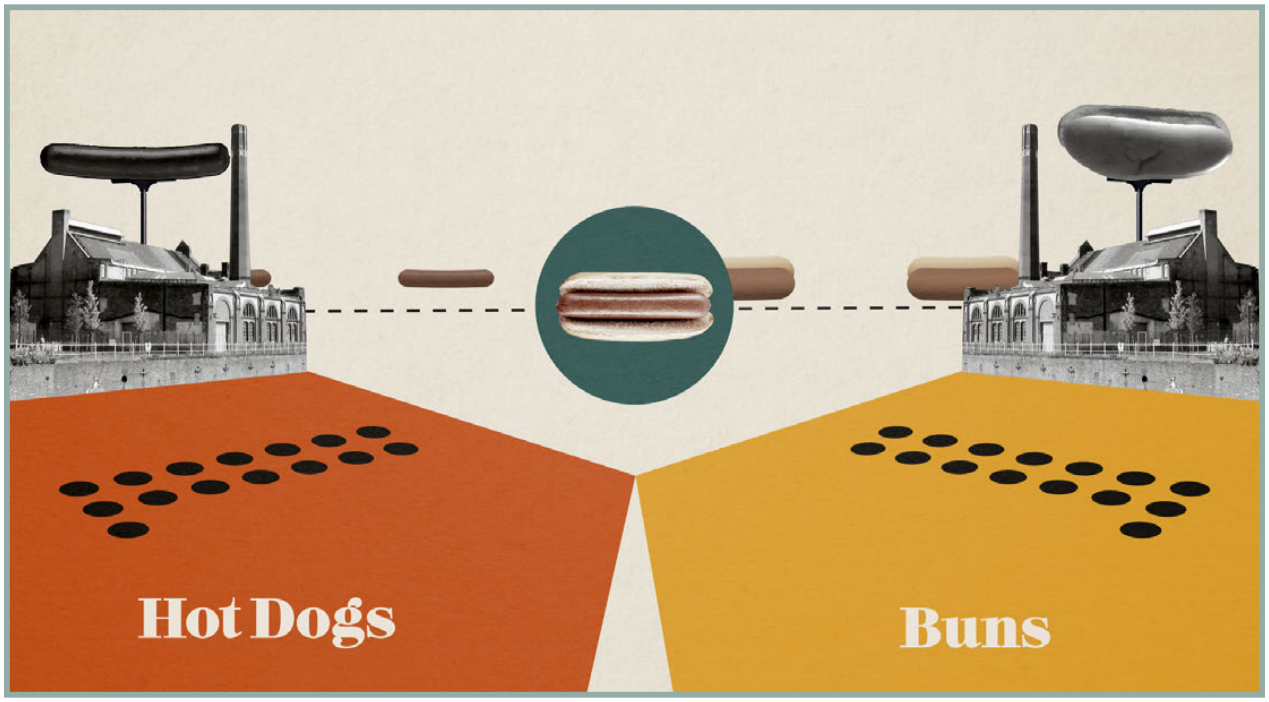

FIGURE 2

Health Care: The Problems

A lot of the things we tend to assume about the way a market economy works are based upon markets like wheat, that are nothing like health care.

Health Care: The Problems

Subchapters

Chapter Review

Health care is one of the largest and fastest growing segments of the US economy. It's common for people to think of their local economy as dominated by the industries that have historically been unique to that location. For example, in West Virginia most people think of their economy as being dominated by coal mining.

In reality, only around 3% of West Virginia's workers are in coal mining. In contrast, 15% are in health care and social assistance. Whereas in the past, the canonical middle class job in America may have been some type of factory worker, today the most common middle class job in America is some version of nursing. In the coming decades, getting the economics of health care right will be central to the health of the entire economy.

Private health insurance markets are inherently vulnerable to collapse. In any given year, roughly 5% of people are responsible for roughly 50% of all health care costs. When a private insurer decides how much to charge for premiums, it has to figure out what its average customer is going to spend on health care that year.

If the insurance company charges too low of a premium, it will not be able to cover the costs. If it charges too much, however, healthy people will decide to cancel their policies. When that happens, the percentage

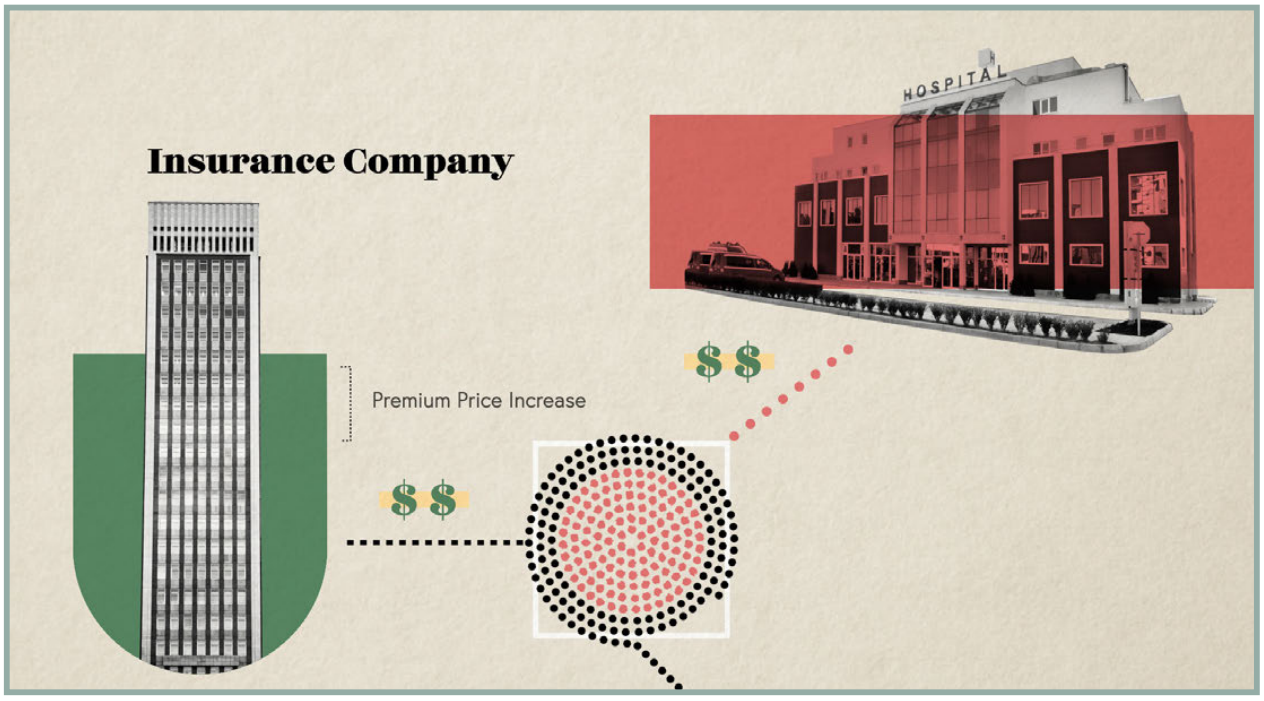

FIGURE 1

of insurance company's customers who are sickly will go up and so will the average cost per patient. If that happens, the insurance company may still not take in enough in premiums to cover costs. This can create a death spiral (see figure 1).

If the insurance company again raises their premiums to cover their increased average costs, even more patients will cancel their policies, driving average costs even higher. This process continues until only the sickest patients are willing to pay for insurance. To cover the cost, the premiums on that insurance will be at least equal to the cost of treating those patients. Making it virtually unaffordable (see figure 2).

Private health insurance suffers from two other problems as well. The first is asymmetric information. Consumers know more about their health than insurance companies do. This gives people an incentive to lie to insurance companies and tell them that they are more healthy than they actually are. In response, insurance companies employ investigators to not only research potential customers before they sign up, but to question the validity of an insurance claim once it's filed. This arms race between customers and insurance companies over the disclosure of pre-existing conditions leads to enormous frustration and losses on both sides. The second problem is moral hazard. Once people have insurance it is in both their interest and their doctor's interest to buy any procedure even if it only has the slightest chance of working. Paul argues that these two factors are one reason why health care costs in the United States are higher than they are in most of the developed world.

Learn More

Asymmetric information and moral hazard are complex topics in microeconomics. Review them with these three videos from George Mason University's Economics Professor, Tyler Cowen.

Asymmetric Information Part I
Asymmetric Information Part 2
Moral Hazard

Dive deep into the fundamental issues in health insurance that led to the implementation of ObamaCare with this post by economist Frank Lysy.

Examine the data on the jobs that define the middle class today. Note that we define middle class as making at least the median weekly earnings.

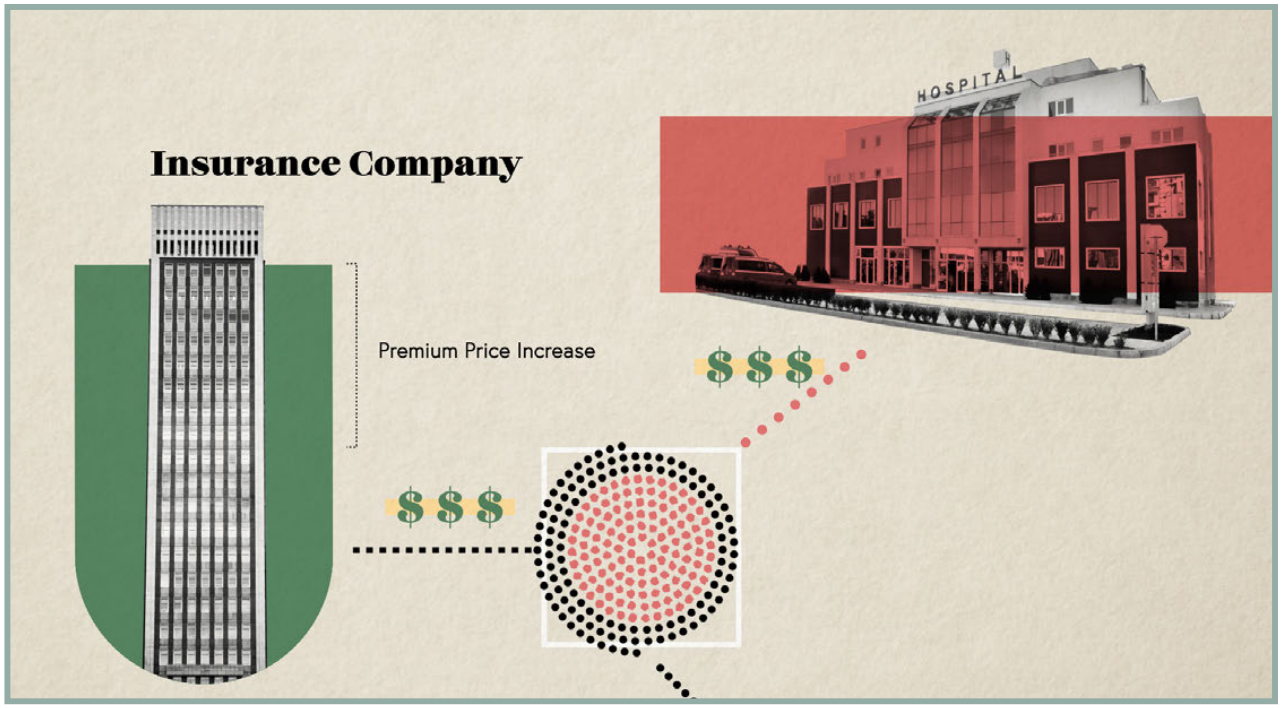

FIGURE 2

Health Care: The Solutions

Politically, universal health care is hard.

Health Care: The Solutions

Subchapters

Chapter Review

There are essentially three ways to provide universal health care. The first is for government to provide healthcare directly under: "socialized medicine". In this case, all hospitals would be owned by the government and all doctors and nurses would be government employees. The United Kingdom's National Health Service, or NHS, is an example of this type of system. Over time, it has proven to be one of the most cost effective systems. However, both doctors and patients have less choice in the range of treatments and procedures that are available to them. The second solution is to have a single-payer system, like Canada. Under a single-payer system, the government provides health insurance for everyone, but doctor's offices and hospitals are still private businesses or nonprofits. This type of system allows people more choice between doctors and hospitals with different approaches to care, but it also costs more than socialized medicine. The third system is to allow private insurance companies but regulate them and mandate that everyone purchase some type of health insurance. Switzerland has regulated health insurance and the recently-passed Affordable Care Act is an attempt to build a mandated health insurance system in the United States.

Regulated health insurance systems allow for the most consumer choice, but they are also the most expensive. Every country, including the United States, with a regulated health insurance system uses subsidies to help lower income people afford to pay for insurance. Perhaps surprisingly, moving the United States towards a regulated health insurance system added relatively little to the United States's overall health expenditures. Even though around 20 million people gained coverage. Insuring those people was relatively inexpensive because most of them were young people, who are much cheaper to cover than the elderly covered by Medicare.

The real challenge in reforming the US healthcare system was overcoming our fear of change. The majority of Americans had health care even before the Affordable Care Act. Most retired people had insurance through Medicare. Most working, middle, and upper-class Americans had insurance through their employer. Those Americans at or below the poverty line were eligible for insurance through Medicaid. Those with insurance through their employers were worried that the new system would not be as good as the old system. This concern meant that Congress was unlikely to do anything that would get rid of the current employer-based health care system.

Making major changes to any public program, like health insurance, is a difficult undertaking. The existing system will only tolerate so much change at one time. Trying to do too much at once can be counterproductive. Nonetheless, health care reform is one area in which many economists, like Paul, feel that the most important work is yet to be done. The Affordable Care Act took the United States closer to universal coverage but still left millions uninsured.

Paul stresses two lessons in trying to advocate for better health care. First, don't let the best be the enemy of the good. Even small improvements can change the lives of millions of people. Second, have hope. The fact that there are better health care systems out there means that the US health care system can be improved.

Learn More

The debate over health care continues to dominate US politics. Read the economic case for single-payer health insurance from the economist Robert Frank.

Theories of Trade (Wonkish)

> What trade does is it lets people who may be on different continents do different pieces of a production process.

Theories of Trade (Wonkish)

Subchapters

Chapter Review

People often assume that globalization is a new phenomenon, and that until recently there was very little trade between different parts of the world. It is true that trade on a global scale is only possible with sufficient communication and transportation technology. It turns out, however, that the railroads, steamships, and the telegraph were all that was needed to develop a truly global economy. In the years before World War I, there was a tremendous amount of trade between countries even on opposite sides of the world. People in England, for example, regularly ate lamb and mutton that were raised in New Zealand. International immigration was also very high. In 1910, the percentage of US residents who were born abroad was higher than it is today.

That globalized economy came crashing down in the years between World War I and World War II. Ofcourse, the wars made trade more dangerous. For the most part, however, this was the direct result of trade restrictions that countries themselves erected. There are two major types of trade restrictions. The first are import quotas, which are numerical limits on the number of imported foreign goods. The second are tariffs, which are taxes on imported goods. Tariffs work by making imports too expensive to compete with goods and services produced at home. By 1950, the increases in tariffs and import quotas reduced the volume of global trade to levels equal to those before the development of steamships and railroads.

Slowly, nations began reducing those restrictions. By 1980, trade had recovered to roughly the level it was in 1913, just before the outbreak of World War I. In the 1990s, trade increased further. There was a large boom in international trade known as hyperglobalization. The boom from hyperglobalization lasted until about 2010, when the growth in trade leveled off. Economists are still not sure whether the boom in trade will pick up again or whether hyperglobalization was a one-time phenomenon.

Economists have long believed that trade makes all countries wealthier through a process called comparative advantage. British economist David Ricardo first presented this theory in 1819. In explaining it, he offered this example: Suppose that England and Portugal were to trade cloth and wine. Economists of the day already understood that such a trade could be advantageous if England was better at making cloth and Portugal was better at making wine. The countries would specialize in the area in which they had an absolute advantage. That is, each country would focus on what they did better than any other country. Ricardo showed that trade could be beneficial even if England was not only better at making cloth but better at making wine as well. Specifically, what if England was a little better than Portugal at making wine but much better than Portugal at making cloth (see figure 1).

In that case, both countries could still produce more if England focused on making cloth and Portugal focused on making wine, and they engaged in trade. Portugal no longer had an absolute advantage in making wine but it still had a comparative advantage. Compared to the alternative of producing cloth, wine was still Portugal's most competitive product (see figure 2).

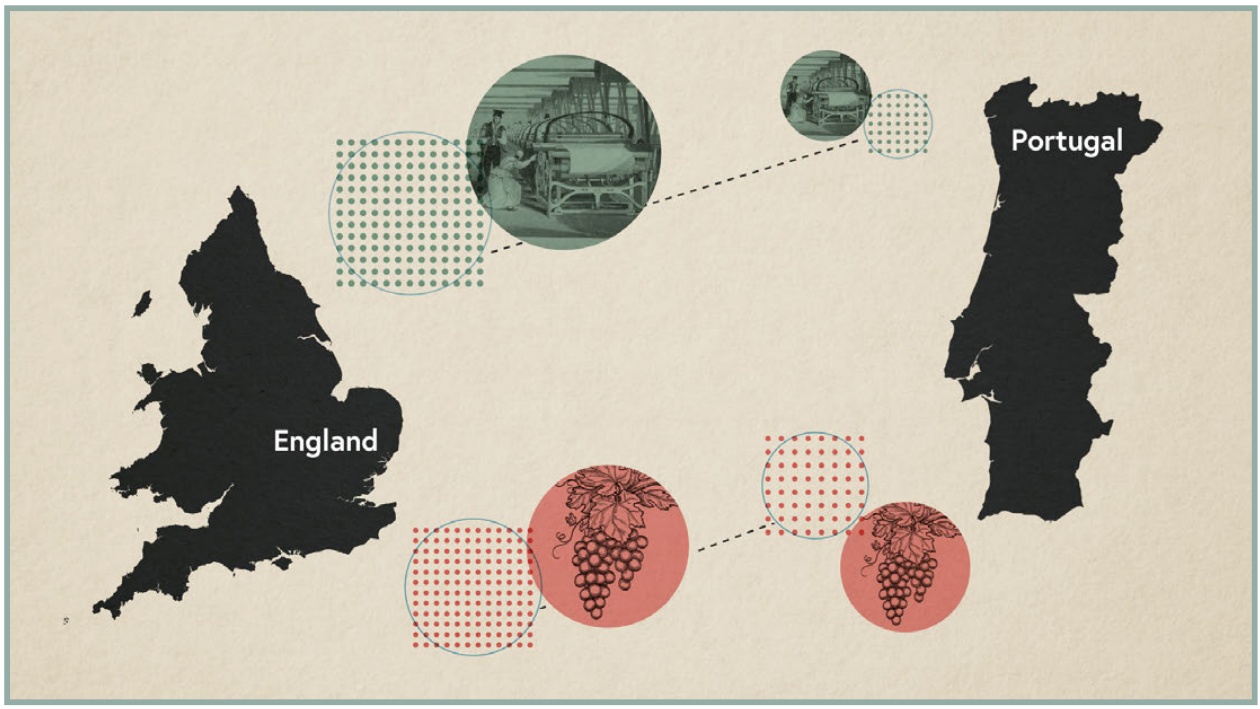

FIGURE 1

FIGURE 2

A similar situation exists today between the United States and Bangladesh. The United States is more productive than Bangladesh in producing high-tech goods and clothing. However, Bangladesh is only a little behind the US in clothing while it is far behind the US in producing high technology (see figure 3).

It therefore makes sense for Bangladesh to produce textiles and for the United States to produce high technology, and for the two countries to engage in trade. Ricardo's theories are simple and powerful. They made an enormous impact on economics and the case for reducing restrictions on trade between nations (see figure 4).

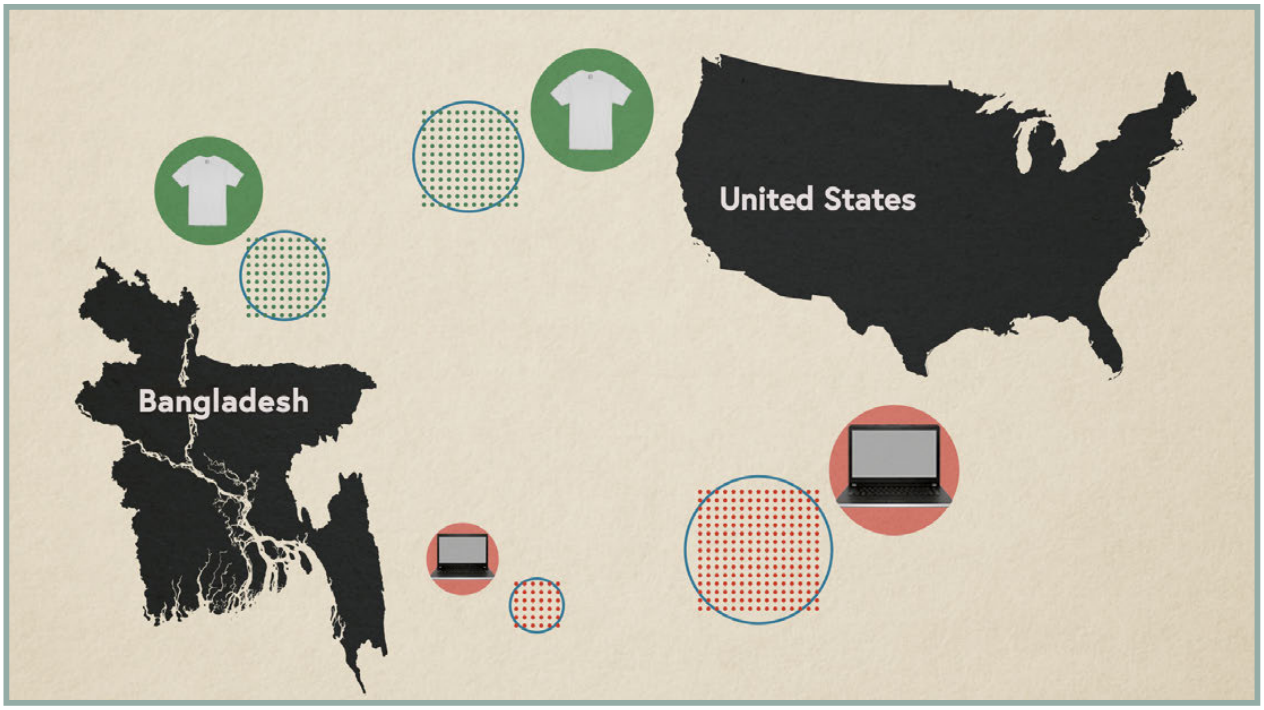

FIGURE 3

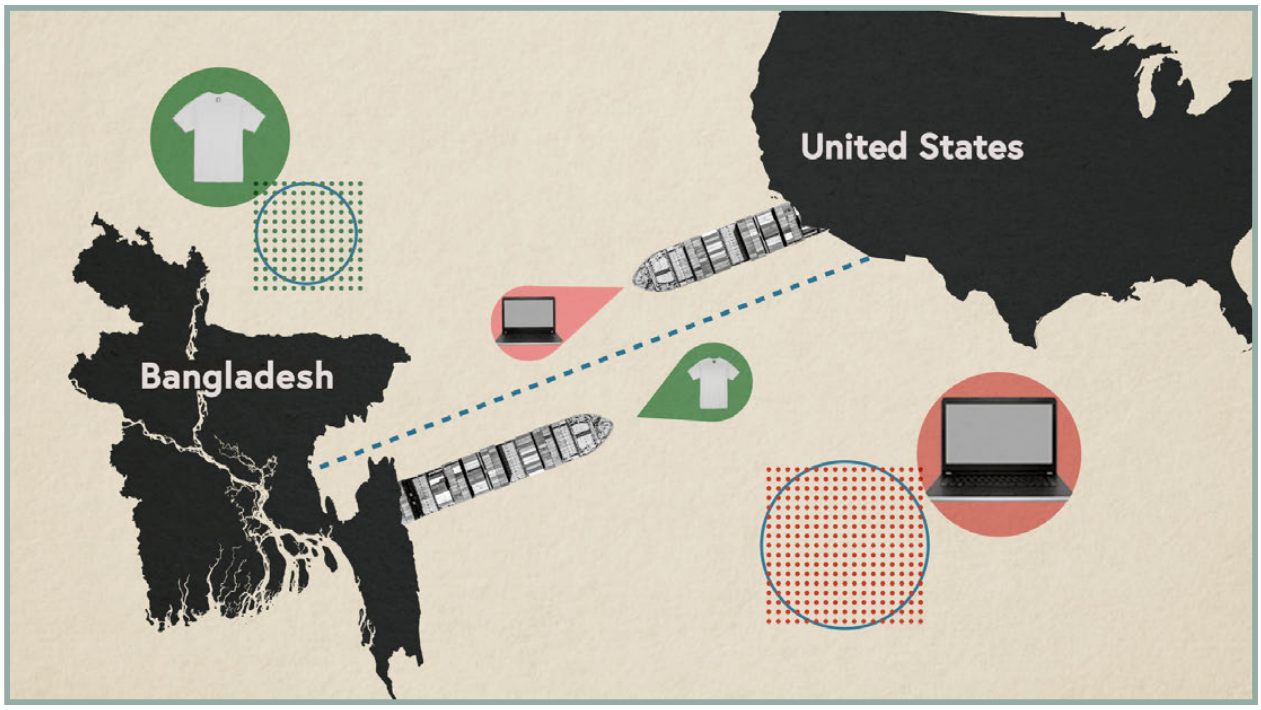

FIGURE 4

Ricardo, though, neglected to include one aspect of free trade in his theory—income distribution. Ricardo knew that if England opened up to free trade that it would benefit the workers who worked in England's cloth industry but that it would hurt the aristocrats who owned most of England's agricultural land. Many suspect that Ricardo wanted to benefit workers at the expense of aristocrats, and so he neglected to mention how income distribution could be affected by free trade. Even today, economists might fail to mention certain "inconvenient" aspects of their models, which could be harmful to political causes they believe in. You will often be able to get a fuller picture by reading multiple economists with a diversity of viewpoints.

Ricardo's theories are excellent at explaining why trade occurs between countries which specialize in very different types of products. Economists noticed over time that there was also a lot of trade between countries in products that looked very similar. Paul was awarded the Nobel Prize for explaining this phenomenon using what has come to be known as "new trade theory." In his theory, trade was driven not only by inherent differences in productivity, but by the fact that economies of scale favored concentrating production in one place (see figure 5).

For example, before the Canada-US Auto Pact was signed in 1965, there was very little trade in automobiles between the two countries. Canadians bought cars made in Canada and Americans bought cars made in the United States. Yet, the major automobile manufacturers in Canada were the same as in the United States: GM, Ford, and Chrysler. The Canadian automobile industry, however, was significantly less productive than the American. The smaller Canadian market meant that assembly lines could not be dedicated to solely producing one model of car but had to be shared between multiple models. Stopping the assembly line and switching out the parts for the new model cost time and labor.

After the auto agreement between Canada and the United States went into effect, automobile manufacturers restructured the lines so that the factories in Canada only specialized in building specific models for the combined US-Canada market and the US factories built other models (see figure 6).

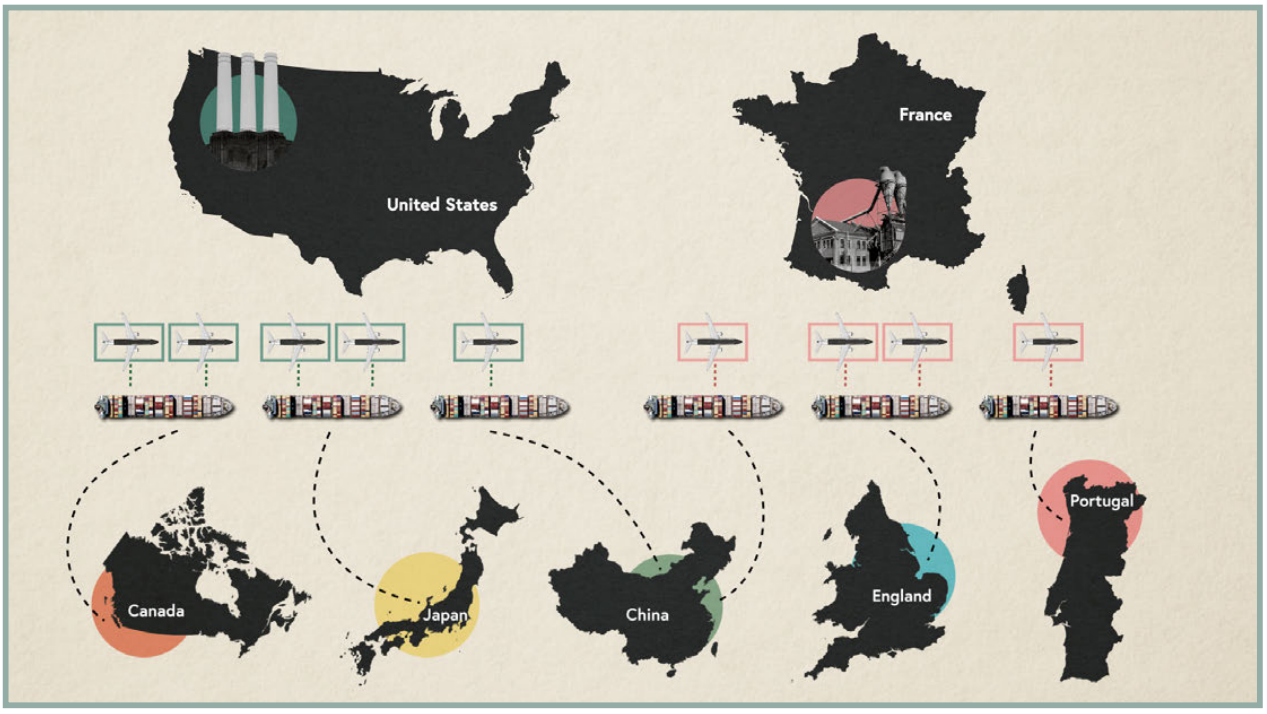

FIGURE 5

This meant that trade expanded between Canada and the United States in goods of the same type. Some car models were made in America and shipped to Canada. Other models were made in Canada and shipped to America (see figure 7).

Ricardo's theories would not have predicted this type of development but Paul's did. The experience of the Canada-US Free Trade Agreement showed that trade was not only driven by comparative advantage but by the economies of scale that come from specialization.

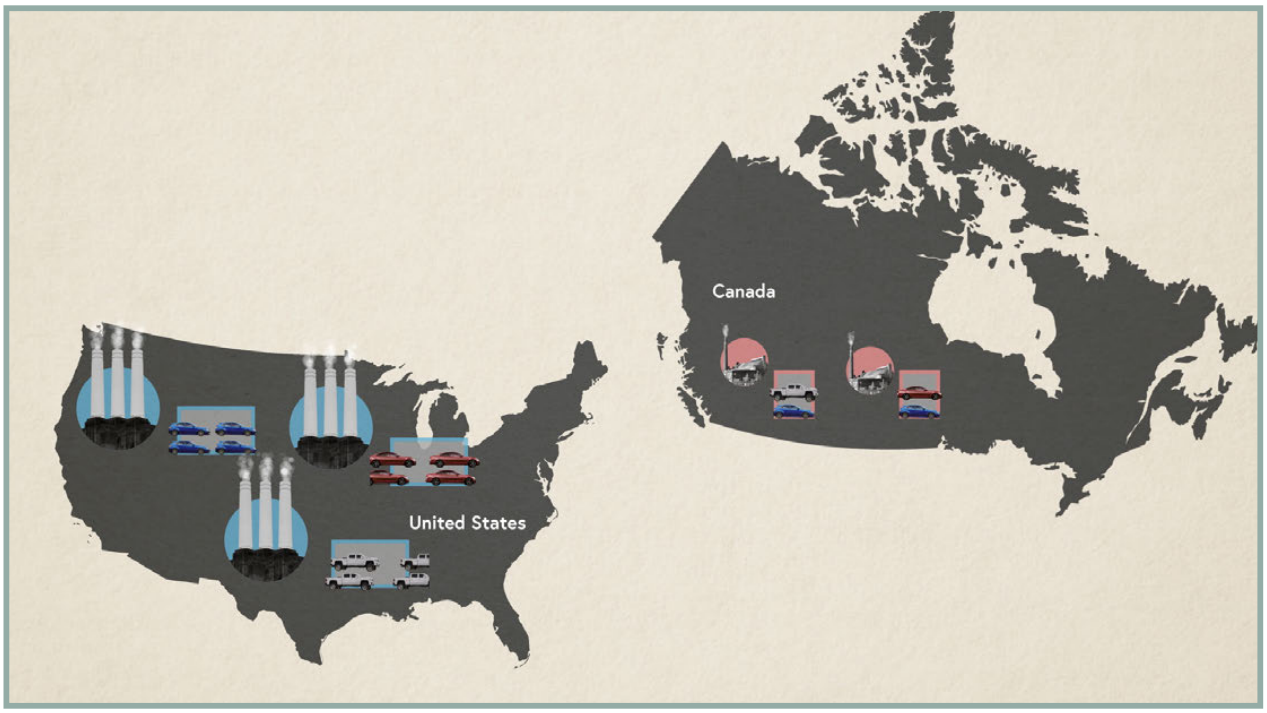

FIGURE 6

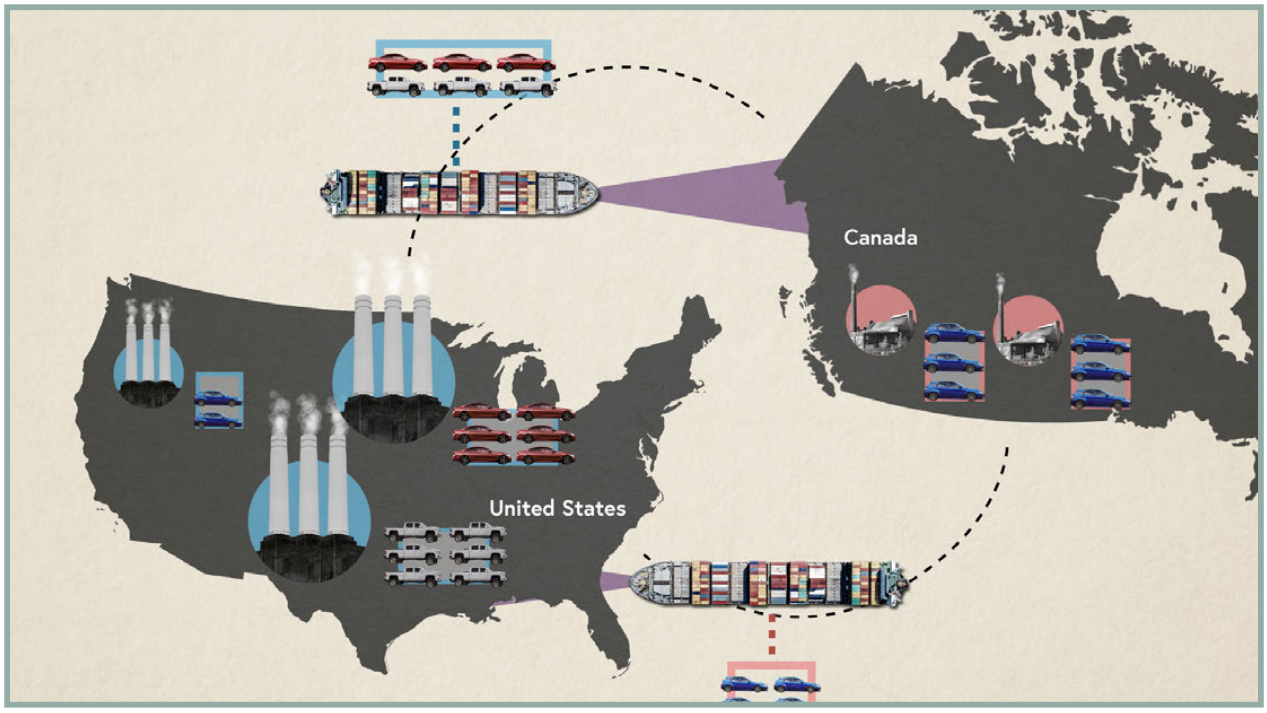

FIGURE 7

Learn More

The effort to reduce trade barriers that went up after World War I was a long and arduous process. Explore the US International Trade Commission's detailed history of the process.

Comparative advantage can be a subtle concept to grasp. Review your understanding with economist Don Boudreaux's discussion in the Concise Encyclopedia of Economics.

New trade theory won Paul the Nobel Prize. Read his explanation of his work in the *New York Times*.

Dive deeper into new trade theory with Paul Krugman's Nobel Prize lecture on increasing economies of scale.

Understanding the Hyperglobalized World

“

It turns out that the standardized freight container has transformed the world.

Understanding the Hyperglobalized World

Subchapters

Chapter Review

Steamships and railroads drove the original era of globalization. These innovations lowered the cost of physically transporting goods over long distances. The major cost in transportation that remained was the cost of sorting. When a ship arrived at port or when a train pulled into its station, workers had to spend an enormous amount of time carefully sorting each bag, barrel, or crate, and ensuring that it went to its intended destination.

The development of the shipping container changed all of that. Container ships are now loaded with standardized shipping containers. Those containers are placed on standardized railroad cars and they match exactly the specification for a tractor trailer. They also each have their own specific barcode. Sorting a container is as simple as scanning the barcode and seeing which railroad car or tractor trailer is scheduled to carry it on the next leg of its journey. This phenomenon has been the largest driving force in making complex trade patterns between distant nations possible.

That revolution has made the United States much wealthier. Mass production of the iPhone would not be possible without complex supply chains linking China, South Korea, Taiwan, and the United States. Still, there are losers as well as winners associated with trade.

Trade has meant the disappearance of entire industries in garment factories from the United States. Apparel manufacturing used to be heavily concentrated in New York City. Millions of otherwise low-skilled workers could find work. Those labor-intensive jobs have largely been shipped overseas, which means that there is less demand for workers with little education and fewer opportunities for unskilled laborers to find work than in the past. Falling demand for low skilled workers leads to falling or at best stagnant wages. In this way, the effects of trade largely mirror the effects of technological change. They make the entire country more wealthy on the whole, but can have devastating impacts for particular communities.

When economists attempt to measure the overall impact of trade, they use a process called factor content analysis. They imagine that instead of importing textiles from a country like Bangladesh, the textile workers themselves immigrate to the United States. Then, instead of building and exporting passenger jets to the rest of the world, they imagine that the engineers who make those jets emigrate to other countries. Then they consider how the addition of more textile workers would affect the wages of US textile workers. In general, we would expect an increase in the supply of textile workers to lower the wages for those workers. Next, they consider how the loss of engineers would affect the wages of US engineers. In general, we would expect a decrease in the supply of engineers to raise the wages for engineers (see figure 1).

After performing these calculations, economists find that trade is a significant contributor to the rise in inequality, but it is not the primary contributor. Technological change, politics, and cultural shifts are far more powerful factors.

Trade has a more powerful effect on our trading partners, particularly our least developed trading partners. The United States is an advanced economy with the ability to produce lots of different things. Bangladesh, on the other hand, is a very poor country with limited capability. The low wages in Bangladesh, however, do mean that workers there can be competitive in labor-intensive industries like garment manufacturing. Even those sweatshops that pay low wages and have horrible working conditions (by our standards) provide the same type of opportunity for Bangladeshis that they did for garment workers in New York City a hundred years ago. Without that backstop, Bangladesh would be even poorer than it is today.

This complex pattern of winners and losers is summed by a graph called the Elephant Chart, created by contemporary development and inequality economist Branko Milanović. The Elephant Chart shows us that when we consider the effect of trade on the entire human population, four distinct groups emerge (see figure 2).

First, there are the poorest people in the world, most living in Sub-Saharan Africa, who are not as of yet part of the global economy. Their prospects have changed little in spite of globalization. Second, there is a massive portion of the human population living in China and the Pacific Rim who have seen an enormous rise in their living standards. They are not up to American levels yet, but their situation has enormously improved since the 1980s. Third is the working class in the United States, Europe, and Japan. They are still wealthier than most people in China, however, they've seen little improvement and in some cases an outright decline in their standard of living. Lastly, there is the educated elite in the United States, Europe, and Japan. They've seen percentage gains in income nearly as large as people living in China.

This complex story surrounding trade creates high international tensions. However, it's important to remember that trade is only one of the factors creating income inequality in the United States, but it is the dominant factor changing the lives of people in China and the Pacific Rim.

Learn More

Read more about the history of globalization in *The Economist*.

Explore the threats to globalization with this post from the *Washington Post's* Wonkblog.

Dive deeper into the debate over the future of globalization with this report from the Brookings Institution.

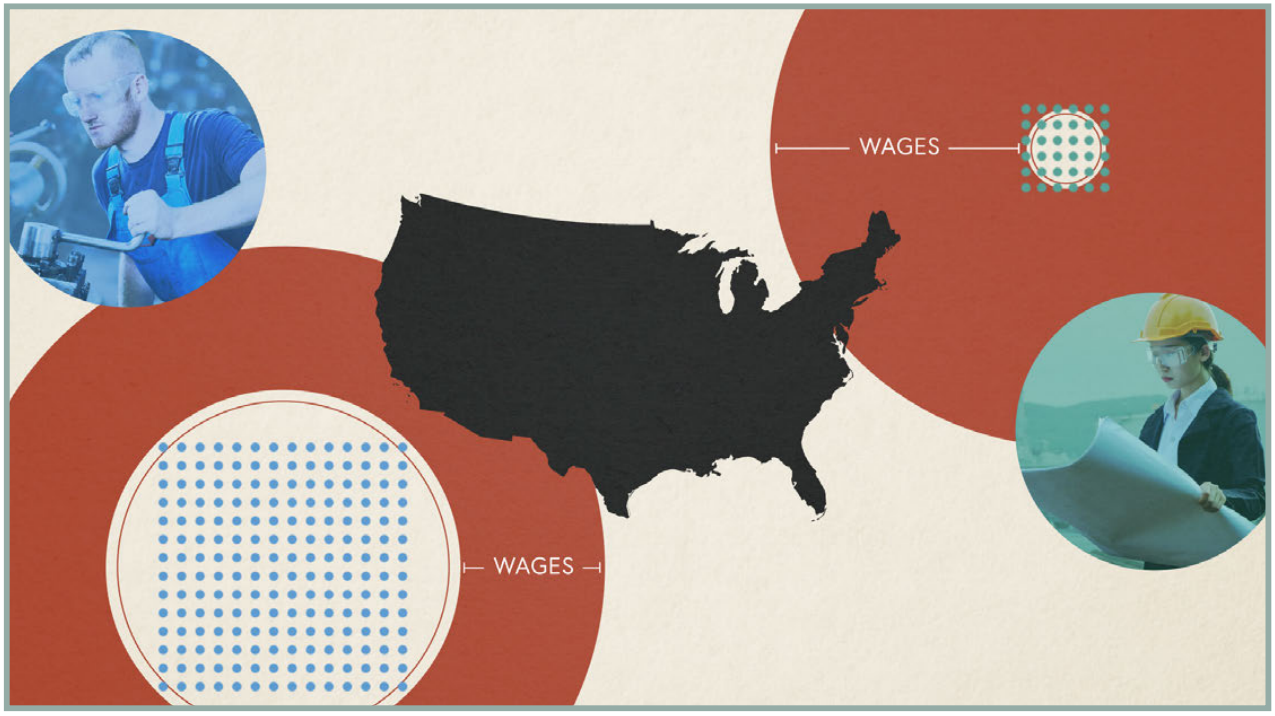

FIGURE 1

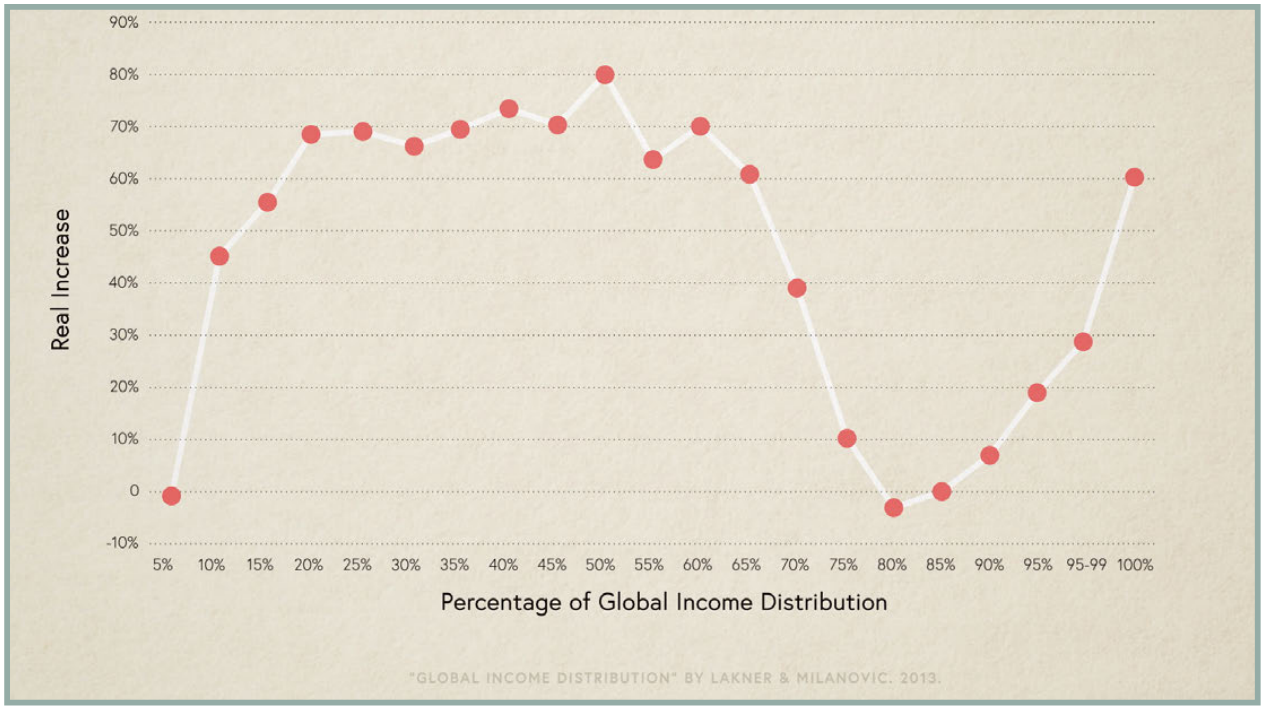

FIGURE 2

China: The Disruptive Miracle

> Globalization has pretty much leveled off since 2010. In fact, if you tried to reverse it, you'd be delivering a whole new shock.

China: The Disruptive Miracle

Subchapters

Chapter Review

The economic growth that China has experienced over the last 30 years has astounded economists. In no other place, at no other time, have so many people been brought out of the depths of poverty into the global middle class.

The rise of Chinese exports, especially after 2000, caused shock to the US economy that economists refer to as the "China Shock." The US had to adjust to rapidly changing patterns of trade as some industries moved to China and new industries were born. That shock faded by around 2010.

Attempting to restrict trade with China would create a second shock. It's important to remember that the economic hardship from the China Shock came not from trade itself, but from the need to rapidly adjust to new patterns of trade. Reducing trade with China will mean having to re-adjust again. Increasing taxes on the imports of materials used in manufacturing, such as steel and aluminum, is particularly destructive. Doing so benefits US steelmakers, but at the expense of US automotive and appliance manufacturing. Economic estimates suggest that the jobs lost in automotive and appliance manufacture will exceed those gained in steel (see figure 1).

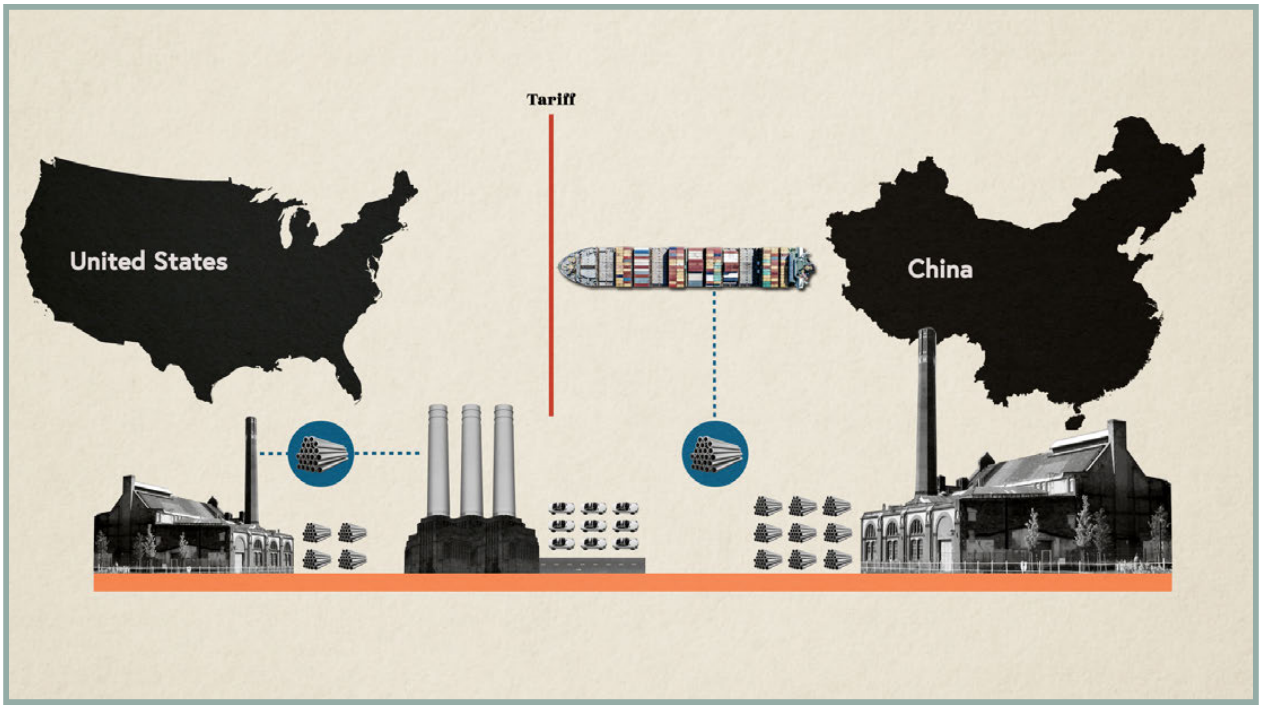

FIGURE 1

Politicians in the United States have made a big deal about the trade deficit that the US runs with China. That figure, however, is misleading for several reasons. First, the US runs a bilateral trade deficit with China of $375 billion. That sounds like a lot, but is less than 2% of our approximately $20 trillion economy. Second, even that figure of $375 billion is an overestimate. The Chinese economy specializes in assembling goods from components made elsewhere. For example, iPhones are assembled in China but the microprocessors come from South Korea. This implies that a lot of the value of the imports we receive from China really were manufactured elsewhere, and should be counted as imports from those countries instead of China. Lastly, what remaining trade deficit we do have with China mostly represents the fact that the Chinese are investing more in America than we are in China.

Paul argues that those concerned about inequality in the United States and Europe should focus on domestic policies rather than trade. The one issue with China that bothers Paul the most is its government's lack of respect for intellectual property rights. The Chinese government not only permits but encourages its companies to use foreign technology or copy foreign books and movies without paying copyright and patent fees.

Learn More

China's effect on the US economy is hotly debated among politicians and pundits. Listen to trade economist David Autor discuss the key lessons from the China Shock.

The next phase of China growth may have more to do with trading with East Europe and the rest of Asia than with the United States. Explore China's multi trillion-dollar One Belt, One Road project, which aims to connect 65 countries via a grand system of railways, roads, and pipes known as the Silk Road 2.0.

Dive deeper into the debate over free trade and domestic inequality with this report from economist Dean Baker.

Economic Geography

> The decline of some of these old industrial communities is a real tragedy to which I for sure have no answer..

Economic Geography

Subchapters

Chapter Review

Along with new trade theory, one of Paul's greatest contributions to economics was in the area of economic geography. He understood long before most economists that increases in communication technology could lead to the rise of very large cities and the decline of small towns.

When businesses decide on locations, they face two major considerations. The first consideration is being close to their customers and their suppliers. If it is expensive to transport goods, then manufacturers will find it advantageous to locate somewhere in between the two. In that way, they lower the transportation costs for acquiring raw material and shipping final goods to customers. These considerations helped drive the development of many of the manufacturing centers around the Great Lakes in the late 19th and early 20th centuries. Resources shipped in from the American heartland turned into output sent to the Eastern Seaboard.

The second consideration is what the great Victorian economist Alfred Marshall called "immaterial factors." Marshall pointed out that what might be considered the "mysteries of the trade" are no mystery at all when you live in a town dominated by an industry. Casual conversation at the bar or the cafe will tend towards the town's main industry. It becomes easy to learn the important elements of doing business simply by being in the right place, among the right people.

Paul realized that as the costs of transportation fell, the advantages of an industry cluster can rise. This leads to a snowball effect that overwhelms other considerations (see figure 1).

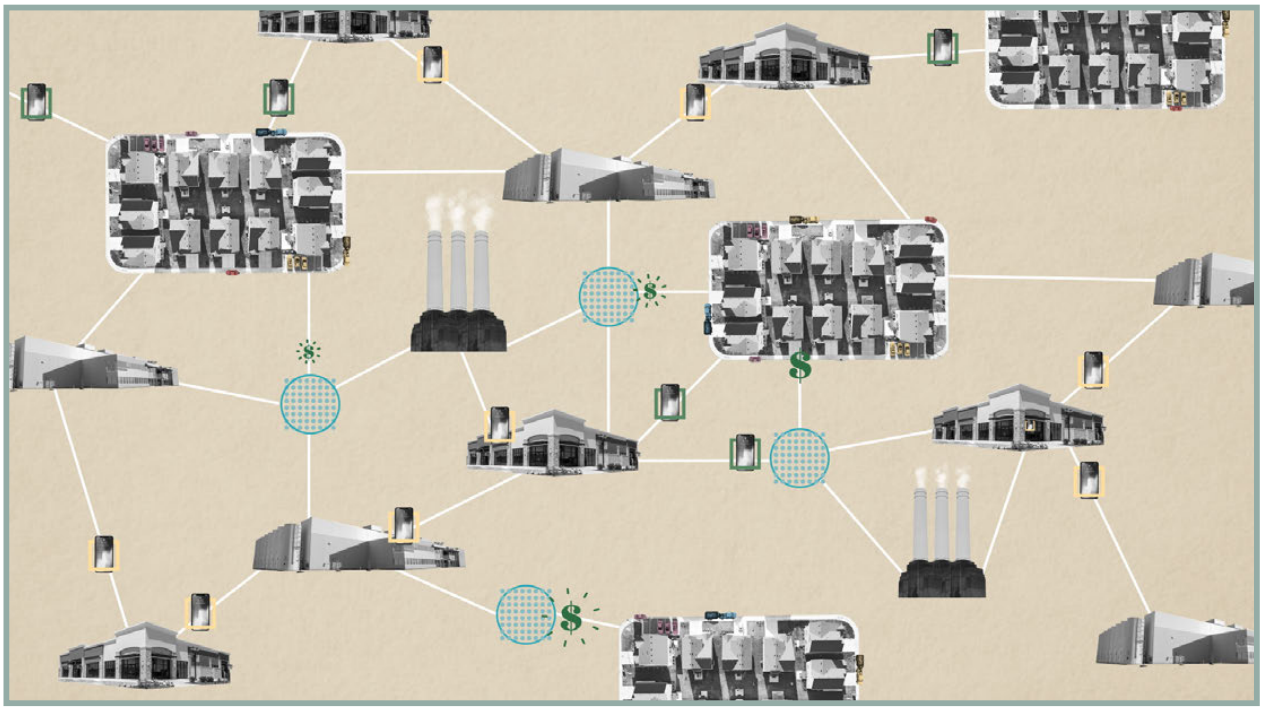

FIGURE 1

Silicon Valley for example, has a natural advantage in growing apricots. The weather and soil are nearly ideal for apricot trees. Large groves used to cover Silicon Valley before the 1950s. Agglomeration effects, however, would soon overpower this natural advantage. During World War II, the US Navy used the San Francisco Bay for research into new technologies, especially radar navigation and long range radio communication. This brought engineers in radio communication to the area. In 1956, William Shockley won the Nobel Prize for his development of the semiconductor. That same year, he moved to Palo Alto, a town on the southwest end of the San Francisco Bay, to be close to his ailing mother. Shockley recruited other engineers from around the country to come work with him—some of whom ended up breaking off and founding a company that came to be known as Fairchild Semiconductor. Their company was the only one in the world at the time capable of making transistors on a large scale.

As the demand for electronics grew, engineers and entrepreneurs moved to the San Francisco Bay Area to be close to Fairchild and to take advantage of the expertise of communications engineers in the area. Palo Alto became a small hub for electronic communications. When the internet was developed in the early 1990s, technology experts and entrepreneurs moved to Silicon Valley to be close to these technology experts. The commercial success of early internet firms brought venture capitalists and other investors to the area. This created an even bigger technology cluster which soon outgrew Palo Alto and came to cover much of the San Francisco Bay Area. Today, rather than being the home of apricot groves, Silicon Valley is a major international technology cluster.

As communication and transportation technology expands, Paul predicts that economic growth will increasingly focus on big metropolitan areas. However, land use restrictions in many major cities prevent the influx of more people. Land prices in large cities can be very expensive. The way to keep housing and rents for businesses affordable is to build more residences or offices on each plot of land. This is accomplished by building high-rise buildings. Residents in San Francisco and even New York have passed ordinances that limit or in some cases forbid the building of high-rises over many parts of the city. This causes the price of housing to skyrocket and means that only the wealthiest people are able to move to the city. Not only does this make the city less affordable for those living there, but it also makes the entire economy weaker, by slowing the evolution towards megacities.

The flip-side of the growth of megacities is the decline of medium and small-sized cities. Cities that were focused around a single industry were particularly hard hit as manufacturing dwindled and employment opportunities vanished. The Great Lakes region was the ideal place for manufacturers looking to lower transportation costs. However, it offers few opportunities or amenities for high tech workers. In addition, many of the communities were built around a single manufacturing industry. That provided an advantage when manufacturing employment was high. Workers in that industry could share trade information. As manufacturing declined, however, the advantage of manufacturing towns disappeared. In pure economic terms, it might be advantageous to close down the town and move everyone to the expanding city. For those that grew up in these towns, though, the decision is more complex. It means leaving the only place they have ever known and taking a risk in cities that are, because of building restrictions, extremely expensive.

Dealing with the consequences of economic geography will be one of the major policy challenges affecting economics in the coming decades.

Learn More

Review why industries tend to clump together in one place with this article by economists and Harvard professors Ed Glasear and William Kerr.

Read economics journalist and author Ryan Avent's case that cities are central to job creation.
Paul predicts that agglomeration effects will drive ever larger cities.

Dive deeper into agglomeration effects with this non-technical paper by economist Diego Puga.

Reading Economics

Learning how to sort through and figure out what parts are fake and what parts aren't is probably the most important thing.

Subchapters

Chapter Review

Economics deals with subjects that are often the source of intense academic and political debate. Economists, like Paul, who are embroiled in that debate want to present their ideas in the most persuasive way possible. Nonetheless, Paul hopes that this MasterClass will help you be a skeptical consumer of those ideas and not let him or any other economic commentator get away with logically unsound or factually unsupported arguments.

When reading any economic argument, first ask whether all of the elements for a sound argument are in place. That is, does the argument begin with a core set of assumptions, provide evidence to support those assumptions, and then expand on those assumptions through a clear chain of logic all the way to its conclusions? Surprisingly, you may find that much of what is written even from some popular sources is little more than a passionate series of assertions that might be true, but are not shown to be true by the author. Once you're confident that all the elements are in place, then you can ask yourself: Does the argument hang together? This can be difficult and requires a degree of mindfulness.

Even very intelligent readers are often taken in by an argument that appeals to their own biases or makes a complex problem seem easy to understand. For example, lots of things are going on in the economy at once. You can always find patterns that seem to suggest that two phenomena are related when in fact they are not. Economists call this "spurious correlation." Two phenomena are genuinely correlated if they are related to each other in a systematic way. A spurious correlation, however, is a pattern that arises by pure chance. To spot a spurious correlation, ask yourself if something else going on could explain this same pattern. It's often asserted that low-tax states have faster rates of growth than high-tax states. Low-tax states, however, are located in the South where winters are milder and housing is less expensive. Both of those factors have been big drivers behind growth rates for the last half century.

Authors may also cherry pick their facts—meaning he or she finds one particular source or one particular time in history when a key fact that supports his or her argument is true, but then ignores all of the other instances when this fact is not true. If an author has to pick an obscure or very out-of-date fact, then that is a sign that he or she may be cherry-picking.

You can learn something about an author's honesty by looking at whether he or she has ever admitted to an error. Economics is complex and predictions are hard, especially about the future. That means that from time to time, even the best economic analysts will be wrong. The very best, however, will admit that they were wrong, try to understand why they were wrong, and incorporate that understanding into future predictions.

Learn More

Read more about the types of false assertions, or "spin," politicians and commentators make with the *Washington Post*'s fact checker.

Explore the world of economics commentary at Economist's View. The site contains links to hundreds of articles and posts on economics by leading journalists and academics.

Dive deeper into economics and social science reading with this daily summary of some of the best new research.

Seeing the World Like an Economist

> If everything you see when you look at economics confirms your initial view of the world, then you're doing it wrong.

Seeing the World Like an Economist

Subchapters

Chapter Review

The use of controlled experiments in economics is limited to small scale studies, usually involving volunteers acting in laboratory settings. For ethical and practical reasons, large-scale controlled experiments on the entire economy are impossible.

To get around this limitation, economists look for natural experiments. These happen when the economy, or part of it, experiences a shock that clearly wasn't correlated with other factors.

One of Paul's favorite natural experiments was a minimum wage study by economists David Card and Alan Krueger. Different states have different minimum wages, and states change their minimum wage at different times. In 1992, New Jersey raised its minimum wage by 80 cents, while Pennsylvania kept its minimum wage the same. Card and Krueger looked at what happened to employment at fast food restaurants on either side of the border between New Jersey and Pennsylvania. They found that employment at restaurants on the New Jersey side grew faster than than those on the Pennsylvania side. This is the opposite of what economists would have supposed. These results help ease the concern held by Paul and many other economists that modest minimum wage increases would lead to slower employment growth.

Many economic findings have political implications. It can be tempting to allow your own personal values or ideology to influence your economic conclusions. Good economics, however, should challenge your conclusions. No matter where you fall on the political spectrum, economic analysis is going to offer some unpleasant insights that run counter to your intuition. If you find that whenever you use economics to study a problem you always arrive at the answer you were hoping to find, that is a sign that you are almost certainly not doing economics rigorously.

Learn More

Experimental Economics is a small but booming field. Read the Nobel Prize lecture of one its pioneers, Vernon Smith.

David Card and Alan Krueger's seminal study on the minimum wage changed the way many economists think about labor markets and economic research. Hear from the authors themselves about what they learned in this interview.

Considerable controversy remains about the effects of the minimum wage. David Neumark explains why economists still disagree at VoxEU.

To find out more about the types of issues that economists are working on today, read up on the themes identified by the National Bureau of Economic Research.

Thinking about becoming an economist? Learn more about what it takes from the American Economic Association.

Writing Economics

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Style and substance are not actually separate.

Writing Economics

Subchapters

Chapter Review

When writing economics for a general audience, your first priority should be to keep your audience engaged. Jargon can shut readers out of what you're writing—remember that they probably don't know any of it, and won't have the time or inclination to learn it. Rather than waste valuable space explaining technical language, you are better off thinking of a simple, sharp way of making the same point.

As with all writing, you want to ask: who is my audience and what am I trying to accomplish with the piece? In Paul's case, his audience is generally well-informed regarding current events but less so about the underlying economics. What he wants to accomplish is to say something sufficiently insightful and original that will jar, and perhaps even annoy, a significant fraction of his audience.

In his column "Myths of Austerity," Paul challenged preconceived notions about authority figures' ability to handle the Great Recession. To make his column as impactful as possible, he focused his critique on well-respected figures such as Jean Claude Trichet, President of the European Central Bank. Trichet had argued that cuts in government spending, a policy known as fiscal austerity, would actually be beneficial during a recession because they would increase investors' confidence in the government's ability to repay its debt. This increase in confidence would make investors more willing to lend money both to the government and to consumers within that country.

Paul pointed out in his column that, contrary to Trichet's argument, the countries that had followed Trichet's advice—among them Ireland, Latvia, and Estonia—had seen their economies shrink rather than grow. Austerity may have sounded like a responsible policy on the surface, but the actual results were terrible. This should not have been a surprise, Paul argued, because austerity had been tried during the early stages of the Great Depression with tragic results then as well. Therefore, Paul concluded we should not put our faith in rhetoric, no matter how reasonable it sounds, but should instead rely on data and evidence from the past to understand how our economy will respond to policies today.

Careful argument and genuine engagement with the opposing side can be tedious both as a writer and reader. This is why the most successful economics writers use evocative language even while being mindful not to compromise the integrity of their argument. Finally, once the argument is complete, you restate the major assertion in a way that lets readers know how it fits in with their lives. In the "Myth of Austerity," Paul leaves his readers with the advice that they question whether or not authority figures have based important economic advice on sound argument or wishful thinking.

Learn More

Read this guide from the University of North Carolina on spotting logical fallacies in your writing and others.

Get tips on writing for your audience in this post from the Center for Writing Studies.

Dive deeper into the art of writing with columnist Will Wilkinson's piece, "Narrative Persona in Non-Fiction."

Closing

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The first thing you should do anyway is stay aware.

Closing

Chapter Review

Our current economic times are challenging and there are many reasons why people might feel down or even hopeless. Even in these times, however, we can find evidence that good ideas can change the world for the better. There is no guarantee that good ideas will win out, but there is no way that they can win out unless we fight for them. That means first and foremost working to understand the world around you so that you can identify which ideas are, in fact, good.

The Great Recession was one of the worst economic events to happen in recent memory, but it wasn't as bad as the Great Depression. That's because important people had learned some of the lessons of economics and applied them at crucial moments to stop a bad situation from getting worse.

Paul's MasterClass has hopefully provided you with a way of thinking about economic ideas that will help in your task of sorting out which ideas are grounded in evidence and reason, and which ideas are built on pure ideology or wishful thinking. Whether your goal is to become a more informed citizen, an activist, or even a policy maker yourself, remember to stay aware, to read, to listen, and to be skeptical of what you hear.

Learn More

Paul chronicled his thoughts about the Great Recession and other major economic events at his *New York Times* blog. Explore how Paul's thoughts evolved as events unfolded.