2020

Modern Monetary Theory

Tristan Rabbitt
Connecticut College, trabbitt23@gmail.com

Modern Monetary Theory

Tristin Rabbitt
Advised by Edward McKenna
May 4th, 2020

Modern Monetary Theory

Chapter 1: Economics as a Science…….3
Chapter 2: A Brief History of Money……..4
Chapter 3: Banking……....15
Chapter 4: What Does the Fed Really Do?.....22
Chapter 5: Inflation……37
Chapter 6: Unemployment…….51
Chapter 7: Full Employment……..74
Chapter 8: The Job Guarantee……91
Chapter 9: The Virus of Spending……...107
Chapter 10: To Spend, or Not to Spend?.....116
Appendix A: A Short Study into the Causes of Inflation……126
Appendix B: A Model for Analyzing Inflation During a Pandemic……....137
Works Cited…….144

Chapter 1: Economics as a Science

One of the great challenges for economics students, and scholars, is remembering that the theories that we have learned through our study of the world's financial institutions are not set in stone. Many introductory students readily accept the theories and "laws" of economics as if they were objective realities. We too easily forget that economics is a science that is in a state of perpetual development, and like the physical sciences, we must rigorously test the "truths" that we have accepted against the realities of the modern world. Even models that have been long held in high regard and have repeatedly successfully proven hypotheses regarding the nature of the economy must be frequently scrutinized under the changing nature of modern challenges and phenomena. The fact that the solar system revolves around the Earth was once taken as an undeniable truth, and it took more than 1600 years for skeptic individuals to convince the scientific community to reconsider their long held beliefs.

In reality, economics is just another science. However, it is a science that was created by, and relies on, the actions of individual humans acting in a collective consciousness. While economics has evolved through as many phases as astronomy, it has certainly not, and may never, reach its final form. This essay will present a new economic model that both builds upon and modifies the existing Neoclassical model in order to arrive at conclusions that conventional economists will surely, and in some cases already have, consider to be radical. My only request to the reader is that they read this essay with both the skepticism of a scientist and the open mind of a scholar.

Chapter 2: A Brief History of Money

The conventional wisdom present in Neoclassical economics stipulates that money was created to facilitate trade. Neoclassicals believe that before the inception of money, transactions could only take place in a barter economy, which had the weakness of the "double coincidence of wants"(Wray 2015, 39). For a transaction to take place in a barter economy, an individual first needs to acquire an excess commodity and then go through the trouble of finding someone who is both selling the good he desires as well as willing to accept the commodity offered. The inefficiencies of this system are immediately apparent, and Neoclassicals believe that primitive humans created money by collectively choosing a commodity that both had a value and was widely accepted in order to streamline the process. As economies expanded, gold and other precious metals became the money of choice. But because gold is not exactly easy to transport in large quantities, banks began to hold gold and issue promissory bank notes that could be redeemed by the bearer for a given amount of the metal.

Once individuals became accustomed to paper money, they rarely actually went to banks to exchange their notes for gold, and bankers were able to leverage their gold reserves in order to issue more notes than they actually had precious metals to back. As the economy expanded further, governments monopolized the issuance of money by creating central banks and amassing collections of gold. Due to the large reliance on gold backing, the Metallist theory emerged, which stipulated that the true value of money was derived from the purchasing power of the precious metal that backed it. This theory has many important implications, but chiefly it contains policy prescriptions for those who hold the power to create additional money. If the value of money only comes from its precious metal backing, any additional currency produced,

without acquiring additional gold reserves, will lead to inflation as the precious ratio between gold and currency has been upset. The resulting corollary is that central banks must limit the expansion of their money supply in order to maintain the value of their currency. However, this leads to problems in times of economic or political crisis, as governments have a need for large deficit spending, which requires either borrowing or increasing the money supply, but their hands are bound by golden chains.

When contrasted with the Neoclassical view, MMT posits many new economic principles, and the majority of these conclusions can be traced to the different manner in which MMT conceptualizes the development of money. MMT vehemently disagrees that the value of money comes from some sort of commodity backing, and they conclude that money is simply debt. This doctrine of debt traces its origins to two economic movements: Functional Finance and Chartalism.

Chartalism claims that money does not derive its value from precious metal backing, but from the sovereignty of a government. In this sense, the state and money are inherently intertwined, and that it is the ability of the state to lay and collect taxes which drives the acceptability of currency. While this theory was formally named by Georg Friedrich Knapp in the early 1900s, Adam Smith struck an extremely similar tone in 1776 with his discussion of paper currency in *The Wealth of Nations*. He first acknowledges that money does not need metal backing as evidenced by the actions of contemporary bankers. Instead of simply issuing paper currency in direct proportion to the amount of precious metal they held in reserves, bankers would frequently leverage their reserves by issuing up to five times more currency than they actually had in reserves because they knew that the small reserve of gold would be enough to

satiate the seldom customer that actually desired it (Smith 2005, 211). He goes on to make the groundbreaking claim that paper money would circulate at a premium to gold as long as the government in a nation established a tax burden that could be paid in paper currency, and took steps to ensure that the supply of paper currency was low enough to create a significant demand (311). While he never explicitly states it, this analysis implies that the use of taxes creates a demand for paper money, regardless of whether it is convertible on demand to a precious metal.

More than a century later, Knapp expands on the work of Smith by characterizing money as a unit of account, or a token that represents a legal claim on a debt. He describes money as a pay token, or an object that itself has no intrinsic value, but can represent the existence of a debt. He uses the analogy of money as the ticket or token received at a theater after checking in a coat. While this ticket is nothing more than a scrap of paper with a number on it, it signifies the existence of a debt. When the bearer receives his coat in return for the ticket, the ticket can be discarded, as it no longer serves a purpose. For this reason, Knapp names his new theory Chartalism, after the Latin word "charta", which means either paper or record (Wray 2006, 24). While Smith acknowledges that taxation could attribute value to money, Knapp declares that "Chartal Money" consists of whatever the state will accept for the payment of debt to the government.

Modern Monetary theory is also heavily influenced by Functional Finance, an economic movement that took place in the early 1900s. This movement was similar to Chartalism in the sense that it lambasted the idea of the gold standard, but early Functional Financiers made a point to take a scientific approach to their analysis. Instead of relying on abstract theory that was

the product of thought exercises, this movement sought to characterize the economic world based on the history and data made available through a study of the real-life actions of governments.

In 1913, in an article in the *Banking and Law Journal*, A. Mitchell Innes tore into Metallists by claiming that their theories had no true backing except for a few passages of Homer, Aristotle, and the writings of travelers in primitive lands. Innes instead develops a "credit theory of money" through the use of historical evidence as well as logical reasoning. After analyzing the monetary policy of the Greek city states, the Roman Republic, and numerous countries in Early Modern Europe, Innes discovers that while their currency was made out of precious metals, in many cases the face value of the coin was significantly higher than the value of the metal. Furthermore, in many of these early states, the weights of the coins in circulation varied tremendously, suggesting that these coins did not actually derive their value from the metal, and it follows that there was never actually a metallic standard of value. Instead, Innes posits that the monetary unit that existed was an abstract or imaginary concept, completely separate from the coin itself or the metal inside of it.

Striking a similar vein, he dispels the misguided Neoclassical belief that credit was developed chronologically later than currency. A historical examination reveals that a diverse array of debt tokens and a universal understanding of the sanctity of obligation was found in far-flung ancient societies from "the merchant of China to the Redskin of America; from the Arab of the desert to the Hottentot of South Africa or the Maori of New Zealand, debts and credits are equally familiar to all, and the breaking of the pledged word, or the refusal to carry put an obligation is held equally disgraceful" (Innes 1913, 3).

Innes forms the theory that early economies existed in a state of constant debt and credit creation. These debts were not denoted in a certain metal unit of account, instead they could consist of a variety of commodities. In fact, tally sticks, or similar instruments which allow for a creditor and a debtor to agree upon an exchange and then "snap" the stick in order to each carry a corresponding token of debt, have been discovered that date to 3000 BC. In Early Modern Europe, tally sticks were transferable instruments, and fairs served as a clearinghouse for debt, where individuals would bring their tallies and settle their debts. With this evidence, Innes articulates the idea that the value of credit does not depend on a corresponding amount of gold, but on the ability of the debtor to repay (15).

In an article published a year later in *The Banking and Law Journal*, Innes formalizes the "credit theory of money" that would become central to Functional Finance. In essence, the credit theory of money states that whenever a commodity is purchased or sold the transaction involves the transfer of credit. The true value of money, or credit, does not come from any metal backing, but from the right of the creditor to acquire payment, or satisfaction for his credit and the obligation of the debtor to pay his debt (Innes 1914, 153). In this sense, money is only valuable because it is credit that denotes an existing debt, and that the bearer of it is entitled to redeem it for future credit. In the modern economy, every piece of currency represents a debt owed by the government to the people in the form of a reduction in taxes. The paper currency itself has no real value, but it is merely a token that establishes the existence of a government issued debt, which can be exchanged during the payment of taxes.

These become key aspects of Functional Finance. There is no such thing as a medium of exchange, and money is credit. Currency is only a token, or a tally mark, which denotes the

existence of credit or debt. The value of currency does not depend on any physical backing, but in the solvency of the sovereign issuer of the debt.

The theory of Functional Finance was truly articulated by Abba P. Lerner (1943), who wrote during the 1940s in a world that had seen the gold standard crumble after the challenges of two world wars and the Great Depression. While the conclusions that he arrived at are important, of equal importance is the methodology which he used to discover them. Lerner sought to study economics like any other science, through empirical evidence as well as examining cause and effect relationships. He declared that economists could no longer view the economy through the traditional lens imposed by Neoclassicals, and that they must only assess economic policies based on their real world effects. He defines Functional Finance as "the principle of judging fiscal measures by the way they work or function in the economy" (39). This methodology has been adopted by Modern Monetary Theorists who seek to examine reality, not theory.

Heavily influenced by the work of John Maynard Keynes, Lerner's research (1943) leads him to several important conclusions regarding the nature of money, and the role that the government should play in the modern economy. First, he declares that money is truly the creature of the state (40), and that for money to be generally accepted, the state must impose and be able to enforce a tax burden to arouse a demand for its currency. He quickly rejects the notion of a gold-backed currency, and he says that the gold standards of the past were simply a necessary stage in making currency commonly accepted in a period where states were not powerful enough to adequately enforce tax laws. Without an efficient system of taxation that could enact a demand for money and maintain a stable price for currency, states were forced to

tie, in order to prevent inflation, their currency to a relatively stable commodity. Furthermore, he reasons that the two economic goals of government must be to prevent inflation as well as unemployment. He determines that both of these evils are the result of incorrect aggregate demand, and that the government must concern itself with maintaining the total level of spending in the economy at the rate equal to the amount which would purchase the entire aggregate supply of the economy (43).

When demand is too low, the government must either increase its own spending, or decrease taxes to allow the private sector more disposable income. The reverse holds for when spending is too high; the government must either decrease its own expenditure or increase taxes to stop the private sector from spending. While this seems to be a relatively traditional economic principle, his analysis is groundbreaking when he declares that the government should not be concerned whether these policies lead to a significant budget surplus or a noteworthy debt. In regards to a budget surplus, Lerner makes the same argument as Neoclassicals- that the remaining money can simply be used to make future interest payments on national deficits (48). However, where Neoclassicals are afraid of a national debt because of the interest cycle that could potentially cripple the economy, Lerner makes a strong case that a national debt is not anything to be overly concerned about.

For one, whenever the government deficit spends, more money flows into the private sector of the economy, and due to multiple bank deposit expansion, the initial increase in government expenditure will be multiplied numerous times to result in a much larger wealth increase in the private economy. In essence, he argues that the small interest that the government

has to pay to its creditors is a small price to pay for the large increase in real wealth in the overall economy (49).

Furthermore, many Neoclassicals argue that a large national debt would lead to demanding annual interest payments, which in turn would force the government to drastically raise taxes in order to maintain just the interest on their debt. To this, Lerner responds by stating that the government should only ever raise taxes in order to combat inflation, so as long as inflation is low, the government could simply print or borrow in order to finance the debt. While this seems like a far-fetched idea, it makes intuitive sense. The conventional wisdom states that printing money will ultimately lead to inflation due to the excess supply of currency. However, if inflation becomes a problem, the government could raise taxes, which would both decrease inflation as well as raise money to service the debt. If printing additional money to service the debt does *not* lead to inflation, this implies that the economy is not at full employment, and this deficit spending to finance the debt would employ more individuals, which in turn would increase tax revenues, and make the debt less of a problem.

Third, he argues that apt Functional Finance policies will drastically increase domestic investment, as a government supportive of full employment will spur investor confidence. He suspects that this additional investment will reduce the need for government spending (48). However, this argument is controversial at best. So much of the modern economy is controlled by individuals who are by nature irrational, it is likely that many will not fully understand Functional Finance policies if they are enacted. The conventional wisdom is a powerful stimulus, and many will be doubtful that the government can truly borrow or print large amounts of money without any negative effects. If this is the case, individuals may expect that they will

have to bear the brunt of the debt in the form of taxes and begin to save more, stifling aggregate demand. These concerns will be addressed later in the "rational-expectations" model of predicting fiscal policy.

Lerner also makes the argument that increased government deficits will lead to higher national incomes, which will in turn lead to higher tax revenue without raising the tax rate (47). This will lead to a wealthier private economy and ample tax revenue to service the national debt. While this is an interesting and intuitive premise, he does not provide any empirical evidence that supports it. From a simple accounting standpoint, it is true that a government deficit implies a positive increase in private income, but it is unclear if the current, or those that existed during Lerner's time, tax rates would lead to enough tax revenue to neutralize the debt. From one angle this seems impossible, because if the amount spent in government expenditure led to an equal increase in tax revenue, there would be no corresponding increase in private sector savings. Essentially this model would show a transfer of funds from the government to the private sector, and then an equal transfer from the private sector back to the government. It is possible that the increase in private sector wealth will lead to an increase in GDP that makes the overall GDP-to-debt ratio smaller, and as long as this balance could be maintained the debt would perpetually grow larger, but ultimately fall in its severity. If you owe $10,000 and have an annual income of $500, you have a problem. But if you owe one million dollars, and you have an income of ten million dollars, you will be able to make your payments. As long as the income of the country increases relative to the amount of debt that we owe, we should not fear the growing debt. The "income" of a country is GDP, so as long as the rate of GDP growth is larger than the interest rate on borrowed funds, the burden of this debt is reduced. On an individual

level, this would be the same as someone paying 5% interest on a loan, but their income increasing 10% a year. Although the debt may still be nominally increasing, the burden of this debt is eased by their increasing income.

Lerner argues that an increasing national debt acts as a self-equilibrating force. When a government engages in deficit spending, it borrows from the public through the sale of bonds. Every bond sold to the public creates new financial wealth in the private sector, and any interest payments made will increase the personal fortunes of the government's lenders (47). He argues that as the debt grows, these fortunes will grow, and that large private fortunes discourage further saving, leading these individuals to increase spending (46). Hopefully, this increased spending will eventually reach a rate that allows for full employment, which will negate the need for further deficits, allowing the government to stop borrowing and instead focus solely on servicing the debt. While there may be truth to this notion, Modern Monetary Theory denies that the government needs to sell bonds in order to borrow, which would certainly cause problems for this model. Furthermore, an increasing percentage of the national debt is owed to foreign nationals, which could lead to interest payments increasing the private wealth of other nations, where the increases in aggregate demand would not directly benefit the domestic economy. As we will see in later chapters, MMT raises serious questions about the value of a government surplus except in very limited instances.

Lerner's final strategy to keep debt in check is remarkably simple. If the government gets tired of allowing creditors to generate large fortunes, they can simply stop borrowing from them and instead tax them. He claims that the rich creditors will not drastically decrease their spending and that the effect will be similar to the case where the government had borrowed from

them (50). This premise seems to be misguided, as the rich likely will change their spending habits if they see their fortunes rapidly disappearing due to taxation. Furthermore, the modern creation of tax havens and loopholes pose significant challenges to the simple "tax the rich" proposal.

This chapter has outlined a different conception for the true value of money. Within the framework of MMT, currency is simply a unit of debt. Money does not derive its value from any "backing", except the faith that it will be accepted to fulfill tax obligations. While this claim may at first seem trivial and a tad confusing, it forms the cornerstone of the MMT worldview. Once currency is understood as nothing more than debt, many of the common conceptions of sound government finance fall apart.

Chapter 3: Banking

Both Neoclassicals and MMTers comprehend that banks are essential private institutions that have a dramatic role in the economy. However, these two schools of economics disagree on multiple foundational principles, which lead them to very different conceptions about the functions of banks.

Anyone who has taken an introductory macroeconomics course should have at least heard of the idea of the creation of money through the "money multiplier." In the Neoclassical model, banks are simply institutions that take in deposits to accumulate reserves, and then loan out these reserves at a higher interest rate in order to make a profit, while holding on to a percentage of the original deposit to conform with the required reserve ratio.

Let's take a look at how this misguided model proposes that the economy functions. Bank A gets a cash deposit of $1,000 from a farmer, and the reserve ratio is 10%. Bank A will take the cash, award the farmer a demand deposit with $1,000, hold $100 (10% of the initial deposit) as required reserves, and then loan out the remaining $900 in the form of a demand deposit to a different customer. This customer then spends this $900 on a wristwatch, and the watchmaker takes the $900 and deposits it in bank B. Bank B will repeat the process, giving the watchmaker a demand deposit for $900, keeping $90 in required reserves, and then loaning out the remaining $810. This process will continue until the reserve requirement has rendered the initial deposit into an infinitesimally small sum. However, at the end of the deposit expansion process, the monetary base will have expanded by ten times the sum of the original deposit. In this sense, the initial deposit of $1,000 will lead to a total of $10,000 in new bank deposits. While there are more complicated ways to view the process, where additional money is

withdrawn at each step due to the desire of individuals to hold cash or the desire of banks to hold excess reserves, the underlying facts are essentially the same.

This model generates several important realizations for Neoclassical economists. First, the reserve ratio is the key limiting feature to the ability of banks to make new loans. A lower reserve ratio means that banks will be able to make more new loans, as they can lend a higher percentage of the initial deposit. In order to ensure the liquidity of banks, it is important to maintain a considerable reserve ratio to ensure that they do not overextend themselves by making too many loans. Furthermore, this model proposes that the central bank can directly control the size of the monetary base. This idea is called the exogenous money supply, and we will return to it in a later section.

Modern Monetary Theory vehemently disagrees with the existence of a money multiplier. In MMT, banks are profit seeking firms, just like any other business. However, instead of selling physical products and services, they specialize in selling credit. The market for this financial commodity is like any other, with a mix of individuals intent on either selling or purchasing credit. Banks will make a profit as long as their loans are repaid, and as long as they charge a higher premium on the credit they loan than they pay on the credit they borrow.

Here we arrive at the first essential difference between the Neoclassical model and MMT: the aggressiveness of banks. Neoclassicals perceive banks to be passive institutions, idly waiting for new customers to walk in and deposit new funds and then waiting for others to walk in and ask for loans. If a Neoclassical bank does not do business with enough savers, it will be forced to turn away potential new customers who desire loans. Think about that for a second. Have

you ever heard of someone being denied a loan, not due to their poor credit or low income, but because the bank has "run out of money?"

The MMT model shows that banks have a significantly more aggressive nature. They propose that banks actively advertise and offer promotions in order to attract new customers, and most importantly, when they receive a credit-worthy customer that would like a loan, they will never turn them down.

But how is this possible? A bank can't just loan out money that it doesn't have, right?

To understand why a bank *can* in fact loan out money that it doesn't have, it is first necessary to explore a few important realities in the modern world of banking.

First, the reserve requirement does not demand that a bank immediately subtract the required reserves from every deposit that it receives. In reality, banks do have to conform to these regulations, but they only have to make sure that they have the required reserves by a certain date in the future. Because of the existence of the interbank market, in which banks make loans to each other, as well as the Federal Reserve discount window, in which the Fed promises to act as the lender of last resort (LoLR) to all financially sound institutions, banks know that they will be able to get their hands on the required reserves. Furthermore, the Federal Reserve has recently abandoned the required reserve ratio in order to regulate banks in a more direct matter (Board of Governors 2020). We will return to this topic.

Recent changes to the financial system have granted banks additional avenues for securing needed reserves, and have also provided the Fed with another theatre to perform its lender-of-last-resort (LoLR) duties. The repurchase market, more commonly referred to as the repo market, is an auxiliary market in which banks can obtain short-term loans for reserves as

long as they have treasury bills to use as collateral. This market essentially consists of investors and banks receiving short-term liquidity from loans from money market mutual funds (Kovlak 1986). These trades occur because banks and investors usually do not like holding cash, which offers no interest, so they will frequently employ as much of their capital as they can. However, they will often run into situations where the majority of their liquid capital is invested or loaned, and they need some quick liquidity in order to engage in new investments or make additional loans. These banks and investors normally keep a percentage of their holdings in treasury bills, which provide a safe investment and modest interest payments. On the other hand, money market mutual funds (MMMF) are cash rich funds that invest in liquid assets, so they are normally willing to purchase safe treasury bills or accept these bonds as collateral for short term loans.

The repo market is a further example of the economy of debt. Banks and investors need short term liquidity in order to engage in high-return ventures, so they will happily accept low interest loans in order to convert these newly acquired reserves into more profitable investments. MMMF invest in highly liquid, low return, investments, so they will happily loan their excess capital in low-interest loans that are collateralized by safe treasury bills. Here we see institutions balancing their risk tolerances in order to trade low risk, low paying, debt for higher risk, high paying debt. The modern financial institutions are built upon this exchange of debt, where different institutions balance their desires with their risk tolerances in order to seek appropriate returns.

Our current analysis is chiefly concerned with the actions of banks, and it's important to realize just how many avenues they have for acquiring needed reserves. Banks can directly

borrow reserves from other banks by paying the federal funds rate as interest. Banks can sell their existing treasury bills on the secondary market in order to acquire reserves. Furthermore, banks can use their treasury bills as collateral for short-term loans on the repo market. If all of this fails, banks can always borrow directly from the Federal Reserve by paying the discount rate.

It's also important to see how the Federal Reserve controls all of these interest rates, a topic which will be discussed in more detail in the following chapter.

At first it's a difficult concept to grasp, but in the modern economy demand deposits are no more than digits on a computer screen that can be changed with a few strokes of a keyboard. When a bank finds a creditworthy customer who desires a loan, they make the loan immediately, and then worry about getting the reserves to back it in the future. While this theory leads to a slew of different economic principles, it proposes two fundamental differences to the Neoclassical model.

First, because banks do not need reserves on hand to make loans, the Central Bank has very little control over the volume of loans in the private economy as well as the growth of the monetary base. This idea is known as the endogenous money supply, and we will discuss it in greater detail later.

Furthermore, because banks know that they can always get reserves to meet regulations or their daily withdrawal demands, banks do not need to wait for deposits before they make loans, and the reserve requirement does not place any real constraint on them from making too many loans. In fact, by forcing banks to hold a certain amount of their capital in unprofitable investments, the reserve requirement may actually lead banks to seek out more profitable, but

riskier, investments for their remaining capital (Sheard 2009, 12). It's important to note that the reserve requirement is not a universal feature of banking systems. Central banks in nations like Canada and Japan do not require banking institutions to keep any fixed number of reserves. Instead they encourage banks to hold reserves by paying a small interest rate on excess reserves, and they control the ability of banks to leverage their assets by imposing capital ratios (Yam 2009).

For the reader that is skeptical of MMT, recent events show that policymakers within the United States are acting in a manner consistent with MMT. At the time of writing, the Federal Reserve imposed a reserve requirement with three different tiers of required reserves depending on the total value of certain bank assets. However, as of March 26th, 2020, the Federal Reserve has essentially abolished the reserve ratio by making the reserve requirement 0% on all bank deposits, regardless of value (Board of Governors 2020). While this action was undertaken during a time of economic crisis, the press release makes it clear that this historic elimination of the reserve requirement was not done solely because of COVID-19.

> "In January 2019, the FOMC announced its intention to implement monetary policy in an ample reserves regime. Reserve requirements do not play a significant role in this operating framework.
>
> In light of the shift to an ample reserves regime, the Board has reduced reserve requirement ratios to zero percent effective on March 26, the beginning of the next reserve maintenance period. This action eliminates reserve requirements for thousands of depository institutions and will help to support lending to households and businesses."
>
> -The Board of Governors of the Federal Reserve (2020)

This instance is simply another example of the Federal Reserve acting in a manner consistent with MMT and straying further away from the model proposed by the Neoclassicals.

But, for the sake of fairness, let's take a look at how both of these models characterize the role and power of the Fed.

Chapter 4: What Does the Fed Really Do?

Before analyzing the Fed through the lens of MMT, let's take a look at the economic philosophies that influence the Neoclassical conception of the central bank of the United States.

During the 1960s, Monetarist theories within the United States caused mainstream economists to believe that the Federal Reserve could control the total growth of the monetary base of the United States. This idea is referred to as the exogenous money supply, because any changes to the money supply are due to policy changes arising from *within* the Federal Reserve, and it follows that the growth of the money supply is under the control of the Fed. At the time, economists believed that the rate of inflation was directly connected to the size of the monetary base, and thus it was declared of utmost importance that the Fed declared and hit its desired target money supply. Included below are a few excerpts from economics textbooks from the mid 20th century:

> "Every central bank has one prime function: It operates to control the economy's supply of money and credit. If business is getting worse and jobs are getting scare, the Federal Reserve Board will try to expand money and credit...*The first step of the Fed, therefore, when it wants to put on the monetary brakes, is to act to cut down on the Reserves available to the banks*...today experts realize that the last thing a healthy economy wants is an *elastic* money supply that will *automatically* expand when business is good and contract when it is bad. That way lies disastrous *reinforcement* of business cycles and inflation."
>
> -*Economics*, (Samuelson 1963, 310-315)

> "The public decides the composition of the money supply which it holds: The public at large can deposit currency in a bank, and therefore switch from paper money to demand deposits; or it can exchange paper money for coins or vice versa; and so on. But the quantity of money held by the public is subject to control by the Federal Reserve System, the central bank of the United States."
>
> -*Macroeconomics*, (Wonnacott 1974, 141)

For many years, Neoclassical economists based their conceptions of the Federal Reserve on the antiquated gold-standard belief that increases in the money supply led to inflation. Their

reasoning was as follows: if money derives its value from its gold backing, any additional creation of money without a corresponding increase in the amount of gold held in reserves would lead to the value of money falling in relation to the value of gold.

Here it's important to note that the Federal Reserve *has* attempted to control the money supply in the past. Both before WWII and in the Bretton Woods system that was created once peace had resumed, the Fed was concerned with the growth of the money supply, because the value of the dollar was tied to a series on international exchange targets, and foreign nations could convert their currency into dollars, at a fixed rate, and then demand that their dollars be converted to gold, at a fixed rate, that was held in American reserves (Bernanke 2013, 9). If the Fed had *not* paid attention to the money supply and had allowed the dollar to devalue relative to other currencies, foreign profit seekers would have been able to purchase dollars at a significantly reduced real cost, and then converted these bargain dollars to a fixed amount of gold.

This simple demonstration illustrates the weakness of currency regimes that are pegged to international units of account at a fixed rate, and thankfully the United States ended the charade of maintaining a fixed exchange rate when President Nixon ended the Bretton Woods system in 1971 (Gowa 2019, 150).

The problem seems to be that the Neoclassical model has never really performed a complete re-assessment of their theoretical understanding of the Fed after it transitioned into a system with floating exchange rates. For many years Neoclassicals argued that the Fed did not set interest rates, but instead set a target for the total size of the money supply, as they believed that efforts to defend a certain interest rate would lead to large fluctuations in the MS that would

certainly threaten the stability of the dollar. While the Fed did *try* to control the growth of the MS during a three year period from 1979 to 1982, this policy was abandoned after the Fed realized that it could not hit its monetary targets, and that there was no clear relationship between the growth rate of the MS and inflation (Mitchell & Wray 2019, 440). Post-Keynesians looked at this historical example as evidence that the Fed cannot truly control the MS, but Neoclassicals held strong to their beliefs that the primary purpose of the Fed was to control the growth of the MS. Furthermore, in the last twenty years the Fed has changed its rhetoric and began directly stating that they set interest rate targets, with no mention of the MS. In 1983 and 1985 the Federal Reserve altered their MS target halfway through the period when it became obvious that they would not be able to hit their mark. In 1986 the Fed simply suspended its monetary target, and then in 1987 the Fed did not even attempt to set a new target (Friedman 1988, 56). While this has forced Neoclassicals to come to terms with the fact that they were wrong about the Fed, many of these economists, like a sore loser trying to save face, argue that while the Fed might currently be involved in targeting the interest rate, they could just as easily control the MS in order to achieve the same results. We will look at the evidence that MMT provides against this claim later in the chapter.

We can boil down the Neoclassical theory regarding the Fed to a few brief statements. The Fed is the central bank of the United States, and it seeks to control inflation by controlling the growth of the money supply, or by setting an interest rate target. In order to accomplish these goals, the Fed uses open-market-operations, which involve the purchase and sale of government bonds in order to increase and decrease the money supply. When the Fed purchases bonds, it pays for them with newly created reserves, which increase the MS. The contrapositive holds,

and when the Fed sells bonds, it takes reserves out of the economy in order to prevent inflation. During times of crisis, the Fed has a few tricks up its sleeve to get the economy back on track.

First, it can engage in expansionary open-market-operations, which involve purchasing bonds and increasing the total supply of currency in the economy. This will result in a lower interest rate for government funds, as the increased supply for bank reserves decreases their "price", or the interest rate. Furthermore, the Fed could decrease the reserve ratio, which would decrease the amount of reserves that banks need to hold, and give them access to more funds to make loans. As of March 26th, 2020, it appears that the Fed has abandoned the reserve ratio, but given the record of Neoclassicals updating their theories to incorporate novel actions of the Fed, it is likely that they will still be talking about the reserve ratio for at least a decade (Board of Governors 2020).

The theories presented above rely on the ability of the Fed to inspire, or force, private banks to either purchase or sell bonds in order for the national economy to hit the targeted money supply. When the economy is staggering, the central bank must increase the money supply by purchasing bonds from private banks to increase their reserves and give them more money to loan out to customers, who in turn will spend this money and stimulate the economy. On the other hand, during times when the economy is expanding rapidly and inflation is a concern, the Fed must sell bonds to private banks, removing reserves from the money supply in order to prevent inflation. While this seems like a reasonable theory at first, reality paints a different picture.

During times of economic expansion, both business and individuals are ambitious about their chances of economic success, and they desire to take out loans to increase their standard of

living or economic potential. During these periods, banks are faced with a sea of credit-worthy customers who are willing to pay a premium, far higher than the interest on federal bonds, for capital. But just as banks are in the process of transforming as many of their excess reserves as possible into high paying loans, the Fed needs them to trade their excess reserves for low paying bonds. In the end, banks are profit seeking private institutions, and the Fed does not have the ability to force them to purchase government bonds. During expansions, banks simply do not have the excess reserves required to purchase bonds, as they have loaned out as many of them as possible. Furthermore, banks borrow short and lend long, meaning that the majority of their loans are long term in nature. Even if a bank wanted to purchase low paying Federal bonds, it would not be able to simply liquidate its loans in order to increase its excess reserves. In the case of a booming economy, open market operations prove to be relatively ineffective.

On the other side of the spectrum we face a similar dilemma. During an economic crisis, banks are extremely hesitant to make loans due to the paucity of credit-worthy borrowers. In this case, banks would rather hold excess reserves than risk losing their capital in bad loans. While they would be happy to purchase government bonds in order to make some return on their reserves, the Fed wants the money supply to increase, so they need banks to sell back the bonds that they already hold in order to give the banks more excess reserves. However, banks have no desire to hold additional reserves when they know that they will not be able to find good customers to loan them to. During times of crisis, there is no incentive for banks to make new loans and put themselves at additional risk, when they are already worried about receiving payments on the loans that they made before the crisis struck.

This analysis begins to make one principle of Modern Monetary theory apparent: that banks are only constrained by their ability to find credit-worthy customers. However, to fully understand this idea, we must analyze the way that the Fed truly functions.

One of the chief purposes of the Federal Reserve is being a clearinghouse for debts between banks. In order to accept or cash a check from another bank, banks must have some assurance that the check will clear at par. All major banks have their own accounts at the Fed and when they receive checks from other banks they simply electronically notify the Fed, which will debit and credit the corresponding accounts. To assure banks that they will always receive the full face value of the check, the Federal Reserve acts as a lender of last resort, and promises to lend to any solvent bank that needs additional reserves. This service serves multiple purposes; both ensuring that all interbank checks will clear at par, as well as providing banks and consumers with an additional level of protection against bank runs. It must be emphasized that *if a solvent bank has a need for additional reserves, and cannot borrow the reserves from another bank, the Federal Reserve will always provide them* (Wray 2012, 81).[1]

Remember our brief discussion about the repo market? The Fed has taken direct actions in the past to ensure that there is enough liquidity within this market to ensure that banks will be able to acquire loans through the private sector.

Let's take a look at an episode of financial history that occured in September 2019. Typically, the overnight repo rate, or the cost of borrowing on the repo market, has remained relatively close to the federal funds rate. Although this relationship is a bit more complex in

[1] Here, we must explain a small caveat. In 2013 the Federal Reserve adopted a few regulations that were recommended by the Basel Committee on Banking Supervision. These regulations imposed requirements that Banks hold a standardized amount of minimum liquidity capital, such as reserves or government debt, that could quickly be converted to cash. These regulations sought to add an extra level of protection against bank runs, while also limiting the acceptable amount of leverage that banks could achieve. However, these minimum requirements do not change the fact that the Federal Reserve still stands as the LoLR, and will always loan funds to solvent banks during dire periods. For more information see this publication from the Federal Reserve Board of directors : https://www.federalreserve.gov/supervisionreg/basel/basel-default.htm

reality, for our purposes it is enough to say that banks who need loans will compare these two interest rates and then borrow on the cheaper market. Banks are not in the business of wasting profits, so it's unlikely that they would willingly pay a higher cost of borrowing in one of these markets if they could get the necessary reserves cheaper in the other market. But, in September 2019 the repo rate began to suddenly spike. This can be attributed to a number of economic factors, which we will only briefly discuss. For one, the Fed began engaging in broad quantitative easing during the Great Recession, but ceased this asset-repurchasing program in 2014. In 2017, the Fed began taking steps to shrink its balance sheet, which had swollen due to the assets that it had purchased through its two rounds of quantitative easing. In 2019, it continued this process, but it underestimated the desire of banks to hold on to excess reserves. Basically, the Fed miscalculated the willingness of banks to lend reserves, and it shrunk its balance sheet too quickly, causing a paucity of reserves within the repo market. In September, this premature contraction coincided with the due date for corporate taxes as well as the settlement date for numerous treasury securities. These factors led to an increased tightening of the supply of reserves in the market.

Within a week, the overnight repo rate shot from 2.5% to nearly 10%, and remarkably, even at this inflated rate, many banks refused to loan their excess reserves. True to their ethos of defending the financial system, the Federal Reserve announced that they would immediately begin purchasing $60 billion of treasury securities a month, for six months, in order to increase the liquidity of the market (Cheng & Wessel 2020).

What we need to understand from this drawn-out example is that the Federal Reserve stands ready in numerous markets to protect the ability of banks to acquire excess reserves. Our

current system allows banks numerous markets for these reserves, and if all else fails, they can borrow directly from the Fed itself.

While banks are encouraged to first borrow reserves from private sources, such as the federal funds or repo markets, financial institutions know that at the end of the day they will always be able to borrow reserves from the Fed itself at the discount window. Once this idea is fully realized, the theory of the exogenous money supply crumbles.

The "LoLR" duty of the Federal Reserve has been essential is the maintenance of financial stability within the American economy. While this concept has not always been a role of the Fed, its importance has been recognized by Ben Bernanke who stated:

> "How should a central bank seek to enhance financial stability? One means is by assuming the lender-of-last-resort function that Bagehot understood and described 140 years ago, under which the central bank uses its power to provide liquidity to ease market conditions during periods of panic or incipient panic. The Fed's many liquidity programs played a central role in containing the crisis of 2008 to 2009.
>
> -Ben Bernanke (2013), Chairman of the Federal Reserve 2006-2014

Once one comprehends the Fed's role as the LoLR, it becomes apparent that it cannot fulfill this obligation while maintaining control of the money supply. This has led MMT to support the notion of an endogenous MS, which was first seriously presented by Wesleyan's own Basil Moore (1988) in his book, *Horizontalists and Verticalists*. Calling the money supply endogenous refers to the fact that it is not under the control of the Fed, but is instead dependent on outside economic variables (144). Let's take a look at how this works.

Banks will make loans as long as they can find credit-worthy customers that are willing to borrow at a profitable interest rate. While Neoclassicals point to the reserve requirement as a limiting factor on the ability of banks to leverage their assets, they make a fundamental error in their understanding of the ease at which banks can acquire additional reserves through either the

federal funds market or the discount window. When approached by a credit-worthy customer, the bank will make the loan, and borrow additional reserves if necessary. If this bank borrows from another bank on the Federal Funds market, the MS will not increase because this would simply constitute a transfer of reserves that were already in circulation.

However, when a bank borrows at the discount window in order to make a loan, it is in fact increasing the money supply, as the Federal Reserve grants these requests by simply tapping a few buttons on a keyboard and creating new reserves. Because the Fed has assumed the role of the LoLR, it cannot prevent solvent banks from borrowing reserves when needed, thus allowing the money supply to increase. The duties of the Federal Reserve as the LoLR and the clearinghouse are inherently linked, as ensuring that all checks are cleared at par demands that an organization stand by to "cover" any possible overdrafts. If the Federal Reserve truly wanted to control the total supply of money, they could not act as the LoLR without sacrificing their monetary targets. And if the Fed did not act as the LoLR, banks would be hesitant to cash checks from other banks, as there would be no real guarantee that the check would clear, and the entire banking system could be strained. During times of economic crisis, when banks desperately need reserves, the Fed must instantly grant these requests, or the entire banking system would collapse. Instead of participating in the impossible undertaking of setting target values for the money supply as a whole, it is clear that the Fed instead seeks to maintain a certain interest rate on Federal Funds. This means that if there is an increase in the demand for reserves, which would instantly put upwards pressure on the interest rate, the Federal Reserve must increase the supply of reserves in order to protect its targeted interest rate.

Now that we've learned a bit about how an analysis of these two duties of the Federal Reserve have led MMT to a fundamentally different conception of the MS, let's examine how MMT conceptualizes the Fed.

The Federal Reserve is first and foremost the central bank for the American economy, and seeks to keep the economy functioning by performing its two essential, LoLR and clearinghouse, duties. Aside from this, the Fed is concerned with three important interest rates. First the federal funds rate, or the interbank rate, is the interest rate that banks charge each other for overnight lending of reserves. When a bank experiences temporary shortages of reserves and cannot settle its daily debts, it will first seek to acquire additional reserves from the federal funds market, where it will pay the federal funds rate as interest on any reserves that it borrows. While the federal funds rate is not directly set by the Fed, as it cannot directly control the borrowing and lending decisions of individual banks, it uses two additional interest rates to push and pull the federal funds rate. The discount rate is the interest rate that the Fed charges to loan reserves to banks. This rate is typically slightly higher than the federal funds rate, to encourage banks to use the private sector instead of the public sector to clear their debt. In the past there were unspoken reputational pressures placed on individual banks to "inspire" them to purchase funds in the private sector before turning to the Fed, but in recent years these reputational pressures have been significantly reduced in order to ensure that banks in desperate situations do not become insolvent in order to protect their "reputation."

Furthermore, the deposit rate is the interest rate that the Fed pays banks for holding excess reserves. For many years the Fed did not pay any interest on excess reserves, but in 2006 the Financial Services Regulatory Relief Act authorized it to offer small interest payments on

these Reserves. Currently, the Fed pays 0.1 percent interest on excess reserves (Board of Governors 2020). The deposit rate is important as it serves as a floor on the federal funds rate, as no bank will loan their excess reserves to another bank if the interest they receive on the loan is less than they would receive from simply holding the reserves in their account at the Fed. In a similar fashion, the discount rate serves as a ceiling for the federal funds rate, as no bank will pay a higher interest rate when they can acquire excess reserves at the discount window for a cheaper rate.

As opposed to the late Neoclassical view that the Fed targets a specific monetary base, the Federal Reserve's chief concern is maintaining the federal funds rate within a specific target.

To maintain the federal funds rate within its targeted bound, the Federal Reserve seeks to regulate the supply and demand for reserves through open market operations. When there is an overabundance of reserves, the interest rate will fall naturally as there is an excess supply and insufficient demand for excess reserves. To keep the interest rate high, the Fed will sell bonds and drain reserves from the federal funds market. On the other hand, when there is a paucity of reserves and the interest rate is naturally increasing, the Fed will purchase bonds from banks and add additional reserves to the market.

It's interesting to note that while the Fed is one of the most essential institutions to maintaining the economic stability of the United States, it is not *technically* part of the United States government. Under its current configuration, the Fed is a private bank, and its seven executive officers are appointed to 14 year terms by the president and confirmed by the Senate. Some may argue that it's an affront to democracy to have an essential institution insulated from the opinion of the electorate, but the fact that these members do not need to answer to the general

public truly shows the importance of their role. Our nation allows for the direct election of a multitude of public officials, but protects certain groups that are tasked with performing essential, and timeless, functions from the whims of majority rule. A similar configuration can be seen in the Supreme Court, where Justices are appointed and serve for life so that they can effectively interpret the Constitution without fear of suffering the wrath of either the government or the electorate. The Federal Reserve Act does grant the president the power to remove governors of the Fed as long as they have a "cause", but this power has never been fully interpreted and it has never been used (Board of Governors 2017).

Although MMT respects this great deference given to the Federal Reserve due to its status as a private institution, many MMTers argue that for all intents and purposes the Fed could be considered a branch of the Department of the Treasury. This notion is referred to as the "consolidated government." It is important to realize that the government is not truly consolidated and these two institutions are, at least de jure, distinct, but MMT argues that this distinction is purely an arbitrary classification that makes it more difficult for the Fed and the Treasury to act in unison (Wray 2012, 91).

In the real world, there are constraints that reflect political decisions to leave the Treasury and the Fed unconsolidated. While the Treasury has an account at the Federal Reserve, and all Treasury expenditure must come from this account, the Fed cannot directly credit this account with newly created reserves due to preventative legislation (Board of Governors 2017). In essence, this means that the Federal Reserve cannot simply pick up the government's tab for expenditure. However, in reality the Fed does do this, with just a few extra hoops to jump through. Let's say that the government wants to build a new highway, but that the Treasury

account is nearly empty, so that the government would like to borrow the funds to do this. The Treasury will sell bonds to the private sector in order to acquire the needed capital, and then it will spend this capital by writing a check to the private sector contractor that is building the highway. The MS has not increased, the government is left indebted to the public, and private sector wealth has increased. If the Treasury does not want these bonds to carry to term, the Federal Reserve will simply buy these bonds by issuing new currency. Now the government is left indebted to the Federal Reserve, the MS has increased, and private sector wealth has increased (Wray 2012, 91-96).

Now, if we had a consolidated government we could get the same result without having to sell bonds to the public. If the government wanted to spend, it could simply instruct the Federal Reserve to credit the private-sector contractor's bank account with the appropriate amount of dollars, which the Fed will do by tapping a few keys and creating new reserves. In this situation the government is left indebted to the Fed, the MS has increased, and private sector wealth has increased.

Legislative restrictions prevent the second scenario from occurring, but MMT proposes these restrictions be lifted for the sake of efficiency. While there is currently no real fear that investors will stop purchasing treasury issued bonds, the fact that our current system of deficit spending requires this represents an unnecessary risk to the government. Furthermore, a legislative majority would be required to remove these restrictions, and, knowing the speed of legislative action in America, it is altogether possible that in a scenario where investors refused to purchase bonds, these restrictions could not be removed expediently, which would impose severe handicaps on the ability of the government to make true upon its obligations.

The aforementioned restrictions are the product of conservative fears that the government would be able spend endlessly and interfere tremendously in the private economy if the government was "consolidated." However, history has shown that these restrictions have not been effective at curtailing government spending, as investors have been eager to purchase the bonds needed to fund deficit expenditure.

While it is not a perfect comparison, the restrictions placed on the Federal Reserve can be compared to the concept of the "debt ceiling." The debt ceiling is an arbitrary restriction placed on the borrowing ability of the Federal Government and, like the restrictions on the Federal Reserve, a result of a political movement to weaken the ability of the Federal Government to spend. Once the national debt level reaches the debt ceiling, the Treasury forfeits the ability to sell any more bonds and can only appropriate the money that it receives in income from taxes and fines.[2] However, it's important to realize that reaching the debt ceiling does not mean that the government does not have the ability to borrow, but that it has agreed that it will not spend past that point. In reality, the debt ceiling is meaningless, and since it was conceived in 1911, it has been raised 100 times. While the amount of public debt has been decreased on numerous occasions, the debt ceiling has never actually been lowered (Committee for a Responsible Federal Budget 2019).

The consolidated government approach is the first of several MMT policy proposals that we will examine. You should notice an evolving theme of these proposals. For the most part

[2] Here's an interesting note. The Treasury does retain the ability to issue coins during periods where spending has been restricted due to the "debt-ceiling." This had led some individuals, who are well-versed in the credit-theory of money, to argue that it would be within the power of the Treasury to issue a coin of a ludicrously high denomination in order to make good upon its debts during a government "shut-down." It would technically be within the power of the Treasury to issue, say, a one-trillion dollar coin, but it's likely that the political meltdown from such a move would be worse than just keeping the government closed.

they consist of measures that will simplify the way the government does business, while empowering the Federal government to take greater steps to promote economic stability. Consolidating the government would solidify the government's ability to fund all of its expenditure, and insulate this ability from the whims of investors. However, it could also bring about the situation feared by conservatives, where the government faces few restrictions in purchasing *whatever* it wants and taking drastic steps to control sectors of the economy. Here we reach an issue of democratic control, an issue that we will touch upon frequently moving forward. MMT proposes that the ability of the government to engage in drastic expenditure is a fact, but it does not make any recommendation about the political considerations inherent in using this power. It is entirely possible that our nation is ready for a government that will spend heavily in order to accomplish societal good, but it is just as likely that our nation full of Facebook economists will elect demagogues who will abuse this power for personal gain.

Chapter 5: Inflation

Inflation is one of the rare economic concepts, like the law of supply and demand, that has been adopted into the vernacular of the common individual. However, unlike supply and demand, the general consensus that inflation is an easy-to-comprehend economic phenomena with one main cause is painfully misguided. Let's start with the basics.

Inflation is a general rise in prices due to a decline in the purchasing power of money. When dealing with inflation, it is of essential importance to look in aggregate terms instead analyzing the evolution of prices for individual goods, which can lead to the trap of conflating technological innovation and inflation. A disillusioned and elderly low-income individual may look at the price tag on a new car or a college education and remark at how "expensive" these goods have become over time, but they would be overlooking the fact that while the goods sold today may bear the same name as the goods sold in the "good old days," these products are not equivalent.

For this reason, economists gauge inflation by constructing consumer price indexes (CPIs), which create "baskets" of goods that the typical consumer will buy. Over time, fluctuations in the cost of this basket will signal overall changes in the value of money. While Neoclassicals and MMTers can agree on using the CPI to gauge the degree of inflation and that inflation *can* result from "too much money" chasing "too few goods", their common ground pretty much ends there.

The chief disagreement between these schools of thought is the origin of inflation. In an argument that conjures up images of the forgotten gold standard, Neoclassicals believe that the root of inflation comes from government spending, and that when a government "just prints

money" this additional currency will flood the national economy and raise prices. Monetarists, like Milton Friedman, used this theory to oppose the proliferation of social programs that took place during the development of the welfare state in the 20th century. In the eyes of a Monetarist, the economy was always near the point of full employment, and social programs negatively affected the labor market by inspiring able-bodied individuals to stay at home and leach off of the government instead of pursuing gainful employment (Bernanke 2002). While there was more to their theory of inflation, we will return to it later when we discuss the history of full employment policy within the United States. Monterasim was influential to conservative politicians like Margaret Thatcher and Ronald Reagan, who held office during a period of terrible stagflation, or a combination of economic stagnation and high inflation. While the Reagan administration, which sought to decrease government spending by cutting social programs, did see an overall decrease in inflation and an increase in economic growth, recent studies have posited alternative explanations for the fall in inflation.

In particular, Modern Monetary Theory suggests that increases in government expenditure will only cause inflation when full employment is reached. It stipulates that large government expenditures will boost the economy, as long as there is room for productive expansion within the economy. When a country is not at full employment, there are unused labor resources, and any additional currency pumped into the economy will simply employ these resources. If an economy is not at full employment, there cannot be "too much currency chasing too few goods", because there is still room for unemployed individuals and resources to enter the economy. While Modern Monetary Theorists have not reached a consensus on how close the American economy is to full employment, they universally state that there is still room for

expansion. This perspective on inflation is a fundamental facet of Modern Monetary Theory, as it discredits conservative economists who state that the broad social programs supported by MMT would lead to an explosion of government expenditure and a corresponding increase in inflation.

While he wrote before the principles of Modern Monetary theory were collected and articulated, the work of Michal Kalecki was of seminal importance to MMT's development of inflation theory. Writing during World War II, he noticed that the massive government expenditure was not in fact catalyzing a crisis of hyperinflation, but leading to a program of full employment:

> It may be objected that Government expenditure financed by borrowing will cause inflation. To this may be replied that the effective demand created by the Government acts like any other increase in demand. If labour, plant, and foreign raw materials are in ample supply, the increase in demand is met by an increase in production. But if the full employment of resources is reached and effective demand continues to increase, prices will rise so as to equilibrate the demand for and the supply of goods and services. (In the present state of overemployment of resources such as we witness at present in the war economy, an inflationary rise in prices has been avoided only to the extent that to which effective demand for consumption goods has been curtailed by rationing and direct taxation.) It follows that if the Government intervention aims at achieving full employment but stops sort of increasing effective demand over the full employment mark, there is no need to be afraid of inflation.
>
> -M. Kalecki (1943, 323)

The level of employment in an economy is always a product of both supply and demand. When demand increases, employers seek to increase their output, and they hire new workers who allow them to increase their supply of goods. Kalecki notices that as long as there is room for the supply of goods to increase, through increases in employment, there cannot be "too much money" chasing "too few goods" because the amount of goods is not fixed and it can increase to meet the influx of money. He goes on to argue that the dramatic increase of government expenditure during WWII would have likely led to inflation, but that the war effort caused private sector demand to fall, and allowed the government to spend a greater percentage of

aggregate demand. This example is our first glimpse at MMT's proposals for proper government expenditure, which we will return to frequently.

But let's not get carried away just yet. It is equally important to understand what MMT is *not* proposing. It does not stipulate that the government can continuously print money and directly pump it into the economy without any attention to the level of employment. If a country does reach the point of full employment, additional expenditure past this level *will lead to inflation*. While some Neoclassical economists have argued that all large government expenditure is dangerous because the true point of full unemployment is unknown, MMT proposes a simple solution to this dilemma: taxes. If government expenditure reaches a level where there are too many dollars chasing too few goods, a corresponding increase in taxes will provide the economy with a currency drain that will both decrease the money supply as well as decrease aggregate demand. In essence, the demand-decreasing effects of these taxes would render the same economic impact as the rationing efforts, noticed by Kalecki, during WWII.

This theory on inflation has led skeptical Neoclassicals to raise an important question. If inflation only occurs when a government spends beyond the full employment potential of an economy, why has America experienced inflation during periods where the economy has been nowhere near full employment, and even during certain periods where unemployment has been rampant?

Conflict theory is one proposed explanation for this inflation problem. This theory was originally developed by Marxist economists, who argue that capitalist societies contain two separate classes, the wealthy capitalists and the weak workers, who are in a state of perpetual conflict. Capitalists are motivated by profits, and seek to enlarge their margins by paying less for

their input costs, which include raw materials as well as labor. On the other hand, the labor force seeks to earn as much as possible for the least amount of work. Because labor makes up the lion's share of production costs in nearly all industries, any increase in wages signifies a serious reduction in the profit of capitalists.

Capitalists have price-setting power[3], and they earn a profit by setting their prices above their marginal cost of production. In order to earn a larger marginal profit, they must either increase their prices or decrease their unit costs. To accomplish the latter, it is necessary to either decrease spending on input costs, or find ways to make the production process more efficient. However, numerous factors limit the ability of firms to employ these two strategies. Input costs cannot simply be reduced, as workers are reluctant to pay reductions and the cost of raw materials are dependent on many factors that are beyond the control of capitalists. Furthermore, modifying the efficiency of the production process implies either increasing the demands upon workers or investing in new technology, both of which pose their own set of difficulties. Amid these challenges, capitalists faced with shrinking profits normally choose the most painless option: increasing prices (Rosenberg &Weisskopf 1981, 42-44).

One last key is necessary to explain the narrative of the conflict theory of inflation, the expectations and demands of workers. Unlike capitalists, workers do not have price setting power, and they cannot increase their own wage without a negotiation process that requires the consent of their employer. Instead, they are offered a wage and they can either choose to work

[3] The statement that capitalists have price setting power is actually quite economically controversial. Many Neoclassical economists argue that firms with monopoly power can set their prices, but that for the most part, firms are forced to sell their product at the prevailing market wage which is set by the market, due to the theory of "perfect competition." This paper is not meant to be affront to the idea of perfect competition, but it is empirically clear that firms do maintain some price setting power, even when they do not have monopolistic powers. The "race towards zero profits" proposed by Neoclassical economists does not appear to accurately describe the modern economy, when owners of massive corporations are able to annually collect billions in profit.

or become unemployed. But after all, workers are humans, with their unique desires and expectations. The expectations of workers play an inherent role in the wage negotiation process, and that workers will use basic economic reasoning to increase their status of living. During times of economic expansion, when the unemployment rate is low and there is a scarcity of replacement labor, workers will negotiate for a higher wage. Furthermore, when workers see that their firm is prospering, they will expect a corresponding raise in their wages (Bratosin 2012). While this reasoning is fairly rational, as workers do deserve to receive some of their firm's spoils of economic success, this rationality does not extend to periods of economic downturn. Even when the unemployment rate is high and the overall sales of a firm are low, workers are reluctant to accept a reduction in wages. Numerous studies have shown that workers quickly become accustomed to their standard of living, and that they do not easily accept that economic factors force them to receive a wage reduction (Fischer 1975, 5-7).

One of the first proponents of conflict theory was Robert Rowthorn, an English Marxian economist. Writing during the 1980s, his Marxist tendencies led him to the conclusion that inflation was a product of constant tension between the working class and the dominant capitalist class.

> "In the course of a boom the demand for labour may rise so quickly that the reserve army of unemployed labour is reduced in size. This strengthens the bargaining position of workers and helps them force up wages. If wages rise so much that the rate of profit is forced below its 'normal level', capitalists refuse to invest and the result is a crisis. During this crisis changes occur which make investment once more profitable, after a time the economy will begin to expand once again. A strong and militant trade-union movement may force up wages and resist wage cuts even in the face of high unemployment. In a boom situation this may squeeze profits and bring expansion to a premature end, whilst there is still a large surplus of labor; and in a depression it may delay recovery by reducing profitability. This may sound like condemnation of the trade union movement, but it is not. It is simply stating the obvious fact that, so long as capitalists control production, they hold the whip hand, and workers cannot afford to be too successful in the wages struggle."
>
> -Bob Rowthorn, *Marxism Today* (1977)

Rowthorn correctly notices that a rise in wages, and a corresponding increase in prices, can arise both from the natural business cycle as well as the demands of labor unions. However, his argument is later weakened by his unsubstantiated claims that portray inflation as a conspiracy against the working class in order to maintain profit margins. Furthermore, his analysis is largely theoretical, and he does not substantiate his arguments with any hard data.

James Harvey (1977) is another British Marxist who supports the conflict theory of inflation, and his analysis added an additional layer to the theory. While other economists rightly noticed that many other economic factors, such as increases in the price of input costs or increased taxation, could lead to inflation, Harvey articulated a framework in which these causes of inflation could be seen within the conflict theory. He agrees with the basics of conflict theory, that the conflicting desires of workers and bosses lead to increases in prices, but he listed additional factors that could strain this relationship even further. Within his framework, any outside factors that cut the profits of capitalists could catalyze inflation by reducing the total share of revenue that was available to investors or owners. In order to recuperate these losses, capitalists would naturally either raise prices or cut the total labor share through direct wage decreases or efficiency increasing measures (26). At first this seems like a natural extension of conflict theory, but upon deeper analysis it strengthens the theory by weakening opposing theories. These theories will be listed in detail below, but for now we can shed light on an alternative approach to a conventional theory of inflation. In the Neoclassical model, inflation can be caused by government deficit spending, which increases the money supply by flooding the economy with borrowed money. However, Harvey's analysis reveals that in the post WWII period, the majority of government deficit spending had been financed by large increases in

taxes. These tax increases did lead to inflation, because they served as an additional cost to business owners and a stressor to the conflict relationship (27). Furthermore, the oil crisis of the 1970s further increased these pressures, and, when combined with the strength of labor unions, led to a period of significant inflation (28).

While the conflict theory does seem to be an apt lens to analyze inflation, before completely subscribing to it we must give ample attention to other theories of inflation.

The State Expenditure Theory states that large programs of government expenditure will ultimately lead to inflation due to increases in the money supply (Harvey 1977, 28). However, this theory contains numerous holes. For one, government expenditure that is financed by either taxation or borrowing from the public cannot increase the money supply, as spending of this manner does not modify the money supply, but only redistributes currency that was already within the economy. Furthermore MMT insists that inflation only arises from government spending when the domestic economy is beyond the level of full employment. The State Expenditure Theory is a gross oversimplification of inflation, and it seems to exist solely as a political talking point. Both conservatives and liberals are guilty of using this narrative to call for a halt on spending that they do not agree with for ideological reasons.

We could perform this exercise with any politician, but let's have a little fun by taking a look at the history of Eric Cantor, a lesser known representative. May the reader please excuse the slight digression from the topic at hand in order to examine an in-depth example of a politician selectively using inflationary fears.

Cantor, a Republican from Virginia, served as a member of Congress from 2001 to 2014. In 2009, Cantor voted against the Democrat introduced American Recovery and

Reinvestment Act, and in a letter to CNN he expressed his distrust of the bill. In terms of the bill's $825 billion price tag, here's what he had to say.

> "Specifically, we want to keep the stimulus bill -- as well as all other future economic "rescue" measures -- limited in scope and transparent.
>
> Our country has no other choice. The Congressional Budget Office (CBO) issued a sobering report that this year's deficit will likely climb to over 8 percent of U.S. gross domestic product, or $1.2 trillion. That's higher than at any point since World War II -- and those figures don't even account for the forthcoming stimulus.
>
> Such heavy borrowing runs the risk down the line of rampant inflation, which scares away foreign capital while making the purchasing power of the dollar weaker for American consumers….Lastly, any new spending must be introduced with the clear understanding that it is temporary rather than permanent. It is not always easy to terminate spending programs once they have been funded, but our bleak long-term budget outlook requires significant sacrifices over the coming years."
>
> -Rep. Eric Cantor (2009)

Beyond this, Cantor is quoted in a 2009 New York Times article in which he calls the proposed stimulus package "a spending bill beyond anyone's imagination" (Calmes 2009). Obviously, Cantor is a conservative individual who understands that government expenditure must be reduced in order to prevent inflation. His concern with the difficulty of "terminating spending programs once they have been funded" makes it clear that he wishes for the government to increase its tax revenues and decrease its spending due to the "bleak long-term budget outlook (which) requires significant sacrifices."

With this in mind, Cantor's voting record seems a little curious. In 2001 he supported the Jobs and Growth Tax Relief Reconciliation Act, which was intended to foster economic growth during the recession that began following the tragic September 11th terrorist attacks. This Republican-backed Act included several demand-increasing provisions. First, it decreased the tax rates on dividends, which were previously taxed as normal income, to the much lower tax

rate on long-term capital gains. Furthermore, it decreased the tax rate on the aforementioned capital gains. Beyond this, the bill increased tax deductions for small businesses (Amadeo 2019). Cantor, a man greatly concerned with government deficits, may have only supported this measure, which the Center on Budget and Policy Priorities has estimated to have added $5.6 trillion to the government deficit since it was enacted (2017), to deal with the temporary recession. But if that was the case, it's curious that he personally introduced two bills, in 2005 and 2007, to extend the reduced tax rates for capital gains into perpetuity. These bills made no mention of extending the tax benefits for small businesses.

Despite these few hiccups, Eric Cantor returned to fight against deficit spending by leading the charge against the Affordable Care Act. In an interview in 2011, Cantor expressed his belief that a repeal of "Obamacare" was essential for "getting the economy back on track."

> "Despite claims of reducing deficits and saving taxpayer dollars, the new law is riddled with budget gimmicks that double count savings, offset six years of benefits with 10 years of tax increases, and rely on cuts to Medicare and tax increases to fund a new entitlement…
>
> The best boost that Congress can provide to the economy is to send a credible signal that we are serious about cutting spending and eliminating job-killing regulations. Our surging debt burden hangs over the economy like a dark cloud, waiting to unleash a storm of inflation, higher taxes and higher borrowing costs upon businesses and families. Only when the cloud is lifted can we get on the path to long-term growth."[4]
>
> -Eric Cantor (Schroeder 2011)

Cantor clearly found his way back to his budget-conscious roots. Although Cantor lost his seat in Congress in 2014, he has been able to maintain a public presence despite working terribly hard as the Vice-Chairman and Managing Director, for which he received $3.4 million in

[4] Peter Schroeder, "Cantor: GOP Healthcare Reform Repeal Key to Getting Economy Back on Track," The Hill, last modified January 1, 2011, https://thehill.com/homenews/house/136755-cantor-gop-effort-to-repeal-health-reform-key-to-getting-economy-back-on-track.

compensation for his original two-year contract, of Moelis & Company, an international investment bank (Rogers 2014).

On April 4th, 2020, Eric appeared on CNBC to share his opinions on the ongoing coronavirus crisis, and the $2 trillion spending bill that was passed to ease the economic burden of it. Here's what he had to say:

Eric Cantor: "The kind of money that is being flushed out hopefully will be that which can get us back going again and then we're gonna have to repay it. First and foremost, we're gonna have to get growth going again, and then I do think there's gonna be a discussion though about a safety net, and what does that mean, there's gonna be the national partisan human cry for a living wage, universal basic income, and I think though, that if we can come together and set aside those normal partisan destinations that people go in, and really think about what that means, and how we can get more people into the workplace, and the jobs of the future…"

(The conversation switches to the topic of repeated corporate bailouts with a lack of protections for workers.)

Andrew Ross Sorkin: "This is socialism, look, we have socialism...if we're gonna bail out all of the corporations in America then we have to have this conversation…. Whether they have to pay a living wage-"

Eric Cantor, interjecting: "How are you gonna afford that?

Andrew Ross Sorkin: "- to the heroes who are at the cashier line...we keep having problems and we and we don't pay for them in the best of times..."

Eric Cantor, laughing: "No listen, one of the things that we can learn about this, we're putting to test now all these years of huge deficits...listen...there is no other solution here (besides bailing out corporations), you are not gonna be able to afford to put into place the kind of things that you're talking about, these universal basic incomes, and to maintain the kind of standard of living that you're used to...you're just not." (Sorkin 2020)

For Cantor, the current stimulus is necessary for boosting a struggling economy, and he makes no mention of any inflationary pressures or affordability constraints until he is posed with the question of increasing workers' wages. Now, it is not our position to draw any conclusions about the character of this man, or to comprehend why he only *sometimes* supports expenditure

increasing measures. But, it may be worth consideration that his firm, Moelis & Company, was recently awarded the government contract for managing the distribution of stimulus funds into the airline industry (Acharya 2020).

Now, this is not to say that liberal politicians are innocent of using the State Expenditure Theory for their own political gain. However, instead of spilling more ink on this topic, we will move on to a final theory of inflation.

Monetarism proposes a similar inflationary origin as found in the State Expenditure Theory, but it stipulates that inflation is chiefly a monetary phenomenon that exists when the money supply grows at a rate that outpaces the growth of output. Monetarists believe that individuals have a relatively stable marginal propensity to save, so when the money supply increases and they acquire money beyond what they desire, they simply spend it, which leads to an overall increase in prices as there is "more money" chasing too few goods. As evidence for these claims, Monetarists point to the high correlation between the rate of increase in the quantity of money and the price level (Harvey 26). However, this theory is not supported by MMT, which proposes a reverse flow for the relationship between the money supply and the price level. In Monetarist economics, the supply of money increases first, due to unsound monetary policy, and then the price level increases as capitalists attempt to maintain their real profit level in lieu of the devalued currency. Modern Monetary Theorists propose a reverse causality, in which price levels first increase due to outside sources, namely workplace conflict, and then the money supply increases as individuals seek to maintain their current status of living amid higher prices. This increase in the money supply comes from the automatic mechanisms in place in banks and

the Federal Reserve which allow all credit worthy businesses, individuals, and banks to borrow money. In essence, the credit theory of money is in direct contrast to Monetarism. Furthermore, the observed correlation between the expansion of the money supply and the price level does not constitute significant evidence for either of these theories, as both accept the fact that the money supply and price level increase together, but disagree on which of these causes the other.

Ultimately, it seems that the majority of inflation experienced within the American economy is best explained by Conflict Theory.[5] The fact that government expenditure has increased at a nearly exponential rate in the last thirty years while inflation has remained stagnant has led to serious doubts regarding the validity of the State Expenditure Theory. Furthermore, the massive expansion of the money supply through programs such as quantitative easing, which have injected trillions of dollars of liquidity into the market without any corresponding increase in inflation, has led to increased skepticism regarding Monetarist notions of the inflation rate. For an in-depth statistical analysis of the Monetarist inflation theory, please see Appendix A.

Although conflict theory was born from the work of Marx, it is important to note that MMT does not propose a Marxian solution to the problem. Marx's analysis was tailored towards bringing the reader to an understanding of the necessity of a violent upheaval to render the capitalist class obsolete and to create a utopian society based on communal wealth. MMT uses this theory as a possible explanation for inflation that occurs during periods with unemployment, and even goes further to propose a mechanism that could balance full employment with low

[5] Conflict theory will be addressed in greater detail in a later chapter, but the curious or skeptical reader can quench their interest by taking a look at (Hubbard 1990), (Devine 2004), (Rosenberg & Weisskopf 1981), (Palley 2009), (Friedman 1988), and (Hung & Thompson 2016)

inflation. However, historically, the belief that low inflation can coexist with full employment has been immensely unpopular in economic academic circles.

Chapter 6: Unemployment and the Myth of the Balanced Budget

Take a second, and think about how your life would change if you suddenly lost your job. No advanced notice and no severance, just the immediate knowledge that the direct deposit you will receive this Friday will be your last guaranteed income for the foreseeable future. For some, like the 63% of Americans who could not afford an unexpected $500 expense in 2016 (McGrath 2016), this knowledge would be devastating. For others, who have accumulated ample human capital, emergency savings, and are at a ripe age for hiring, this knowledge would not be life altering, but would still certainly induce anxiety.

Being out of work is both temporarily devastating on the individual level because of the tremendous stress brought on by economic insecurity, but it is essential to realize that the negative effects of unemployment can survive long after an individual has found a job. An extended bout of unemployment can quickly lead to the deterioration of skill as well as a loss in human capital because of the forgone productive years. Desperate unemployed workers can be forced to accept a job that is below their qualification, granting them a quick paycheck but threatening the advancement of their career. Some workers become discouraged and decide to stop looking for a job altogether, either accepting an early retirement or living as a dependent.

The American economy has undergone a tremendous expansion, albeit with a few busts, in the last seventy years. Throughout this cycle, unemployment has been the omnipresent economic boogeyman lurking in the back of many workers' minds. A brief glance at the unemployment rate since the late 1940s reveals that even in times of great economic boom, some individuals are left out of the expansion.

Unemployment Since 1945

During this period the unemployment rate never broke 11%, but it also never went below 2%. Even at the beginning of 2020, when the "healthy" American economy had reached unprecedented heights, the unemployment rate never sank below 3.5%. For some reason, unemployment seems like a constant feature of the American economy. While our analysis will focus on the United States, it is telling that constant unemployment seems to be a universal feature of capitalist economies. The average unemployment rate for the European Union in 2020 is 6.5%. Shockingly, some nations that we consider to have modern and diverse economies, like Spain and Greece, have unemployment rates in the mid teens (Eurostat 2020).[6]

To truly understand why unemployment has become an accepted part of our capitalist system, it's necessary to examine the different conceptions of this societal ill within the dominant Neoclassical model and the progressive one proposed by MMT.

[6]Do keep in mind that these examples are only included for the curious reader. In truth, there are numerous economic factors that contribute to unemployment, and the distinct labor-market conditions that exist in Europe make comparisons between it and the United States largely invalid. However, it is illustrative that unemployment seems to be a tolerated evil throughout many developed economies.

For almost the entirety of its existence, mainstream economic theories have supported diverse theories that have all decried full employment policy as either impossible or unhealthy for the economy. Before the Great Depression, the chief doctrine of economics was the sanctity of the "invisible hand", which would always, when left unmolested, place the economy at an equilibrium that supported full employment at a given wage. Efforts by the government to increase employment were seen as a dangerous interference in the free market, and the majority of unemployment was written off as voluntary, or the product of workers who were not satisfied with working at the prevailing wage. It was not until the prolonged suffering of the Great Depression that economists began to consider new ways to "speed up" the invisible hand.

John Maynard Keynes decided that the most effective tool for prodding an economy in an expansionary direction was the very visible hand of government intervention. Keynes disagreed with the notion that an economy left to its own devices would create full employment, and he emphasized the importance of aggregate demand in supporting a high level of employment. He identified the four components of this demand to be consumption, investment, government expenditure, and net exports. He reasoned that during a crisis employment and output fall due to the decrease in exports, consumption, as well as investment spurred by the proliferation of public uncertainty. Following this logic, he determined that the only way to kick-start an economy was to manipulate the only exogenous variable, the role of the government. The government could either indirectly increase demand by decreasing taxes or directly boost demand by increasing government expenditure (Keynes 1933, 53-55). His beliefs were novel at the time, and he did not make any bounding promises that government expenditure could be fine-tuned in order to keep the economy at full employment, but he determined that an influx of government

expenditures financed by deficit spending could ease the burden of the Depression in the short run. In terms of inflation, he considered that the deficit spending could lead to inflation in the long run, but that these effects could be limited by contractionary fiscal policy once the economy was stabilized. Essentially, he formulated a model for saving a nation facing a crisis, and when he was prodded about the long term effects of his proposals, he famously remarked "in the long run we're all dead."

Keynesianism remained the dominant economic ideology throughout WWII and the following expansion. This period saw the birth of the Phillips Curve, which posited a negative relationship between the rate of inflation and the level of unemployment. The Curve is based on the rationale that workers capitalize on the scarcity of competition for jobs in an economy near full employment in order to demand higher wages, and this in turns leads to a rise in prices as business owners try to pass the higher cost of labor on to the consumer. However, the model showed a non-linear relationship, as workers are extremely reluctant to accept pay cuts during times of high unemployment, so it's unlikely that market factors would cause inflation to increase and decrease at an equivalent rate (Ho-fung & Thompson 2016, 449-50). As this model gained popularity, controlling these two economic evils began to seem like a simple tradeoff, and politicians were thrilled to finally have received a user-friendly piece of economic advice. Instead of blundering in the dark, one could simply pick a point of the Curve and be confident that the ratio would hold. The political question was no longer "how do we decrease inflation?" but "which equilibrium between inflation and unemployment is the most desirable?"

But, unfortunately it wasn't that easy. The Phillips Curve was deficient in the sense that it did not incorporate inflationary expectations. This flaw was not revealed until the 1970s, when

supply shocks led to an immediate spike in the price level, and workers began to seriously consider future expected inflation when demanding raises. The 70s saw the death of the traditional Phillips Curve, but it would make several resurgences in models that incorporated inflationary expectations (Palley 2009, 26-27).

Although it was flawed and it was correct for the economic community to reconsider the model after it began to break down, the rejection of this relationship hurt the credibility of the Keynsians that had created it and left a stain on the belief that the government could bolster employment through increasing demand. Conservative economists jumped on the opportunity to fight for free market capitalism.

These conservative economists rallied under the evolving New Classical school as well as Monetarism, which both detested government intervention. While Keynsians had at least acknowledged the ability of the government to adopt employment-expanding policy (Keynes 1933, 53-55), Monetarists and New Classicalists returned to the previous notion of a "natural rate of unemployment." This idea proposed that all economies had a certain level of unemployment that was natural, and that the free market would always return to this rate in the long run. However, in a manner that appears counter-intuitive, these economists admitted that the natural rate could be altered over time due to structural changes in the labor market, productivity growth, or technological innovation. The intuition here is that the supply-side of the economy could be affected by the government, through something like an antitrust law, but that the government could not make any significant changes to the demand side of the economy. Any Keynesian policy that sought to increase employment by catalyzing demand would lead to pointless inflation, as the employment level would simply return to the natural rate.

Essentially this doctrine states that given the market characteristics of an economy there will always be some individuals who decide that they would rather remain unemployed than work for the market wage, regardless of government intervention to boost aggregate demand. Architects of this theory included Milton Friedman, who argued that a government that wished to reduce unemployment rate should simply cut the minimum wage as well as all unemployment insurance benefits, as these would both inspire employers to hire more workers as well as force individuals that were living off government benefits back into the workforce (Devine 2004, 126-127). Deeper in his analysis was the idea that the natural rate of unemployment, as well as inflation, was regulated by market forces based not on nominal wages, but on real ones. He considered inflation to be solely a monetary phenomenon which was brought on by a rapid expansion of the money supply, and he thus disagreed with using deficit spending to bolster the level of employment. If an economy was at the natural rate of unemployment, any additional government expenditure might temporarily increase the level of employment, but this would result in a corresponding increase in inflation, causing the market to automatically respond and return the level of employment back to the natural rate of unemployment. While increases in demand brought on by government intervention could temporarily increase the level of employment, this action could not truly modify the natural rate of unemployment, and the market would always stabilize back at the natural rate as economic agents and workers responded to the inflationary pressures (Mitchell et al 2019, 269). The reliance of inflationary expectations in this model is fascinating, as the model posits that government intervention *could* reduce the level of unemployment below the natural rate at the cost of increasing inflation, but once workers found out about this inflation they would demand a higher wage or quit, if their employer did not keep

their real wage constant in the face of inflation. Based on this theory, the government could place the economy at an unnaturally high level of employment as long as they could keep workers ignorant to the rising inflation levels. This belief that the government has a grace period where intervention can be marginally successful before the general public adapts their expectations to reality is aptly referred to as the theory of "adaptive expectations" (Mitchell et al. 2019, 280-281).

However, it was here that the New Classical school broke with the Monetarists. They rejected the notion of "adaptive expectations" and claimed that individuals formed "rational expectations" and immediately changed their behaviors to thwart the expansionary actions of the government. It is interesting to note the development that took place within the rational expectations model. When this term was first developed by John F. Muth (1961) in the mid-20th Century, his theory was based on the fact that economic actors make rational decisions based on economic theory as well as market information that was available to them. His analysis admitted that although economic agents attempt to make sound decisions based upon the information that they had, there was nothing that ensured that this information itself was not flawed (315-317). This theory was revolutionary in the world of economics, and it is still used in a variety of applications, including modeling fluctuations in the stock market.

However, over time, the Neoclassicals began to reconsider the level of information available to economic actors, and their conclusions radically changed the nature of a "rational" expectation. Essentially, Neoclassicals built models for perfect competition, and inherent in any of these models was the idea that all economic agents had access to the same, perfect information. The emphasis on perfect information is essential, because if one firm or individual

had better information than was publicly available, they would undermine the entire conception of perfect competition, which was the backbone of many Neoclassical models of economic activity. At this point, a "rational expectation" meant a correct expectation, because, holding aside a few statistical anomalies, all expectations were formed based on the same perfect understanding of economic theory as well as perfect knowledge of economic events (Mitchell et al 2019, 281-283).

This line of reasoning leads to tremendously counterintuitive economic situations.

Let's say that there's a recession underway, and the government seeks to increase demand by raising the deficit and pumping more liquidity in the economy. While a Keysnian would state that this would lead to increased disposable income and a corresponding increase in demand, New Classical economists argued that this would in fact lead to no change in demand, as all economic agents would realize that this deficit spending would eventually have to be paid back in increased taxes, and they would thus decrease their spending in anticipation of this future cost. Furthermore, all workers would immediately understand that this spending would increase the money supply and thus result in inflation, so they would immediately negotiate for an increased wage. Likewise, business owners would respond in suit and renegotiate all existing contracts as well as the price of their service or products in order to recuperate the expected increase in inflation. We live in a world where signs are needed to remind people to not smoke while pumping gas, and lawn mowers bear inscriptions such as "do not reach under the mowing deck while blades are spinning." Unsurprisingly, the rational expectations model was remarkably terrible at predicting how the economy would react to government interventions.

Aside from the rational expectations model, New Classicals were adamant about the ability of the free market to select the correct wage, as well as level of employment. They believed that if all labor unions and minimum wage legislation were abolished the economy would reach the natural rate of unemployment. These economists were sure that the only reason unemployment would exist beyond the "natural rate of unemployment" in an unregulated economy was because of workers who voluntarily decided to not work for the market set wage. It is worth noting that numerous New Classical economists have argued that during the Great Depression millions of Americans were not truly unemployed, they had simply chosen leisure over labor for the prevailing wage (Pollin 1998, 4).

When these ideologies are considered, it's no surprise that our country has become accustomed to tolerating a certain amount of unemployment. The conservative revolution of the 1980s brought the ideals of "individualism" and "free markets" back into the national dialogue, and they found a way at cementing themselves within political discourse. Large segments of the American population look down upon government intervention in order to bolster employment levels, and they detest government "handouts" to support those who are unemployed. While these ideologies can certainly be traced back to the conservative economic schools that flourished during the stagflation crisis, many Americans support these principles without truly understanding their economic backing. The average American couldn't give a coherent definition of how "rational expectations" affect the free market, but they could certainly tell you all about their support for self-made men who "pull themselves up by their bootstraps" without any assistance from the government. Economists are familiar with the phrase "kicking out the ladder," which refers to an individual, or nation, that has successfully accomplished some feat

destroying the mechanism that led to their success so that others cannot make use of it. This sentiment can be seen in the fear that individuals have of government deficits, which they believe need to be paid back by all taxpayers. Many individuals, who have benefitted from government handouts, that have found economic security through their careers, look skeptically at government programs that offer benefits to less fortunate individuals, because the wealthy are not eligible for these benefits, but are still responsible for their share of taxpayer funded deficit that financed them. Many are even more reluctant to pay for programs that could have benefitted them in the past, but were not available. Take the recent dialogue regarding Bernie Sanders' proposal to forgive student loan debt and make public college free. Conservative voices cried that this program would be prohibitively expensive, and falsely claimed that the government could not afford it. Others, especially adults who had previously struggled to pay off student loans, argued that it would be unfair to make taxpayers, who have already been responsible for their own loans, responsible for paying off a deficit that would benefit individuals who have not yet made good on their own debt obligations.

These arguments do hold in an economic system where taxpayers are responsible for paying off government debts, but they do not accurately characterize the cycle of debt explained by MMT. We will later discuss how MMT demystifies the government deficits that are necessary to fund full employment policy, and it is abundantly clear that this knowledge has yet to flourish in America. On both sides of the political aisle, politicians argue for balanced budgets and spending cuts, signalling that either politicians are ignorant of MMT, or they do not feel like their constituents grasp the concepts with enough ease to continue voting for a candidate that "turns on the printing presses."

Modern Monetary Theory has a different conception of unemployment. It contends that the only unemployment that should be tolerated within a strong capitalistic economy is frictional unemployment, which involves workers who are simply in between jobs. Structural unemployment, or joblessness where individuals cannot find work because jobs simply do not exist where they live, or their skill set does not qualify them for existing jobs, is an evil that has been tolerated for far too long. MMT borrows heavily from Functional Finance and Keynesianism when it considers the level of employment within an economy to be a direct product of the aggregate demand level, which the government can directly influence through its own expenditure. However, it is important to note that MMT paints a much more confident perspective of the government's ability to maintain this level of unemployment through finely-tuning expenditure to compensate for exogenous variables within the economy. Recall that Keynes argued that the government could use expansionary fiscal policy in the short run, but that he questioned the ability of the government to consistently monitor the economy and respond appropriately for any extended period.

While conservative economists would argue that the government cannot simply prop up the economy by creating currency, which would surely lead to inflation, MMT categorically disagrees, and argues that inflation will only result from increases in the money supply when the level of demand within an economy surpasses the total aggregate supply that could be created by the economy at full employment (Wray 2012, 254-257). As long as there are unemployed workers or resources within an economy, any increase in aggregate demand will pull these factors of production into the economy, and inflation will not result, as AS will increase in direct proportion to the rise in AD. Furthermore, due to the historical constant existence of an

unemployed labor mass, MMT suggests that our economy has perpetually suffered from a lack of sufficient AD. Essentially, worries that a significant increase in expenditure will overheat the economy are misguided, as America's low labor force participation rate suggests that we still have a significant, to the tune of 30% of the population, sector of unutilized workers (FRED 2020). Until every able-bodied individual has a full-time job, and every productive resource is being used to its full extent, our economy still has upward mobility.

Some MMT economists that lean more Marxist in nature propose a few more extreme reasons for why the government has never truly sought to create an economy at full employment. While these theories are not officially endorsed by MMT, they are captivating nonetheless, and illustrate the ways that the threat of unemployment creates mechanisms of control over the working class. The reader must be careful to *not* assume that MMT is proposing that a century-long bourgeois conspiracy to chain the worker to his machine has occurred. However, it is undeniable that the existence of unemployment has had the effect of increasing the power of employers over the laboring masses. Many of these more conspiratorial theories of control trace their roots to the work of Michal Kalecki, who was careful to warn his readers that he was not, at least explicitly, alleging a conspiracy.

> "It should be first stated that, although most economists are now agreed that full employment may be achieved by government spending, this was by no means the case even in the recent past. Among the opposers of this doctrine there were (and still are) prominent so-called 'economic experts' closely connected with banking and industry. This suggests that there is a political background in the opposition to the full employment doctrine, even though the arguments advanced are economic. That is not to say that people who advance them do not believe in their economics, poor though this is. But obstinate ignorance is usually a manifestation of underlying political motives."
>
> -Michal Kalecki (1942, 2)

Michal Kalecki was a Polish economist who wrote during WWII. The low rates of unemployment brought on by the massive government spending to finance the war effort made him question the conventional wisdom regarding employment policy and try to understand why unemployment had been tolerated for so many years. In his article, "Political Aspects of Full Employment," Michal Kalecki (1942) examined a few of the social and political changes that would be produced by full employment policy, and specifically how these changes would threaten the economic and political dominance of the wealthiest individuals. Although his work is more than a half-century old, it still aptly characterizes the state of our modern American economy.

He sees capitalism as a fragile house of cards built upon trust. At the base of this house lay the confidence of investors and business moguls. Once these individuals begin to lose faith in a business cycle, their self-preserving measures lead to a chain reaction that lands the economy in a full blown recession (325). One need not look further than our current administration to see how this model still holds, where a single garbled tweet from the President about a policy that will likely never come to fruition can lead to a temporary destruction of confidence and an immediate, albeit temporary, decline in the stock market. In a system of trust the government must move carefully to ensure that any political or economic decision that it makes does not upset the individuals that wield economic power. For this reason, business moguls are able to maintain an indirect but undeniably present control over the direction of government policy. But in an economy with state backed full employment, confidence in the markets would come from the resounding strength of the economy, and capitalists would lose their line of access to government policy (325-326).

While the national fear of unemployment allows business moguls to exert some influence over the direction of government action, this same fear allows them tremendous control over their workers. Within the workplace, what is it that truly keeps employees in line? Is it the desire for a raise? Is it the fear of getting reported to Human Relations? Or is it ultimately the fear of being fired and not being able to find another job? Kalecki argues that a certain level of unemployment is necessary to keep workers complacent, as the fear of being unable to find another job is what gives the teeth to the act of firing an employee (326). Many Marxist economists have characterized the capitalist workplace as a hierarchical institution in which the boss and employees are in a state of constant conflict (Marglin 1974). The workers seek to earn more and work less, while the bosses seek to do the opposite, extract more labor for a lower rate of pay. Within this framework, each class of individuals seeks to gain leverage upon the other through both collective action in the workplace as well as the political sphere (91-94). Just as workers organize into labor unions to increase their ability to negotiate, they also lobby the government for increased workplace protections. On the other hand, bosses seek to prevent the growth of unions where they do not exist, as well as divide workers in shops that have already unionized. Employers also lobby the government for reduced workplace protections, which impose additional costs, as well as the dissolution of the welfare state, which grants workers increased security if they lose their jobs.

Within this framework, the ability of management to fire workers is of essential importance. Any regulation that limits this ability, or eases the burden of being unemployed, reduces the strength of employers at the bargaining table. In the worker's utopia, laborers would be able to demand large annual wage increases with the knowledge that they had alternative

means of employment available if these requests are denied. Empowered workers, who knew that a fair and well-paying job was only a phone call away, would not be willing to tolerate certain abuses that have come to be the norm within many industries. Imagine if you knew that you could quit today and start a new job for equal pay tomorrow, would you tolerate working under an employer who constantly forced you to stay late or refused to give you a fair wage? The ability of employers to exploit their workers all boils down to the presence of unemployment within an economy, which creates a situation where getting fired could result in a significant period without income. Kalecki articulately describes the central role of "the sack" in maintaining both workplace organization as well as national social discipline.

> "We have considered the political reasons for the opposition to the policy of creating employment by government spending. But even if this opposition were overcome—as it may well be under the pressure of the masses—the *maintenance* of full employment would cause social and political changes which would give a new impetus to the opposition of the business leaders. Indeed, under a regime of permanent full employment, the 'sack' would cease to play its role as a disciplinary measure. The social position of the boss would be undermined, and the self-assurance and class-consciousness of the working class would grow. Strikes for wage increases and improvements in conditions of work would create political tension. It is true that profits would be higher under a regime of full employment than they are on the average under *laissez-faire;* and even the rise in wage rates resulting from the stronger bargaining power of the workers is less likely to reduce profits than to increase prices, and thus adversely affects only the rentier interests. But 'discipline in the factories' and 'political stability' are more appreciated than profits by business leaders. Their class instinct tells them that lasting full employment is unsound from their point of view, and that unemployment is an integral part of the 'normal' capitalist system."
>
> -Michal Kalecki (1943, 326)

While Kalecki does not openly accuse the business class of conspiring to hold the working class down, he makes a convincing argument that highlights their motivation, and ability to perform such a conspiracy. In his eyes, the working class holds the majority of the power to influence the creation of economic policy, due to the fear of upsetting the fragile economic system. But the very fragility of this system can be traced back to the government's reluctance to pursue long term policies of full employment. Using this power, business interests

could lobby the government to not enact other policies that would empower workers, at the cost of maintaining workplace discipline.

Kalecki never risks being labeled a radical by directly stating that this conspiracy has occurred, but where motive exists one must begin to wonder. If economists have been discussing the real possibility of using the government to create full employment since World War II, why have no serious attempts been made to bring such a prosperous economic model into the real world? If Kalecki was alive today, he would likely respond to this question with something to the tune of "where there's smoke, there's normally a fire."

However, it's important to remember that not all MMT economists believe that unemployment has been deliberately allowed to survive in order to advance business interests. One of the chief architects of MMT, L. Wrandall Wray (2012), proposes a much less controversial and cynical view of the government's reluctance to pursue full employment policy.

Because we live in a nation where the masses elect leaders to run the country, Wray believes that the knowledge that the government can never run out of money could prove disastrous. Remember, MMT does not believe that just because the government can afford to purchase anything that it should actually spend unreasonable amounts of money. Wray reiterates that mindless spending could lead to several negative consequences including: inflation, exchange rate pressures, a lack of government accountability, and the crippling of the private economy (193-194). The creation of *too* generous a social safety net could in fact lead to poor incentives that encouraged workers to remain unemployed. Likewise, just because the government could decide that it wants to produce an emissions-free car that is made of wood and runs off of water instead of gasoline, doesn't mean that it should hire 4,000 engineers to

undertake this project. For one, the domestic economy may not even have 4,000 individuals who are qualified to undertake such a project, and even if it did, it is likely that the government's poaching of these workers from the private sector may lead to a tremendous opportunity cost, as well as driving up the wages of similarly qualified engineers (195).

In his eyes, the belief that the federal government must operate within budget constraints is akin to popular religion (203-205). While the existence of God is, at least by all scientific accounts, a myth, it still provides individuals with appropriate guidelines that have proven extremely beneficial throughout the course of societal formation by convincing individuals to function in a responsible manner. If we believe that certain individuals have allowed the fear of eternal damnation to prevent them from engaging in socially harmful behaviors, such as rape and addiction, this myth has in fact been beneficial to society as a whole. Likewise, if the belief that government deficits need to be paid in full by taxpayers has prevented the people from electing demagogues, who promise enormous direct cash payouts to individuals that would both lead to inflation as well as the destruction of the incentives necessary to the system of capitalism, then this myth has proved both socially and economically beneficial.

Wray does not pursue this analogy further, likely to avoid treading into a dangerous discussion of morality, but there is a clear continuation of this comparison. While the myth of religion is great at encouraging social discipline, it also poses great risks when the values it supports no longer align with the evolving ethics of society as a whole. For evidence of this fact, we need look no further than violence perpetrated by religious fanatics, or hate, fueled by ancient morality, that seeks to marginalize certain segments of society that live in manners perceived to be "unnatural." While some of these, nonetheless despicable, actions only harm small

minorities, others, such as political campaigns that seek to place restrictions on the availability of life-saving vaccinations and medical procedures, place great harm upon the advancement of society as a whole. In a similar fashion, while the myth of the necessary balanced-budget may prevent the elections of self-serving demagogues, it also ties the hands of statesmen who seek to use the power of deficit spending to save the economy during trying times of economic stagnation.

In 2008, Barack Obama was responsible for carrying the nation through the worst economic storm that it had seen since the Great Depression. But for some reason, Obama, a self-proclaimed Keynsian, was overly concerned with the government deficit, and even remarked on numerous occasions that the country was "out of money." In May of 2009, Barack Obama responded to a question from C-SPAN's Steve Scully to illustrate how the increasing government deficit was threatening the solvency of the nation and leaving him unable to tackle America's healthcare problem.

> Scully: "You know the numbers, $1.7 trillion debt, a national deficit of $11 trillion. At what point do we run out of money?"
>
> Obama: "Well, we are out of money now. We are operating in deep deficits, not caused by any decisions we've made on health care so far. This is a consequence of the crisis that we've seen and in fact our failure to make some good decisions on health care over the last several decades.
>
> So we've got a short-term problem, which is we had to spend a lot of money to salvage our financial system, we had to deal with the auto companies, a huge recession which drains tax revenue at the same time it's putting more pressure on governments to provide unemployment insurance or make sure that food stamps are available for people who have been laid off.
>
> So we have a short-term problem and we also have a long-term problem. The short-term problem is dwarfed by the long-term problem. And the long-term problem is Medicaid and Medicare. If we don't reduce long-term health care inflation substantially, we can't get control of the deficit.
>
> So, one option is just to do nothing. We say, well, it's too expensive for us to make some short-term investments in health care. We can't afford it. We've got this big deficit. Let's just keep the health care system that we've got now.
>
> Along that trajectory, we will see health care cost as an overall share of our federal spending grow and grow and grow and grow until essentially it consumes everything…"
>
> -Barack Obama, May 23rd, 2009 ("Obama Interview")

The sentiment expressed in this interview raises several questions to those familiar with MMT. Primarily, was it that Obama was truly ignorant to the principles of Keynesianism that he proclaimed to support? Was he afraid that the masses were too ingrained in the myth of the balanced budget to support the massive spending programs that Keynes would have prescribed to heal the sick economy? Or was he certain that a true Keynesian approach would never be accepted by legislators? A true analysis of Obama's economic theory throughout the Great Recession is an undertaking beyond the scope of this paper, but we can safely say that, at least in public, Obama showed great concern for the deficit.

This sentiment can be seen in the fact that in 2016, even as his administration was coming to a close, Obama seemed concerned with protecting his legacy with the fact that his administration had decreased the deficit. Here's what New York Times' journalist Andrew Sorkin (2016) had to say after interviewing Obama in late April, 2016.

> "But the president did seem frustrated. As he tried to sum up his economic legacy in Florida, our discussion stretched to twice as long as planned….when I joined him again, he looked as if he'd been stewing over something. He quickly returned to the topic of public perception. "If you ask the average person on the streets, 'Have deficits gone down or up under Obama?' probably 70 percent would say they've gone up," Obama said, with some justifiable exasperation — the deficit has in fact declined (by roughly three-quarters) since he took office, and polls do show that a large majority of Americans believe the opposite."
>
> -Andrew Ross Sorkin (2016)

While Obama did in fact ensure that capitalism survived the Great Recession, economists still debate the true efficacy of his recovery package. Any scholar from a Keynesian-influenced school would argue that his $800 billion stimulus package was a drop in the bucket of the fiscal expenditure that was needed to correct an economy facing nearly eight percent unemployment. History now reflects this fact, as the stimulus package passed in February of 2009 did not stop

the bleeding of unemployment, which rose an additional two percent in 2009 and would not fall back below eight percent until 2012 (Sorkin 2016, "Economic Meltdown").

While MMT and Keynesianism both propose that fiscal policy is the superior mechanism for jump-starting a stalling economy, it is interesting to note that the Federal Reserve did in fact engage in Keynesian monetary policies throughout the Great Recession. The institutional arrangement of the Federal Reserve ensures that it is sheltered from the wrath of public opinion, and it is telling that the only institution that was willing to clearly engage in Keynesian practices was the one that would never have to answer to the electorate. Before we go on to discuss the weakness of monetary policy during a recession, consider this notion: Could it be that Obama's, allegedly, Keynesian administration did not understand that a true Keynesian recovery plan involved dramatic fiscal policy with the Fed only playing a supporting role? Or could it be that the administration would rather employ a handicapped conceptualization of Keynesianism than force their publicly elected officials to explain their "radical" economic policy to their constituents, who were infatuated with the myth of the balanced budget?

To understand the inefficiencies of monetary policy during times of crisis, we need to consider a few notions that we've touched upon in the past. Think back to our discussion about the financial sector as a pyramid of debt exchange, in which economic actors balance their risk tolerances and exchange safe, low interest debt for riskier, higher paying investments. We've discussed how banks are not truly constrained by the reserve ratio, because there are many avenues for them to acquire new low-cost debts that they can exchange for higher paying loans. The only factor that truly limits banks is their risk tolerance, which hinges on their ability to find credit-worthy borrowers. The same can be said for investors, who simply seek to gain larger

returns on the money that they invest than the debt they acquire to make these investments. For this reason, overall investment demand is relatively inelastic to changes in the interest rate. While small time borrowers are more willing to acquire debt when the interest rate is low, more powerful economic actors don't particularly care how much they have to pay to borrow, as long as they can still make a profit on their investments. This inelasticity of investment demand is the true weakness of monetary policy. The Fed can make it cheaper for banks and investors to borrow, but it can't guarantee the existence of credit-worthy borrowers and investments. In times of economic downturn, where overall investment profit is largely negative, it doesn't matter if the interest rate is 0, because investors will still lose on their investments. The same can be said during times of economic expansion, it doesn't matter if the federal funds rate rises to 5%, as long as investors are confident that they can make 7% returns on their investments. For banks, it doesn't matter what they pay to borrow money, because they simply borrow for low and then tack on premium before making their loans. As long as a bank can find credit-worthy individuals, they will make loans. But alas, during times of economic contraction, credit-worthy borrowers are few and far between.

While cutting interest rates are of questionable use during times of serious economic contraction, the Fed has other tricks up its sleeve that are much more effective. The ability of the Fed to directly inject liquidity into the economy through quantitative easing and direct loans to struggling banks are of utmost importance. Because the Fed is not concerned with making a profit, it can purchase troubled assets for more than they are worth to ensure that banks remain solvent.

During the Great Recession, the Fed proved its worth by enacting many controversial policies to reinforce struggling banks. These policies included two rounds of quantitative easing which added $2.35 trillion in liquidity to the banking system through the purchase of government bonds (Wray 2012, 204). When later asked to defend this injection of liquidity into the market, Federal Reserve Chairman Ben Bernanke brushed off concerns that his actions were threatening the solvency of the nation by increasing the national debt. In front of Congress he dispelled some of the common misconceptions regarding these myths.

> Mr. DUFFY: "We had talked about QE2 with Dr. Paul. When you buy assets, where does that money come from?"
> Mr. BERNANKE: "We create reserves in the banking system which are just held with the Fed. It does not go out into the public."
> Mr. DUFFY: "Does it come from tax dollars, though, to buy those assets?"
> Mr. BERNANKE. "It does not."
> Mr. DUFFY: "Are you basically printing money to buy those assets?"
> Mr. BERNANKE. "We are not printing money, we are creating reserves in the banking system."
> -Testimony in front of the House Committee on Financial Services (Bernanke 2011)

It is fascinating to note the relative ease with which the Chairman of the Federal Reserve spoke about the ability of the Fed to "create reserves" and defend his ambitious proposal of quantitative easing. He certainly did not seem worried that his discussion of Keynesian policies would cost him the election.

We may never know the true reason why the Obama administration did not pursue an equally aggressive policy of fiscal expenditure, but it seems likely that a fear of electoral retribution had some influence over the program.

Moving forward, the country lies at a crossroads. We have followed the path of myth for many years, and have allowed our flawed perceptions of economic realities to paralyze the courage of elected officials to respond to both economic and social crises. This path is familiar, and provides security that radical changes will not happen quickly; that the economy will not fall victim to over-indulgence.

The other path represents a leap of faith into a largely untested, but logical, economic theory that offers a comprehensive guide to reaching and maintaining the prosperity of full employment. But this path requires a level of confidence in the ability of the American public, and the officials that they elect, to use the tremendous abilities it affords in a responsible manner.

This chapter has provided a brief overview of the familiar path, and for deeper analysis one must look no further than the economic history of the United States. The following chapter will present several proposals from the path, yet traveled, to full employment.

Chapter 7: Full Employment

Now, although we're a little tough on the Neoclassicals, we must admit that they, like MMTers, seek to make the economy as stable and prosperous as possible. The difference between these groups is the means that they are willing to employ to maintain this economic prosperity. Neoclassical theory considers economic stability to be of utmost importance, and seeks to achieve this result by controlling for inflation. Literature regarding the NAIRU, or the Non-Accelerating Inflation Rate of Unemployment, has led many Neoclassicals to believe in a strong correlation between the rate of inflation and the level of unemployment. In their eyes, a certain level of unemployment is necessary to ensure that inflation does not run rampant, because inflation "accelerates" whenever the rate of unemployment is pushed below the NAIRU by demand-increasing government intervention (Devine 2004, 127). Beyond this, Neoclassical theory stipulates that many unemployed workers are voluntarily without work due to the fact that they aren't willing to work at the current wage and that they have decided instead to stay at home and collect government benefits (128). The combination of these two perceptions makes Neoclassical theory very tolerant of unemployment, and appreciative of its perceived benefits in the fight for economic stability.

MMT frames the issue differently. While it does realize that a certain level of unemployment can have a causal effect on the inflation rate by disempowering workers, there are many ways to control inflation, and allowing persistent unemployment, along with all of its personal and social harm, is not an ethical or appropriate mechanism for maintaining a low inflation rate.

Modern Monetary Theory proposes a series of policy prescriptions for reaching full employment. Primarily, MMT believes that unemployment is caused by a lack of aggregate demand, as well as ever evolving structural changes to the economy as a whole. First, we will briefly go through policies that will stimulate AD, and then we will explore a novel approach that MMT suggests could conquer structural unemployment.

In terms of increasing AD, MMT traces its theoretical roots to Functional Finance as well as the Keynesian School. Recall that Keynesianism proposed that aggregate demand had four components, and that all of these components were endogenous except for government expenditure. In times of crisis, it was the responsibility of the government to increase its spending though either borrowing or printing additional currency in order to stimulate demand and create a positive cycle of employment. However, Keynes was not very confident in the ability of this prescription to work well in the long term, and he made it clear that these expansionary policies should only be used in times of crisis, and that the government should wean the economy off of its expenditure in normal times. Functional Finance had similar policy prescriptions for government during economic contractions, but its rhetoric proposed that the government should not abandon these expansionary policies even after the economy recovered. This confidence in government action can be traced to lessons learned during WWII, where the national economy operated at near full employment without suffering the prophesized hyperinflation. Lerner (1943), a famous advocate of Functional Finance, attributed this to the government's ability to control both positive and negative pressure on demand, and led him to believe that a strong government with proper information could adjust their expenditure accordingly, and catalyze high employment levels without overheating the economy (39).

Before we take a look at how MMT proposes governments should behave, we need to tailor our analysis and add some disclaimers. MMT has never claimed that its bold proposals of increased government spending apply to all countries, and there are a few important criteria that need to be in place.

First, a nation must be the sole issuer of its own currency. This essentially means that no other nation, or entity, has the ability to issue your nation's currency. This criteria holds for nations like the United States and England, which, respectively, are the only institutions that can issue authentic U.S. dollars or English pounds. On the other hand, this criteria does not hold for a nation like Spain, which operates on the Euro, and thus does not have complete control over its monetary policy.

Second, a nation must allow its currency to be convertible to other currencies at a floating exchange rate. MMT never denies that large increases in the money supply can devalue a currency, and nations that have a fixed-exchange rate, referred to as a "pegged" currency, will be vulnerable to outside pressures if they pursue drastic expansionary policies.

Third, if a nation chooses to borrow to finance its deficits, its debts must be denominated in its own currency. This principle is linked to the previous statement, and exposes another weakness of marrying distinct currencies. If the United States borrowed yen, it means that its debts would be denominated not in dollars, but in yen. If we found ourselves in a position where we needed to print money to pay this debt, we would have to first exchange our newly printed dollars for yen, and a devalued currency would mean that the amount of dollars that we needed to purchase one yen would constantly increase. On the other hand, if we borrowed in dollars, and our government is the sovereign issuer of dollars, we could print as much as necessary to

service our debts without exchanging our currency for another. This means that if our dollar was devalued, our debts would simply be less expensive.

Finally, a sovereign currency issuing nation must have enough power to enact and enforce tax obligations upon all of its citizens. This belief can be traced back to the Charalist notion that the demand for money comes from a tax burden, and that as long as a tax burden can be enforced, citizens will have a need to acquire the money of the nation.

So, if a nation fits all of these criteria, what can it do? MMT proposes several groundbreaking insights.

First, a government does not really *need* to have currency before it can spend. A sovereign currency issuer has complete control over the production of its own currency, and it can print as much as it desires (Wray 2012, 203). Now this is not to say that the government should spend aimlessly, but don't get hung up on the details just yet. Like Chartalism, MMT characterizes all money as debt issued by the government. When the government spends, it pays for its purchases with the dollar, or a fiat currency, that is really an obligation from the government to subtract one dollar from the bearer's tax obligation. The taxes-drive-money model claims that the only reason that units of account are universally accepted within sovereign nations is because every individual knows that they need to accumulate a certain amount of that unit of account in order to pay their taxes (49). Likewise, they will happily accumulate more currency than they will need to pay their taxes, because they know that they will always be able to exchange it with other individuals who need to satisfy their own tax obligations.

And really, fiat currency offers its bearer no promises other than a reduction in their tax obligation. In years past governments operated on the gold standard and promised to exchange currency for gold at a fixed rate, but these days are long gone.

If we accept that a government spends by issuing debt, and collects its own debts back as tax payments, the notion that the government must collect money through taxation or the sale of bonds before it can spend completely falls apart. Where could the government get this money if it hadn't already spent it? Who, or what, else could have possibly created this money and given it to the government?

This leads us to an important accounting identity that places government deficits in a new perspective. First, let's examine a simple model. Imagine that you and two of your friends are all locked in a room with no access to the outside world, perhaps due to the spread of an infectious disease. You have enough food and water to survive for a while, and you each have $1,000 in cash and a pair of dice. You decide to pass the time in quarantine by gambling.

The amount of money in this closed economy is capped at the equally distributed $3,000. The funny thing about gambling is that there must be some winners, and some losers. The only way that you can make a profit is if at least one of your two friends loses money. This loser could lose money to only you, or you and the other friend. What's important to realize is that not all parties in this room can earn a profit, and not all parties in this room can take a loss. At least one person has to earn money, and at least one person has to lose money. Now let's carry this reasoning into something a little more applicable.

We can break the economy within the United States into three sectors: the government sector, private sector, and foreign sector. The government sector collects money through

taxation, and loses money through expenditure. The private sector spends through taxation, and earns money through government expenditure. The foreign sector earns money through selling us imports, while it loses money through buying our exports. For one sector to earn a net profit, or accumulate more financial wealth, at least one sector has to be willing to decrease its financial wealth, either through spending savings or accumulating debt. Currently, the idea of the United States exporting more than it imports seems laughable, as we have run a negative trade balance consistently since the early 1990s ("Trade Balance" Infographic). So we know that the foreign sector is going to have a positive balance, as it takes in more than it spends. Now we know that at least one of our remaining two sectors need to run a negative balance. At least in modern times, this role has been graciously accepted by the government sector, which has accumulated debt in order for the private sector to accumulate net financial wealth. The real world is like a balance sheet, where every financial asset corresponds to a financial liability. The only way for *you* to increase your financial wealth is for someone else to decrease their own. If we extend this line of reasoning, in the aggregate, net financial wealth is zero. How could this be? Remember that money is simply a unit of debt, and holding money simply acknowledges that you are the bearer of someone else's debt. Currency is ultimately just debt issued by the government, and the bearer is entitled to a reduction in their tax obligation. With this in mind, one sector can increase their own aggregate financial wealth, but only if another sector is willing to increase their debt. Looking at an equation can make it easier to demonstrate this zero-sum game. The crude equation below shows our three sector economy, and it is set equal to zero, because in the aggregate net financial wealth is 0. Every financial asset corresponds to a financial liability. The positive and negative signs will be used to denote if a sector is experiencing a net increase or

decrease in financial wealth. The following equations are adapted from Wray's (2012, Ch. 1) discussion of sectoral balance.

$$0 = \text{government} + \text{private} + \text{rest of the world}$$
$$+ \qquad\qquad + \qquad\qquad +$$

Anyone with any sort of background in mathematics or logic will understand that the above situation is impossible. There are no three positive numbers that sum to zero. It's clear that if we acknowledge that all financial assets correspond to financial liabilities, there is no way that every sector of the economy could experience a corresponding increase in wealth. Where would this wealth come from? There is no other economic agent that can spend wealth to give it to these sectors. Let's take a look at the current scenario facing our nation.

$$0 = \text{government} + \text{private} + \text{rest of the world}$$
$$- \qquad\qquad + \qquad\qquad +$$

Here we have the private sector and the rest of the world experiencing a net increase in financial wealth, with the government experiencing a corresponding decrease in wealth. This means that the government is running a deficit in order to finance private sector savings. The rest of the world experiences an inflow of wealth because our nation imports more than it exports, and thus American dollars leave the nation and goods arrive. Now, this is not to say that the above relationship has to hold. We could just as easily have a scenario where the government and private sector were both negative, suggesting that our trade balance was so negative that all of our financial wealth was flowing out of the country. While this is not the case, it's important to realize that *not all sectors can be simultaneously positive or negative*. At least one sector needs to run a negative balance for the other sectors to experience positive

inflows. Let's take a look at what this situation would look like if the government decided to cut spending and collect a budget surplus, meaning that it collects more in tax revenues than it spends. This next example also stipulates that our nation maintains its current negative trade balance.

$$0 = \underset{+}{\text{government}} + \underset{-}{\text{private}} + \underset{+}{\text{rest of the world}}$$

If the government ran a positive balance, and we remained a net importing country, the only way for the equation to hold is for the private sector to experience a decrease in financial wealth. It's that simple. Now, we could begin exporting and experience a situation where both the government and the private sector experienced positive financial wealth, but that would take significant structural changes. Furthermore, think about what importing truly signifies. Purchasing a good from another country implies a transfer of real, meaning physical objects, wealth from a foreign nation to our domestic economy. We exchange financial assets, or dollar-denominated debt, for real goods. At the end of the day, we trade pieces of paper for physical objects that provide utility. Eliminating this negative trade balance would imply that we would rather receive paper and export our own physical goods than issue our own paper and receive real goods from others. However, here we arrive at yet another political question.

We now know that a government deficit is a necessary precursor to the accumulation of private wealth, questions still exist regarding the danger of a large government debt. Ask any conservative economist, and you will hear a plethora of reasons for why a large national debt is both irresponsible and unethical. For one, people believe that the government borrowing to

finance its expenditure is akin to borrowing from the next generation.[7] Furthermore, there's a great concern that the rising debt will soon become too much to manage, and the interest that we need to pay on it will outweigh the government's income from taxes. Finally, there's quite a bit of rhetoric regarding the fact that we borrow from the Chinese, and there seems to be a manifestation of some racist undertones through the charge that the Chinese will eventually demand repayment, or purposefully sell our debt in order to destroy the value of the dollar.

Let's start at the top. We must first remember that the United States is the largest economy in the world, and the U.S. dollar is the reserve currency of international finance. Essentially, the wealthiest investors from all over the world have enough faith in the U.S. government to hold dollar-denominated assets. There's no sign that these international capitalists fear the downfall of the dollar, and they may have good reason.

We need to first realize that the government does not actually need to sell bonds in order to finance its expenditure. While the aforementioned legislative prohibition on the Federal Reserve buying bonds directly from the Treasury does stand, this is simply a political decision, and the consolidation of the government would allow the Federal Reserve the ability to use its power as the sovereign issuer of U.S. dollars to its full potential.[8] Also, bond sales serve numerous economic purposes that are unrelated to financing government expenditure. First, they

---

[7]It's worth noting that even if we take a Neoclassical approach, this belief is not clearly true. For one, when the government spends it is purchasing real goods that provide utility to our nation. It's altogether possible that the highways, fighter jets, and schools built with deficit spending will provide utility to future generations. Likewise, any deficit spending that involves the sale of bonds implies that future generations, i.e. those who hold long term bonds to maturity, will actually receive income from the government debt, in the form of interest on these bonds. While it may be true that the average American citizen does not hold bonds, which are predominantly purchased by wealthy individuals or foreign investors, this still does not constitute an issue of "borrowing from the future" as much as it involves a potential distributional question.

[8]Beyond just the sale of bonds, a consolidated government would allow for the Fed to directly credit reserves to the Treasury account. This would quite literally constitute a situation where the Treasury account could never run out of money, as the Fed could constantly add more reserves.

provide investors with a safe, low-return asset, which provides economic stability by allowing individuals to hedge against inflation without getting involved in riskier ventures. Bonds are also the cornerstone of the Federal Reserve's open-market-operations, which allow the Fed to modify the money supply in order to protect the federal funds rate. When the Fed purchases bonds in open-market-operations, it pays for these bonds in newly created reserves, so with every purchase it increases the money supply. On the other hand, when the Federal Reserve sells bonds that it already holds, it simply deducts reserves from the seller's account and destroys the reserves (Mitchell et al 2019, 326). Because the Federal Reserve has chosen to use the federal funds rate as a monetary policy mechanism, bond sales form an important drain for reserves.

So, we now have an idea of why the government needs to run a deficit in order for the private sector to accumulate net financial savings, and why the government chooses to sell bonds to fund this deficit, even though this is not a necessary precursor for expenditure. We must not fall into the trap of characterizing our national debt in terms better used to describe household finance. Although it's politically popular to say things like, "If I ran my house like the government runs the nation, I'd be broke," it's essential that we remember that individuals have a lot more restrictions when it comes to servicing their debts. The U.S. government has the power to produce as many U.S. dollars as it desires. You'd worry less about your mortgage if you could pay for it on handwritten IOUs of any denomination.

While we could rest our fears about a runaway national debt with the simple statement that the government could never run out of money to service this debt, MMT also proposes several compelling reasons for why the national deficit is not as worrisome as many suppose, and

that an exponentially increasing debt will eventually reach an equilibrium before causing a fiscal explosion.

Let's take a close look at a model that we can use to analyze debt policy. This formula has been used by James Galbraith (2011) to judge the sustainability of national debts.

$$\Delta d = -s + d * [(r - g)/(1 + g)]$$

In this equation, "d" represents the starting ratio of debt to GDP, and "s" represents the total budget surplus after the government has deducted interest payments. Within the brackets we have "r", which represents the real interest rate paid on the government debt, while "g" is the growth rate of GDP. Something should be immediately obvious to all of the economics scholars, as well as anyone well-versed in rationality, that "Δd" will only be positive if "r" is greater than "g" (Galbraith 2011, 2). Logically, this is clear, as our debt to GDP ratio should fall as long as long as our growth rate outweighs the interest that we pay on the debt. All that needs to be done to ensure that a federal debt is sustainable is to ensure that the real interest rate the government pays on its bonds is less than the growth rate of the economy.[9] How could this happen?

First, we've already looked at how government deficits increase the financial savings of the private sector. When individuals build more wealth, they tend to spend more. As people spend more, the government collects more in tax revenue as all spending within the domestic[10] the economy eventually becomes domestic income. In this sense, any government expenditure that is spent within the United States will increase demand and employment, which will increase tax revenues, giving us more money to service the debt. Furthermore, as the debt increases and

[9]Here it is important to emphasize that "r" simply refers to the return on government bonds. Thomas Picketty made use of a similar equation in his book *Capital in the 21st Century*, but for him "r" referred to the return on all real wealth.

[10]It is true that this is not the case if Americans purchase imports, which sends income to other nations. However, we will look at the sustainability of current account ratios later in this chapter.

the government is “forced” to pay more in interest payments, U.S. entities that own government bonds will receive this interest as income.

Just as increased deficits create more wealth within the private sector and trigger a “wealth effect”, these deficits increase our GDP. Remember from the equation above, if “g” is greater than “r”, our debt ratio falls, making our debt relatively less expensive.

While inflation has been high for periods of U.S. history, for the last 15 years it has been a nearly negligible force and has fluctuated between 3% during expansions and a slightly negative percentage during recessions. While inflation is normally considered an economic evil, in terms of servicing a national debt it is beneficial. Recall that “r” is the real interest rate paid on Treasury bonds, where “real” constitutes the nominal interest rate minus the rate of inflation. When the government sells bonds, it buys them in nominal terms, and thus any additional inflation decreases the real interest rate that the government owes. While debt hawks love to claim that inflation will make our current debt unsustainable, this charge represents a fundamental misunderstanding of how inflation affects borrowers. Inflation would in fact decrease both the interest that the government needs to pay to service these loans by making the overall value of the debt “worth less.”

Now this is not to argue that inflation would be beneficial to the economy as a whole, but to accept the truth that inflation makes the government debt less significant by decreasing “r” and allowing a lower “g” to decrease the overall debt ratio. Keep this inflation in mind as we consider another factor.

By all metrics, the United States government is still the safest investment in the world. We hold the world’s reserve currency, and have the undeniable ability to make good on all our

debts. Because of the low risk associated with investing in the United States, it can borrow at an extremely low interest rate that contains a negligible risk premium. Shockingly, investors are so confident in the United States that they are willing to buy Treasury bills even when the real return on these assets is negative. In the 36 years from 1945 through 1980, half of these years saw negative real returns on owning public debt (Galbraith 2011, 4). This means that once inflation is considered, investors were actually paying the government to borrow their money. In an inflationary economy, even taking a small loss on a Treasury bond is better than holding depreciating cash. Currently, following the coronavirus crisis, Treasury yields have once again turned negative, meaning that the government is essentially borrowing money for free.

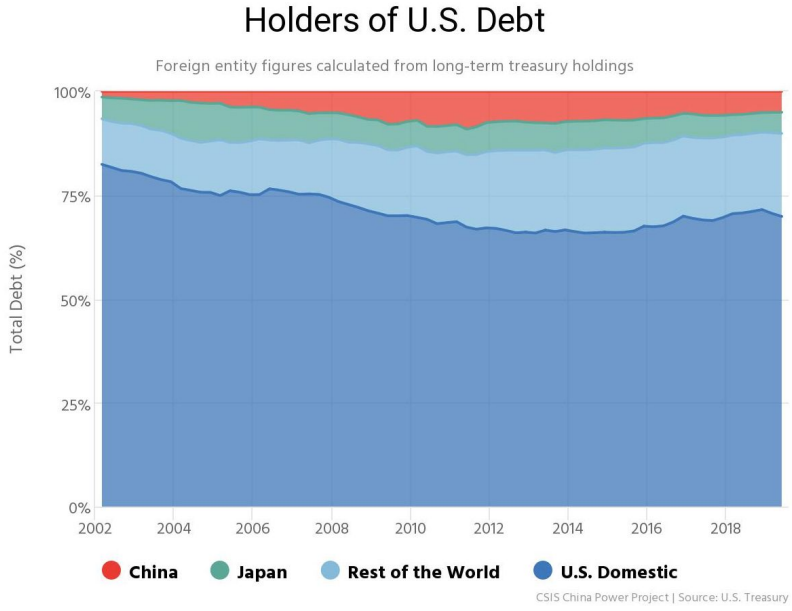
As if all of these abilities were not enough to convince debt-hawks that the United States is not going to go "bankrupt", the government still has another trick up its sleeve. The interest rate that the U.S. government pays on its bonds is a policy variable, meaning that it is directly under the control of the Fed. If the government wanted to, it could manually, through quantitative easing and open-market-operations, lower the interest rate that it pays on its debt to below the point of inflation (Wray 2012, 110).

In terms of our current situation with China, it seems like the conventional wisdom is terribly misguided. For one, the U.S. government does need to borrow money from China before we can spend. The U.S. government does not call a Chinese bank and ask for a loan before it spends. Here's what happens.

The United States has a trade deficit, meaning that she spends more on imports than she earns on exports. Essentially, there is a constant flow of dollars out of the United States and into the countries that sell us goods. Although we receive imports from numerous countries,

currently we import the most from China, meaning that there is a constant flow of goods from China to the United States as well as a constant flow of dollars in the opposite direction. When Chinese businesses receive dollars, they do not simply hold on to them, because holding cash does not yield any returns. Instead they decide to purchase government bonds which offer a small interest payment, normally ranging from 1-4% (Wray 2012, 121-122). Keep in mind that in the modern economy these bonds are rarely ever a physical thing, they are simply pixels on a computer screen that are adjusted by keystrokes at the Federal Reserve. To pay interest on these bonds, workers at the Federal Reserve simply hit a few keys and credit additional reserves to the holders of the bonds. Foreign bondholders will often "roll-over" their holdings when they have matured, which essentially means that they agree to purchase another bond in order to keep earning interest (122).

Debt hawks claim that such holdings on American debt place the United States in a vulnerable position to foreign entities. This does not seem to be the case. As of June 2019, the breakdown of American debt was as follows.



("China Power" 2019)

In 2019, China and Japan each held 5.1% of American bonds, the rest of the world held about 20%, and nearly 70% of bonds were held domestically. As we have discussed, the significant holdings of debt by Japan and China are simply the products of our trade deficit. These nations have accepted dollars for their goods for many years, and they have converted these dollars into bonds in the hopes of receiving interest on their capital.

One common fear is that China will suddenly stop "lending" to the United States, or that it will demand a much higher interest rate. If the United States needed to borrow in order to fund its expenditure, this could actually cause problems. But the United States is not like a regular household, and it can pay off its debts by issuing even more of its own debt. If foreigners suddenly decided that they did not want to purchase Treasury bonds anymore, they could either refuse to renew them when they reached maturity, or they could sell their bonds on the secondary market. In the first case, the Federal Reserve would simply hit a few keystrokes and convert the matured bond into a reserves in the account of the previous bond holder (Wray 2012, 120). If this happened, the government would actually save money as the interest the Treasury pays on bonds is much greater than the very-low interest rate that the Fed pays on excess reserves. The only real outcome of this procedure would be a transfer on the balance sheet of the Fed, and instead of holding a certain number of bonds under its liabilities category it would hold reserves. However, it's unlikely that foreign bond holders would do this, as they would simply be trading a low return asset for a no return asset.

If these foreign entities decided to suddenly unload their bonds in the secondary market, it is true that the value of these bonds may fall, which could lead to pressures on the exchange rate and a depreciation of the U.S. dollar. But once again, there seems to be little reason for

investors to suddenly sell their bonds. For one, just as this firesale would depreciate the dollar, it would lead to a loss for the sellers of these bonds. Furthermore, remember that the nations that own the largest percentages of American debt are the nations that rely on America as an export market. A depreciated dollar would raise the price of their exports relative to goods manufactured domestically and catalyze an American reduction in demand for imported goods (Wray 2012, 121).

It's important to remember that a depreciated dollar is not economically devastating for the domestic American economy. Imports would be more expensive, but our exports would also be cheaper, and American manufacturers would experience increased demand for their goods. Likewise, Americans traveling internationally would find that their dollars bought less foreign goods, but for the most part, the Americans that can afford frequent international travel can stomach these higher prices.

To make a long story short, the countries that own a large portion of American debt have much more to gain from continuing to hold on to this debt. Furthermore, as long as the United States is considered a sound investment, individuals and companies will happily purchase treasury bonds. Between June and November of 2016 Chinese bondholders sold off nearly $200 billion of Treasury bonds, representing a nearly 17% decrease in their holdings ("China Power" 2019). While the yield on bonds did increase, meaning that the American government did "need" to pay more to borrow, the increase from 1.64% to 2.18% was far milder than the predicted apocalyptic crippling of America's ability to borrow (U.S. Dept. of Treasury 2020).

Bearing all of this in mind, MMT's idea for increasing domestic employment is as follows. The government should determine an acceptable level of inflation, and then engage in expansionary fiscal and monetary policies to increase the level of employment until this results in pressure on the inflation rate. Any increase in the level of inflation can be counteracted by a corresponding decrease in government expenditure, or an increase in taxes, both of which will drive down domestic demand. These expansionary policies can either be financed by selling bonds, or by simply creating new currency. If the government does decide to borrow, it should not be overly concerned with the size of the deficit, and it can use the aforementioned policies to control the deficit if the need arises. In times of recession these expansionary policies should be pursued aggressively, and in times of expansion they should be slowly reduced, and the government can begin chipping away at the national debt.

It's important to note here that although many MMT economists are personally liberal, it does not mean that MMT as a whole advocates for the adoption of liberal policies in order to increase government expenditure. At its core, MMT is a framework for viewing the modern economy, and within this framework it is clear that an expansion of government expenditure would lead to much higher employment levels. Although many of the architects of this framework propose that this new government spending should be used to enact progressive policies, such as the Green New Deal, universal healthcare, or free public college, these proposals are separate from the framework of MMT (Wray 2012, 129). This new government expenditure could just as easily be used to finance a massive border wall, an enlarged military, or a mission to colonize Mars. Many criticize the theory as a whole for the proposals made by its

authors, but the theory itself, increasing government spending to bolster employment, is purely objective. What our nation decides to purchase with this new expenditure is a political question.

With this in mind, let's take a look at one proposal of MMT that *could* allow for an economy to maintain full employment without experiencing inflation.

Chapter 8: The Job Guarantee

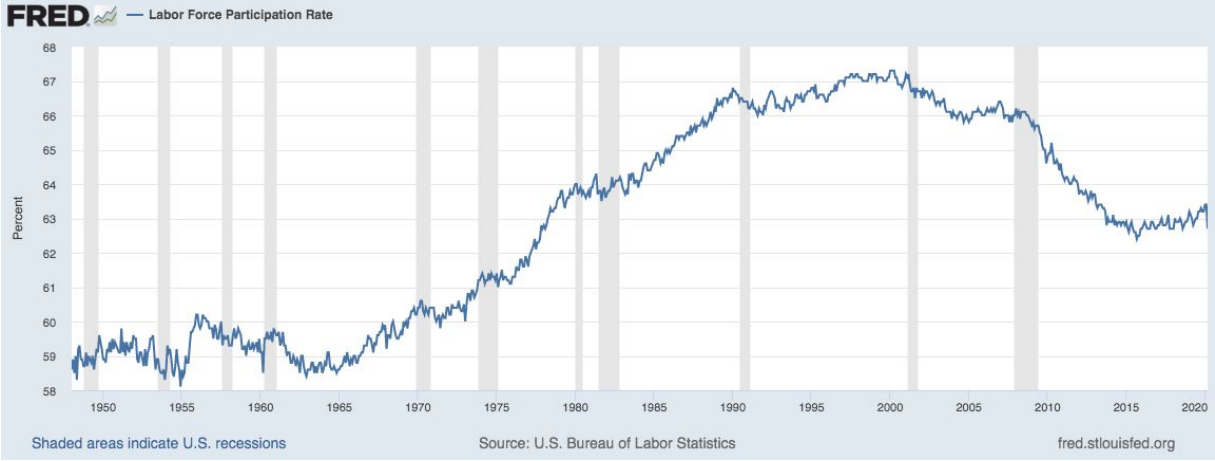
Both the Neoclassical and MMT models for economic stability accept the fact that a significant population of unemployed individuals will help keep inflation low. The Neoclassical NAIRU model proposes that there is a certain level of unemployment due to natural supply-side factors within an economy, and that any government intervention into the demand-side of the economy will decrease unemployment below this rate and result in the acceleration of inflation. On the other hand, Modern Monetary theorists argue that unemployment is chiefly a product of low demand, and they believe that demand-side intervention will certainly lead to long term increases in the employment level, and would only result in inflation if the new demand outweighed the productive potential of the economy. Furthermore, MMT does not consider unemployment to be an economically worthwhile, or morally sound, mechanism for controlling inflation. This opinion is influenced by a more progressive view of economics, which proposes that the true goal of the economy should be to provide a nation with the means to accomplish a public purpose. While the true nature of the "public purpose" is largely in the eyes of the beholder, all MMT economists agree that allowing the perpetuation of structural unemployment does not play a role in any potential definition of this term. William Mitchell (2008), one of the chief architects for a mechanism that could provide an economy with both full employment and

stability, motivates his topic by decrying the ills of unemployment and arguing that gainful employment should be considered a human right.

> "There are three main, interrelated reasons to support the claim that employment is a right. First, for the majority of individuals and households, employment is the dominant source of income. Income is essential for participation in the market economy. It provides access to credit and a diversity of goods and services. It allows a person to save and plan for holidays and retirement.... Second, unemployment and underemployment deprive a person access to social networks and the advantages that they provide. Third, an unemployed person is susceptible to a range of social pathologies including a higher incidence of family breakdown, alcohol and substance abuse, deteriorating physical and mental health, participation in criminal activity and incarceration."
>
> -William Mitchell & Joan Muysken (2008, 16)

Beyond just the individual effects of joblessness, the aggregate effects of maintaining a large unemployed population are well-documented, by both Neoclassicals and MMTers. Unemployed individuals do not contribute anything to GDP or national income, nor do they pay taxes, and they represent a massive unutilized portion of the American economy (Mitchell et al. 2019, 291). Unemployment rates had been at historic lows until recently, but it's important to realize that the nominal unemployment rate does not truly represent the total percentage of individuals that do not have a job. For this, we would need to look at the labor force participation rate, which is the total number of Americans who have a job divided by the number of Americans who are able to work, known as the labor force. The unemployment rate only accounts for individuals who are out of work *and* have actively looked for a job in the last four weeks, and by definition does not account for discouraged workers, or individuals who have been out of work for a long period of time and have stopped actively pursuing employment. The LFPR and the unemployment rate function in opposite ways, where a low unemployment rate suggests that the economy is doing well, a high LFPR suggests that more individuals are rejoining the economy and finding employment. It must be noted that the LFPR does include a number of individuals who are eligible to work, over the age of 16 and not institutionalized, but

who have no desire to find a job, such as retired individuals. While the unemployment rate is certainly too low of an estimate of the number of individuals who would work if offered a job, the LFPR is too high of an estimate. However, the true value for the unutilized percentage of the labor force likely lies in between these two statistics, and a comparison of the two can still yield interesting results.



During the Great Recession the unemployment rate rose from a low of 4.5% to a high of 10%, but it fell steadily during the following recovery and reached a low of 3.5% in December 2019. Just from this statistic, it appears that the American economy has flourished during the recovery, and has surpassed the peaks we reached before the long correction. However, when we look at the LFPR, we see a different story, of a much slower recovery. The LFPR hovered around a consistent 66% in the years preceding the recession, but then fell throughout the recovery and reached a low of 62.4% in September 2015. Although the participation rate began to climb after this point, it peaked at 63.4% in January 2020, suggesting that many of the individuals who lost their jobs during the Great Recession may have become discouraged and ultimately left the labor force altogether. This would explain why the unemployment rate would

show that the economy is recovering, as discouraged workers who have stopped looking for work will improve the unemployment rate, even though the overall percentage of Americans that have jobs has decreased.

A closer analysis of the LFPR reveals another surprising insight. In all of the recessions that took place before the one in 2001, the participation rate has fallen slightly during the recession, but then rebounded during the recovery. From 1948 until 2001, there was a clear positive trend in the LFPR, albeit with normal business cycle fluctuations. But this trend peaked in April 2000 with a 67.3% participation rate, and the recession of 2001 began a long negative trend. The explanation of this trend goes beyond the scope of this analysis, but it's clear that some sort of structural change is occurring within the United States economy.

This alternate story of economic recovery and overall trends in employment illustrate the great need for a novel approach to employment policy within the United States. For some reason overall employment levels within the American economy are decreasing. Although many economists and political commentators have lauded the Obama administration, and even some the Trump administration, for the recoveries that they have facilitated, it’s clear that the extended period of recovery has done little to restore the LFPR to previous highs.

When it comes to reducing structural unemployment, MMT has a unique proposal that is based upon an economic scheme that was used, in all of places, to stabilize the price of wool to protect Australian sheep farmers.

In 1970, the Australian government recognized that sheep farmers represented an important sector of their domestic economy, and they decided to set a price floor to protect the cost of wool. Essentially, the government set an artificial price for a bale of wool, for the sake of

simplicity let's say $100, and would take direct action into the economy to ensure that the price did not decline. Whenever the market price did drop below $100 a bale, the government would purchase wool from producers at the market rate of $100 and place this wool in storage. On the other hand, whenever the market price increased above the price floor, the government would sell the wool that it had in storage to increase the overall supply of wool and stabilize the price of this commodity (Mitchell "Job Guarantee").

Now, before we get too carried away with this analysis, we must recognize the fact that this policy was a failure. Essentially, throughout the period that the program was in place, structural changes in the wool market forced the price consistently lower, and the government was stuck purchasing large amounts of wool when they already had millions of bales in storage. Eventually this grew problematic, as the government needed to spend billions of dollars every year to purchase additional wool and as the market price never significantly rose, the government found that the cost of storing millions of bales of wool was actually prohibitively expensive. The important takeaway here is that while the program did stabilize prices, its downfall came because the government was no longer willing to spend large amounts to protect the price (Mitchell "Job Guarantee").

So how does this apply to full employment? MMT theorists like William Mitchell and Randall L. Wray have proposed the creation of a buffer stock of employed workers within the domestic economy through a program known as either the Employer of Last Resort or the Job Guarantee.

The basic proposal is as follows. The government will provide a job for any individual that desires to work. This job will require only minimal skills, and the compensation will be a

universal basic wage and basic benefits. There will be no limit to the amount of workers that can sign up for a job, and workers can remain in the program indefinitely(Mitchell "Job Guarantee"). When private sector employers need additional workers, they will be able to request these workers directly from the ELR program, and the centralized pool of labor-ready individuals will streamline the hiring process. Workers will be allowed to voluntarily leave the program without advanced notice, and employers will be able to quickly hire these workers by offering them a competitive compensation package. In essence, this proposal will replace the necessity of minimum wage regulations, and will create a price floor for the cost of labor, as workers will likely only leave the ELR program if they are offered a higher wage in the private sector.

Proponents of this program argue that it would be beneficial for a variety of macroeconomic, as well as personal, reasons. In terms of the economy as a whole, the ELR program would serve as an additional automatic stabilizer in terms of government expenditure. In times of economic crisis, many workers would join the ELR program, and government expenditure would automatically increase in order to bolster domestic demand (Wray 2012, 223). On the other hand, economic expansions would see a decrease in government expenditure, as workers would go back to the private sector. Our current system of automatic stabilizers functions similarly in the sense that taxes decrease during recessions and government expenditure increases due to the larger number of people collecting unemployment and welfare benefits. This decreased government income and increased expenditure catalyzes an increase in demand, and the opposite is true for expansions, where increased tax revenues and declining welfare payments slow potentially inflationary demand (224).

However, this system would be an improvement in the Keynesian sense, as the total benefits paid out under the ELR compensation would be greater than the welfare benefits afforded to unemployed individuals under the current system. While there is still no universal agreement regarding whether the ELR system would completely replace existing welfare programs, there's a clear consensus that overall government expenditure in the form of automatic stabilizers would increase. On the personal level, MMT theorists argue that ELR employees would be more attractive than unemployed individuals in the eyes of employers, as ELR employees would still maintain their basic set of employment skills, such as time management and punctuality (Mitchell et al. 2019, 306).

Another key aspect of the ELR scheme is the proposal that the program would be financed by increasing the government deficit. While some may argue that this is not a benefit at all, we have already covered the "affordability" constraints of sovereign governments with floating exchange rates, and we can suffice to say that the government would surely be able to afford this program. By automatically increasing the government deficit in proportion to the number of individuals that are unemployed, this will help ensure that the private sector is receiving a continuous source of income that will promote economic expansion (Mitchell et al. 2019, 307).

However, this is not to say that our nation could *politically* afford this program, and it would certainly be difficult to convince individualistic and debt-adverse Americans to support deficit increasing measures. Furthermore, many economists have attempted to create a cost figure for this program, but these efforts have been largely unproductive. For one, there is still no consensus about some basic questions, like the type of work that will be performed or the

compensation package that will be offered. Without even a consensus on the "basic wage and benefit package", attempts to create a solid cost for this program are purely theoretical exercises. Two estimates, one by Harvey (1989) and one by Wray (1998), have put the cost of the program at less than one percent of GDP. But once again, in a democratic nation like our own, the monetary cost of this program may be largely irrelevant. It's entirely plausible that individualistic Americans will politically oppose this program for purely ideological reasons, involving government "handouts"[11] as well as the government's involvement in the private sector.

There is also great debate regarding the nature of the work that ELR employees will perform. In order to truly offer employment to all citizens that want to work, by definition the work offered by the program cannot involve any scarce skills. Likewise, it would be unfair if the work performed by ELR employees competed with private industries that offered the same services. Both of these caveats harm the overall effectiveness of the program in terms of preparing ELR employees for work in the private sector, as it would be beneficial if the government-provided jobs allowed employees to increase their human capital during their time in the ELR program, besides just ingraining basic skills such as punctuality.

A similar challenge can be seen in the type of work that the ELR should accomplish. An argument exists for using these workers to accomplish societal good, but any real "good" that is performed by these workers would fluctuate due to the business cycle. Let's use elder care as an example. It would be great if we could stimulate the economy while ensuring that our oldest and most vulnerable citizens were taken care of, and ELR employees could visit elderly individuals

[11]Ironically, this configuration would make it so that individuals collecting from the government would need to work in order to receive benefits, but I'm sure this objective truth would be lost in the public discourse.

and help them with tasks around the house. However, this would surely interfere with private enterprises that perform the same services, which would not be able to compete with government employees who were paid at the price floor. If we allowed the ELR workers to participate in this sector of the economy, we would likely see the disappearance of competing private sector firms. While this would have serious implications for the free market, in itself would not be socially terrible during a recession, as the government would be able to offer care to vulnerable individuals. The real problem would occur when the economy expanded and the number of ELR workers dwindled. In this situation, the government would no longer be able to offer long term care services without raising the wage of ELR employees, and the private firms that offered these services would have disappeared. If the ELR decided to start paying its employees more in order to fill the new need, these workers would not be able to join the private sector, which even MMTers agree uses labor in a more efficient manner than the government. But once again, we arrive at a political question. It *may* be true that the United States has a great need for elder care workers, and it may even be true that this sector currently lacks a valid private alternative. While allowing the government to use the JG program in this manner could conceivably lead to a lot of societal good, we are leaving the realm of economics and treading into the dangerous territory of political theory. If the electorate wants the government to use the JG program to involve itself in the private economy, there is no objective reason to prevent this. However, this question belongs in the political arena.

With this in mind it is a great challenge to conjure up some services that ELR employees could perform that were both unskilled, meaningful, and did not compete with private companies. These workers could be used to do tasks that are socially beneficial, but involve too

many positive externalities to be performed profitably by the private sector. Tasks like this include picking up litter or planting trees.

Although these small details are surely important in the grand scheme of this program, their importance, especially once we accept that the government does not face an affordability constraint, pales in comparison to the question of inflation. If it could be proven, or atleast argued convincingly, that this program would not lead to inflation, the value of this program would grow tremendously as it would solve the ubiquitous economic dilemma of balancing low unemployment with inflationary concerns.

First, we can dispel the belief that the additional government expenditure needed to pay employees of the ELR program will lead to a corresponding increase in inflation. We've already spilled too much ink on this topic, but we will address it yet again. Inflation only results from an increase in government expenditure when it increases demand past the level that can be sustained by an economy at full employment. While the ELR program would, in a sense, put our economy at the point of full employment, it is likely that many of the workers within the program would be underemployed. Thus, as demand increases under this model, the private sector will respond to the increased consumption by producing more goods and hiring more workers from the ELR pool, who would be more efficiently used within the private sector. This means that even if everyone in the economy had a job, as long as some workers remained in the ELR program, we would not be at the true point of full employment, as employers could always hire additional workers from this pool of labor.

The automatic stabilizers within this economic configuration further limit the threat of expenditure based inflation, because it will ensure that the government expenditure is inversely

related to the status of the economy as a whole. When demand and private sector employment are low, there are no inflationary pressures, and government expenditure will increase as more individuals join the ELR ranks. And when the economy improves and begins to get closer to full employment, every worker that is taken from the ELR pool and given a job in the private sector represents a decrease in government expenditure. There is still no consensus as to whether ELR employees would pay taxes on their income, but it is clear that it would be better, in terms of automatic stabilizers, if these employees did not pay taxes while they worked for the government. This way tax revenues would automatically decrease, forcing the government to increase its deficit, during times of financial contraction, and increase, slowing down demand, as the economy neared the point of full employment and ELR workers transitioned into the private sector and began paying taxes.

Some opponents use MMT's own rhetoric against the ELR. Essentially they argue that MMT states that inflation will not result from government expenditure as long as aggregate supply can increase to incorporate the increased demand, but that this program suggests massively increasing AD for a pool of workers who will not actually provide any output. In regards to output, the proposal faces not a challenge of feasibility, but a question of political willingness. We surely could allow these workers to undertake more demanding jobs that would result in legitimate output, as was done in the New Deal, but we would have to decide if we want to allow government workers to compete with private interests within the open market. Furthermore, the output question does not pose a challenge to the ELR program for reasons that we've already discussed. For one, these workers are not "locked in" to working for the government, and as aggregate demand increases many of these workers will return to the private

sector where they *will* produce real output. Furthermore, under the current system, unemployment payments as well as welfare benefits are akin to paying workers for digging holes and then filling them in again. The current system allows for large government expenditure to individuals who produce no output, and even if the ELR workers were not as efficient in the private sector, as long as they produced *anything*, this model would lead to an increase in output.

However, a more serious challenge to the model is posed by conflict theory. This theory has been discussed in detail, but we'll analyze the challenges that it poses to this specific program. Basically, conflict theory poses an unfortunate truth upon modern economies. Inflation can result from a price-wage spiral, which is a product of empowered and self-interested workers demanding pay raises that keep up with ongoing inflation. The more powerful workers are at the wage negotiating table, the more likely that a one time increase in prices will set off the dangerous price-wage spiral as employers grant their workers a raise and then attempt to pass on their increased labor costs to the consumer (Palley 2009,18).

Essentially, we need to determine whether offering guaranteed employment to workers at a fixed wage will empower them enough to make them able to demand, and receive, wage raises. Before we begin this discussion, we need to set some baselines. Let's assume for the sake of simplicity that the wage for ELR is set to $10 an hour, and that this employment would also offer medical and dental benefits equal to an additional $5/hr, making total compensation for ELR labor $15/hr.

For the sake of the current argument, we're going to consider how this plan would be implemented in an economy that is not undergoing a pandemic.

The introduction of this plan could potentially cause an increase in prices[12], due to a demand shock, with the severity of this rise in prices directly influenced by how much greater the compensation package is than existing minimum wage. In the Northeast, an overall compensation package of $15 an hour would not lead to an unprecedented rise in prices, but the same cannot be said for areas of the country that still operate at the Federal minimum wage of $7.25/hr. However, it is likely that this one time price hike would not lead to a price-wage spiral, due to the fact that workers are still relatively weak due to the lack of labor unions. Trying to calculate the one time shock of this wage increase on the national price level is far beyond the scope of this paper, but let's take a look at how the program would function after the economy has stabilized from the shock.

We've set a price floor on labor at $15/hr. Workers in industries that do not pay the same amount, or even more, will likely leave their jobs and work within the ELR program. Furthermore, many individuals who have spent years outside of the labor force will report to work at the ELR. This will lead to massive increase in demand, as workers spend their excess disposable income, and the private sector will increase supply to meet this higher demand. As the private sector increases supply, they will need to hire more workers from the ELR pool. In order to pull from this pool, private employers will need to pay, at a minimum, a rate equal to the ELR compensation package (Wray 2012, 222). Let's say that the ELR labor force is tasked with

[12]The price-level effect of this new wage floor is not completely clear, it is a battleground within labor economics. If prices did increase, it would signify that employers were already operating on thin margins and could not survive an increase in labor prices, or that employers had the market power to set prices. This is not meant to be an exposition of labor economics, and we will largely leave this question to those who are qualified to answer it. While the Neoclassical model's emphasis on perfect competition would stipulate that prices would *have to* rise because of the increased operating costs for employers. However, other economists such as Meer & West (2015) as well as Cooper (2016) have argued that the effects of creating a price floor would be much less dramatic.

collecting garbage in order to serve the public good of fighting pollution and increasing the beauty of our nation.

Now let's take a look at how this will affect workers in the private sector. For one, workers in high-intensity but low-wage industries will certainly demand a relative increase in their wages so that they are earning more than ELR employees. No one is going to be willing to work as a mover, logger, or landscaper if they could earn an equivalent amount picking up garbage. While the workers in these industries may be able to increase their compensation to $16 or $17 an hour, it's unlikely that they will be able to demand a large increase, because employers could always hire new workers from the pool of ELR labor. Furthermore, the process of hiring would be much easier under the ELR system, because an employer would not need to advertise for a job opening, and they could simply notify the ELR program in their area and have access to numerous employees with different skill sets who had proven that they were willing to work at a given wage, and should be willing to work in a more strenuous position for additional compensation (Wray 2012, 224).

In this manner the labor market would form a new equilibrium with the $15/hr price floor for labor. Employees who demanded too much in the form of raises could be replaced by the ample supply of ELR labor, and employers who demanded too much work for too little compensation would see their employees leave to work for the ELR. In terms of conflict theory, it seems that this new economic configuration would not lead to an extreme change in the relative power of employers and workers in terms of wage negotiation. Workers would be empowered in the sense that they would always have a guaranteed fallback job, and they would not need to fear running out of unemployment benefits. But on the other hand, employers would

gain access to a considerable pool of individuals that have demonstrated their desire to work and their ability to function within the workforce.

In terms of stability on the macroeconomic level, Wray (2012) argues that a price floor for labor would prevent wages, and thus inflation, from rising too quickly during a time of expansion. Essentially, the government will have "purchased" all of the unutilized workers within the economy, and the JG program will serve as a collection of labor-ready individuals who have proven themselves ready to work. Furthermore, the promise of a job will likely pull many individuals back into the labor force who had previously become discouraged with the job search. These two factors working together will dramatically increase the number of potential workers available to employers in relatively low-skill industries, so that when the economy begins expanding employers will not be faced with a difficulty in finding additional workers. Wray argues that this will encourage employers to pull directly from the ELR/JG ranks, and they will not have to outbid other employers in the private sector. Furthermore, the collection of labor ready individuals will make employers less willing to engage in a price-wage spiral, as they could always just hire new employees from the ELR ranks if their own employees began demanding large wage increases (224).

It is important that the reader realize that the JG program is not an inherent part of MMT, and that MMT as a whole does not propose the adoption of the program. Instead, the JG program is a policy that is made possible by the way that MMT conceptualizes the ability of the government, and many of the chief MMT economists favor the adoption of this plan in order to increase the well-being of the unemployed as well as the overall macroeconomic stability of a

nation. While the plan makes logical sense, these economists must continue their research to propose a much more specific plan if they ever hope that it will become a political reality.

With that in mind, this program may be an invaluable tool to alleviate some of the economic turmoil facing our nation today.

Chapter 9: The Virus of Spending

At the time of writing, the United States economy is suffering from an unprecedented shock. A virus that was transmitted to humans in Wuhan, China has reached America, and the economy has ground to a near halt as almost all industries that cannot transition to a digital platform either severely restrict their operations, or completely shut down for the duration of the crisis. Large segments of the population have completely forgone participation in organized society, and have sheltered themselves inside their homes, only emerging to purchase necessities. On March 26th, the American government reported that in just one week an unprecedented 3.3 million workers filed for unemployment benefits. Unfortunately, this record was broken in the following week. In just the month of March, about 22 million Americans signed up for unemployment benefits (Associated Press 2020). To put this into perspective, during the Great Recession more than 37 million unemployment claims were filed between the start of the crisis and when weekly claims began declining in mid-2009 (Merrill 2020). Although unemployment claims have not yet passed the highs that they reached during the Great Recession, these claims are increasing at a much faster pace, and could surpass the 2009 peak by early May.

This current crisis, like the others in the past, cannot be solved by conservative Neoclassical economics without incurring an unacceptable amount of human suffering. Laissez-faire policies, like those that were attempted during the twilight of the Hoover administration, will simply allow a temporary economic shock to turn into a full-blown depression as the effects of massive layoffs ripple through the economy.

Modern Monetary Theory does propose a solution to our current crisis, and this solution involves the government spending massively to ensure that aggregate demand remains high

despite the necessary precautions that individuals must take to avoid contracting or spreading the virus. Furthermore, MMT argues that during any period of economic crisis the Federal Reserve must stand by and pursue monetary policies, like quantitative easing, that add liquidity to the economy and ensure that banks remain solvent despite temporary decreases in the value of their assets.

While it appears that the current, allegedly conservative, administration has accepted MMT by issuing a significant stimulus package to bail out both corporations as well as individuals, this plan is not without its opponents. The chief criticism of this stimulus package is not novel, it's simply an age old fear of the economic boogeyman: inflation. Before we discuss the inflationary implications of this stimulus package in the current corona crisis, let’s take a brief look at the past.

In 2008, the United States found itself in quite the economic quagmire. To make an exceptionally long story short, a housing crisis led to a financial crisis, which in turn led to a massive decrease in aggregate demand. To stop the bleeding, the government and the Federal Reserve worked in unison to enact a large stimulus package, cut interest rates, and directly inject additional liquidity into the economy through quantitative easing. As these actions were accomplishing their goals, inflation hawks ran amok, stating that the increases in the money supply would lead to an abundance of currency in the economy and the devaluation of the American dollar. Instead of this additional liquidity boosting demand, it would lead to inflation, which would only worsen the current economic stagnation and lead to the economic supervillain that had not been seen since the 1970s: stagflation.

While these inflation hawks were not incorrect in their belief that large increases in the money supply *can* trigger inflation, they had a fundamentally flawed understanding of the stagflation episode of the 1970s, which led them to believe that the expansion of the money supply was the precursor for the growth of the inflation. In reality, this inflationary episode was catalyzed by supply shocks and then perpetuated by conflicts between workers, who were empowered by strong labor unions, and employers, who felt that they could maintain profits by increasing their prices within an inflationary market. In an opinion piece published in the New York Times on June 2nd, 2008, Nobel Prize winning economist Paul Krugman defended the economic plan of the Obama Administration by dispelling fears of 1970s-style stagflation catalyzed by the increase in the money supply. His argument centered around the fact that the "wage-price spiral" was the true cause of the 1970s economic quagmire, and that the declining role of labor unions within the national economy will prevent inflationary expectations from fostering an inflationary reality. He includes an illustrious example of the wage-price spiral in the mining industry, which was indicative of a trend occurring in a variety of American industries in which workers had unionized.

> "In May 1981, the United Mine Workers signed a contract with coal mine operators locking in wage increases averaging 11 percent a year over the next three years. The union demanded such a large pay hike because it expected the double-digit inflation of the late 1970s to continue; the mine owners thought they could afford to meet the union's demands because they expected big future increases in coal prices, which had risen 40 percent over the previous three years.
>
> At the time, the mine workers' settlement wasn't at all unusual: many workers were getting comparable contracts. Workers and employers were, in effect, engaged in a game of leapfrog: workers would demand big wage increases to keep up with inflation, corporations would pass these higher wages on in prices, rising prices would lead to another round of wage demands, and so on."
>
> -Paul Krugman (2008)

He then briefly mentions, without boring the NYT's morning readers with excessive details, how the state of labor unions in the 2008 domestic economy would prevent a similar

wage-price spiral from emerging. Although he did not provide quantitative evidence to support his argument, these figures are readily available. Numerous studies have compiled data to illustrate the constant decline in overall union participation, as well as the weakening of the unions that do exist. A 2004 Congressional Report revealed that while the overall peak for union membership was in 1954, with 28.3% of all workers participating in a labor union, in 1970, still nearly a quarter of all workers were union members. While this percentage did fluctuate with a negative trend during the early 1970s, for the entirety of the decade this percentage remained within the bounds of 20% and 25% participation. This high level of union participation is what gave workers the ability to demand, and actually receive, wage increases that were instrumental in the wage-price spiral. However, one would be foolish to believe that this economic configuration could be readily compared to either the crisis economy of 2008 or present. The conservative revolution, which was marked by deregulation and amicable treatment of corporations, of the 1980s led to a gradual, but constant, decline in overall union membership driven especially by a decline in private sector union participation (Mayer 2004).

During the calm before the storm, August 2008, overall union membership had fallen to 12.4%, with less than 8% of private sector employees participating in a union (U.S. B.L.S. 2016, 4). Current levels of union membership do not represent a deviation from the negative trend which began in 1980, with only 10.3% of all workers participating in a labor union in 2019. The trend also continues for a decline in private sector union participation, with only 6.2% of private sector workers participating in a union (U.S. B.L.S. 2020).

It is unnecessary to belabor the relationship between union membership and wage increases. Without labor unions, workers find themselves at a severely disadvantaged position at the wage negotiation table, and are thus less able to demand wage increases for any reason, including self-preservation in the face of inflationary expectations. This economic truth can be further seen in the direct negative relationship between union participation and income inequality noticed by economists working at the National Bureau of Economic Research (Farber et al., 2018). While it is clear that many other factors influence income inequality aside from union membership, and a full discussion of these factors is beyond the scope of this analysis, a simple graph shows the clear relationship between these two economic variables.

*[13]

[13] Union Data from 1930-1983: Mayer, G. (2004). Union membership trends in the United States. Washington, DC: Congressional Research Service.
Union Data from 1983-2012: U.S. Bureau of Labor Statistics, "Union Membership," U.S. Bureau of Labor Statistics Data.
Income data from: Emmanuel Saez and Gabriel Zucman, "Wealth Inequality in the United States since 1913," The Quarterly Journal of Economics 131, no. 2 (May 2016)
*Union data missing from 1982, an average of values from 1981 and 1983 used to maintain a continuous illustration.

Once again, this illustration is not meant to propose that union membership is the only determinant of income inequality, it is only used to show a growing trend that is important for the current analysis. The remarkable growth of income received by the highest earning Americans, those that are in the top 1% for annual income, is highly suggestive that the wage-setting power of the working class is steadily declining. It is exceedingly difficult to create some sort of metric that quantifies the true power of the working class to demand wage increases, but the total income of the wealthiest Americans is a suitable, yet uncertain proxy, as it shows the final distribution of yearly income that is a direct product of the conflicting powers in the wage-setting relationship. The uncertainty in this proxy comes from the fact that income from capital gains are included in this income distribution, and it is likely that wealthier Americans have more access to diverse methods of income accumulation through trading financial and physical assets that yield capital gains.

But, for our purposes, it is clear that the price setting power of workers in 2008 was much weaker than that which they enjoyed in the 1970s. This lack of price-setting power helps explain the relative lack of inflationary pressures during the recovery from the Great Recession, and also predicts that conflict based inflation need not be a concern in the current dialogue regarding a stimulus to quell the virus-driven economic downturn.

However, we find ourselves in a strange paradox. In 2008 there was serious debate regarding the potential inflation that would result from money supply-increasing effects of the stimulus package. The same inflation hawks who misguidedly feared a return to stagflation due to the stimulus of 2008, are now remarkably silent, or even in favor, of the current stimulus

package. But, the current situation has landed the nation in one of the rare instances where MMT theory argues that increases in government spending can lead to inflation. We've been over this point countless times, but let's just briefly refresh our memory on MMT's beliefs on money-supply driven inflation.

Government spending directly affects aggregate demand. When the government deficit spends, it pumps more money into the economy, and thus into the income of the private sector, and causes aggregate demand to rise as individuals use this additional income to purchase more goods. This in turn leads to an expansion of the economy, as employers respond to the increased demand by hiring additional workers, purchasing new pieces of machinery, and investing in research in development in order to create more output. This in turn leads to an increase in aggregate supply, which will fluctuate until it reaches its equilibrium with aggregate demand. MMT considers the point of "full employment" to be of essential importance. Full employment is the point at which all individuals that are able to work have a full time job, and all the productive capabilities of a nation are in use. In theory at the point of full employment, if an employer wanted to hire an additional worker, he or she would not be able to, as every individual that could work already had a job. In reality, this employer would eventually be able to find someone to hire, as some worker would quit their job or young adults would enter the labor force, but it would be remarkably difficult to find these workers and then compel them to work for you amid the fierce existing competition. In other terms, full employment is the point at which the productive potential of a nation has reached its peak. No additional investment will be able to immediately increase the supply of goods and services produced by the nation. MMT states that it is at this point, and only this point, that increases in the money supply, through

deficit spending or quantitative easing, will lead to inflation. This inflation will result because the additional currency in the economy will increase aggregate demand but aggregate supply will not be able to increase to accommodate it. From this point, the resulting inflation is simply a result of the age old law of supply and demand. If demand outweighs supply, and supply is not able to increase to meet it, the price of the desired good will increase. In this case, the overall increase in demand will lead to a situation where the demand for all goods surpasses the national supply, and there will be an increase in the price of all available goods.

In normal times, this situation is of little concern, as the unemployment rate as well as the LFPR can serve as proxies for the upward mobility of the economy. As long as these unutilized workers remain, MMT argues that the government could increase its expenditure in an attempt to bring them into the economy. Skeptics argue that this delicate balance would be difficult to achieve, and show concern that the government would spend too much, and inflation would result. MMT responds with a simple solution: taxes. Taxes could be used to prune income to the perfect equilibrium between demand and supply, and ensure that inflation would not result (Lerner 1943, 41). This interesting paradox uses conservative beliefs in a very progressive manner. Traditionally taxes are seen as economically detrimental because they stifle aggregate demand, but it is this stifling effect that makes them particularly beneficial in this scenario. Under normal circumstances, the perspective that the government can pump money into the economy to ensure full employment is extremely exciting, and has made many excited to experiment with this principle in the real, instead of theoretical world.

But these are not normal times that we find ourselves in. Just as the Trump administration has apparently embraced MMT by passing the largest economic stimulus ever, it seems that we may have found a situation that tests the principles of MMT.

Chapter 10: To Spend, or Not to Spend?

Let's take a brief look at the American economy. At the time of writing, April 19th, the nation is in trouble. Covid-19 has killed nearly 65,000, and will likely kill another 1,500 tomorrow (Center for Disease Control 2020). While we cannot understate the severity of the tragic loss of human life occuring, this analysis seeks to only make sense of the potential economic impact of the virus. It is still too soon to have accurate unemployment figures, but likely more than 30 million Americans have lost their jobs in the last few weeks. All states have imposed stay-at-home orders which discourage individuals from leaving their homes except in essential circumstances. Some states have issued more extreme stay-at-home orders that impose penalties on citizens that are found in violation, and it is likely that all states will soon impose similar penalties. These orders are an effective and necessary tool for slowing the spread of the virus, but they severely limit the economic capability of the state.

All states with penalty-imposing stay at home orders have included a list of "essential workers" that are allowed to leave their homes in order to keep the state functioning properly. Workers that are not deemed essential are either forced to work from home, or simply not go to work. To respond to this crisis, the federal government has passed a $2 trillion emergency relief package that includes direct cash payouts, increased unemployment benefits, and loans to struggling businesses (Snell 2020).

During a normal recession, this stimulus package would add much needed liquidity to the market, and provide a boost to aggregate demand. This was how the government responded to the 2008 crisis, and, by most measures, it helped alleviate the burden of the recession.

But here's the fundamental flaw in this reasoning, the crisis of 2008 cannot be truly compared to the current crash. A normal recession involves a demand-side crisis. Typically individuals, for a variety of reasons, grow uncertain about their economic security, and naturally decide to slow their spending in favor of saving for the future. On the individual level, this is the most rational, self-preserving response to economic fears. However, on the aggregate level, this overall drop in consumption leads to a fall in aggregate demand. As individuals purchase less dinners, clothing, cars, and houses, businesses realize that they need to make changes, and they begin to trim the fat. Layoffs and wage and hour cuts follow, and the process becomes a vicious cycle. As more citizens see their disposable income shrinking, they save more and spend less, forcing businesses to respond with more fat trimming measures. The ripple effects of these self-preservation measures tear upwards through the pyramid of debt. Some individuals can't make their rent payments. Soon their landlords can't make their mortgage payments. Banks rely on these mortgage payments to fulfill their obligations, and they find themselves in a problem of insolvency. Banks are further affected by a fall in the value of their assets, as a falling demand for houses and cars leads to a decrease in the value of these borrowed assets. This process could be repeated for a variety of industries, but you get the point. Falling demand affects everyone, and the ripple effects always make their way upwards. What's important from this analysis is that the economic problem facing a country in a typical recession is an insufficient aggregate demand catalyzed by a fall in consumption.

In such a case, an economic stimulus package is needed, as this influx of federal dollars will increase the disposable income of the masses and lead to an increase in AD. Furthermore, there need be no fear of inflation in this scenario, as the economy is nowhere near the point of

full employment. Because of this, any increase in AD can be accommodated by a corresponding increase in AS when businesses hire new workers and invest more capital in order to increase their production. These production increasing measures will lead to an increase in the disposable income of newly hired workers, who will hopefully increase their consumption and begin a positive cycle that increases AD. While there's a lot more detail to the process, including questions of who should receive stimulus money, how they should spend it, and how large the stimulus should be, this is the basic story of a recession.

But it is unclear if a stimulus package is the proper approach to the quagmire that currently plagues the nation. While AD is certainly lower based on individuals' economic fears, we find ourselves in a crisis of supply. Stay-at-home orders have placed an artificial cap of the productive capability of our economy. As long as these orders remain in place, any economic expansion from the federal stimulus must be spent in sectors of the economy that remain open. Think of it this way. When a stimulus is pumped into an economy that is undergoing a typical recession, this money is spread across the economy as a whole. Citizens receive their government checks, and they have the ability to go out to restaurants, bars, movie theaters, casinos, and hotels, if they wish. But restrictions on association and the types of businesses that can operate within the pandemic are stripping the economy to only the sectors that are deemed essential. People have remarkably few options as to how they can spend their stimulus checks, and for the most part, they will have to either save this money, or spend it in one of the essential sectors.

This large influx of money into these essential sectors will be unprecedented. Will this stimulus cause inflation? If you could come up with a definitive answer to that question, you could make a small fortune on the stock market. This analysis will make no definitive predictions, but it will outline a few potential scenarios.

The elephant in the room is demand. We know that AS is at a relatively fixed rate until further notice, but we cannot accurately measure the severity of the corresponding demand shock. For example, if there was a major demand shock, and investment as well as consumption have declined tremendously, then the resulting stimulus will likely not lead to inflation, as this new boost in AD will simply make up for the loss in consumption and investment. It is entirely likely that there has been some demand shock, as economic agents decide to hold off on making large purchases and new investments until after the crisis, but we cannot be sure just how large this demand shock has been. This fact will be incorporated into the following models.

Let's first analyze a scenario in which there has been no, or a very meager, demand shock. According to Neoclassical theory, massive government expenditure in this scenario would certainly lead to inflation. MMT does not have any models for this particular scenario, but a theoretical argument exists for why it *could* lead to inflation.

It all comes back to full employment. Once an economy is at full employment, any additional AD increase will lead to inflation. In a sense, stay-at-home orders have placed the economy at an artificial point of full employment. Only essential workers can still leave their homes and go to work, and sectors that are truly essential for fighting the virus are already working at close to maximum capacity. The entire healthcare sector is working overtime, and

medical students are being released from their studies early to go to the front lines. Medical manufacturing is producing at capacity. Pharmacies and grocery stores are having trouble keeping essential supplies in stock. Truckers are cheating on their logs to get these supplies to market. Companies that offer online distribution are struggling to ship orders.

Inflation will result if these sectors of the economy that are still open are operating at, or close, to full capacity. In some of these sectors, it seems like this may be the case, especially once barriers to entry are considered. Hospitals are already struggling to keep up with demand, and they can't simply hire new doctors and nurses as many aren't qualified to perform these tasks. In other sectors, the situation is more nuanced. While commercial driving licenses are a barrier to entry in the trucking industry, and most individuals that have the certification are already working within the industry, it's possible that the increased demand for truckers transporting essential goods may be accommodated by truckers who have lost their jobs hauling nonessentials.

Much of this question requires deeper analysis, but on a broad theoretical level, it seems that this stimulus has a much greater chance of catalyzing inflation than the recovery plan of 2008. In essence, regulations have shut down broad swathes of the economy and paralyzed their ability to expand. We're about to experience an unprecedented influx of stimulus, and this stimulus can only really be spent in the few sectors of the economy that remain open. To truly understand how abnormally large the current stimulus is, let's compare it to its 2008 and 2009 predecessors.

In 2008 President George W. Bush signed the $168 billion Economic Stimulus Act. This stimulus measure distributed funds, in the form of tax credits, to both business and individuals. The majority of taxpayers were given a $600 tax rebate, while parents were granted an additional $300 per dependent child. Businesses did not receive direct cash injections, but were able to write off $250,000 in depreciation on new purchases, which was doubled from the previous maximum of $125,00. There were further programs that allowed for additional depreciation for certain business purchases, and American businesses in the aggregate saved an additional $51 billion on taxes in fiscal year 2008 (Urban Institute and Brookings Institution 2010).

The following year, the Obama Administration enacted the American Recovery and Reinvestment Act (ARRA) of 2009. This stimulus package contained a combination of funding for entitlement programs, infrastructure and education projects, as well as tax cuts for individuals and corporations, and its total cost was estimated to be $831 billion (CBO 2012, 4). Also included in this plan was an extended period of unemployment insurance, although there was no weekly increase in the amount of these benefits, and a 6% decrease in weekly taxes (Brookings Institute).

The current stimulus plan includes $1,200 direct cash payouts to individuals who make less than $75,000, with parents receiving an additional $500 for each child. The Paycheck Protection Program earmarks $349 billion to small businesses in the form of forgivable loans. Small business owners are eligible for forgivable loans that can be used to pay two months of their payroll, plus an additional 25% of their average two month-payroll costs. Essentially, employees of eligible companies will be able to keep their job, and have the Federal government

pay their salary for two months. Furthermore, the stimulus package includes large protections for unemployed workers. While most states only allow unemployed workers to receive government assistance for 26 weeks, this period has been expanded to 39 weeks. In addition to their regular state-funded unemployment relief, workers will also receive $600 a week from the Federal government. Just as unemployment benefits have increased, the eligibility requirements to collect these benefits have decreased. Under the new stimulus, independent contractors, gig workers, and even individuals who have not been laid off[14] are eligible to collect unemployment. In addition to all these demand increasing provisions, the working class has seen many of their debts postponed. Federally backed student loans and mortgages will not require payment during the crisis, although some of these loans will still accrue interest (Smith 2020).

All in all, the stimulus package has pushed $2 trillion into the domestic economy. This is the largest attempt at increasing demand that the nation has ever seen. So let's return to the issue at hand, the potential inflationary impact of this stimulus in the event that the economy has not experienced a significant demand shock.

A basic analogy might make the current predicament a little bit easier to understand. Let's imagine that the American economy is like a bathtub, the MS is water, and the water level is inflation. The walls of the bathtub serve as the point of full employment. As the economy expands, the endogenous MS adds more water to the economy at a consistent, and relatively slow, level.

[14]Workers who are awaiting diagnosis, or have been in contact with someone who has tested positive for COVID-19 are eligible to collect unemployment benefits if their job does not allow them to stay home.

Let's say we start with a tub that is empty. If we add a gallon of water to the tub, the water will try to spread out to fill the entire container evenly. But a gallon is not enough for the water to even hit all of the walls of the tub. During normal economic times this is the case. The endogenous MS and government deficits constantly add water to our economy, but because the economy is not yet at full employment, the water never gets the chance to actually pool up and rise within the tub. Furthermore, as technology and population increases, the size of the tub also increases, meaning that it can accommodate larger additions to the MS without actually causing significant inflation.

In 2008 we had a tub that was nearly empty. The government poured a few gallons of water in, but because we were far from the level of full employment, this water was able to spread out evenly without raising the level of inflation.

But that's not the situation that we currently find ourselves in. Due to stay-at-home orders and the closings of businesses, the level of full employment, meaning the walls of the tub, have contracted significantly. Due to the diversity of the economic shutdown in different states, it's extremely difficult to ascertain just how far these walls have contracted. But if we take an extreme case, we can imagine that the current economy resembles a five gallon bucket more than the original tub. If this was truly the case, a few gallons of water would lead to tremendous inflation.

To examine the potential outcomes of this situation in the forms of graph, please see appendix B. With the current paucity of data on this topic, it is likely impossible to accurately

gauge the severity of the demand shock that has occured. However, extrapolating the reasoning of MMT, there seems to be a relatively clear path forward.

Getting workers back to their offices and the economy reopened must be the first priority, but until this is possible, the government must take dramatic steps to maintain a high level of demand. While we must keep the artificial level of full employment on the radar, the low level of inflation, 1.06% on March 1st, suggests that the demand shock has been large enough to incorporate the influx of stimulus without threatening the price level (FRED 2020). This signals that the government should instead increase its spending, and if we do eventually begin to experience inflation, the government can either cut this spending or respond with a corresponding increase in taxes.[15]

Interestingly, the current shortage of certain essential items has presented a remarkable opportunity for the ELR program. To increase the supply of personal protection equipment, the government could certainly conceive some mechanism in which it would pay individuals a basic wage in order to produce these items from their homes and ship them to hospitals that are experiencing shortages. While this certainly would not be a truly "effective" means of producing masks, it would produce more output than simply paying these 30 million individuals to remain unemployed.

Furthermore, this program could be the beginning of a more robust ELR program that could begin to meet once it is safe for individuals to leave their homes. Once the virus begins to disappear, it's certain the effects of the economic contraction will remain. While a high level of

[15]Increasing taxes certainly would not be politically popular during this period, but it would nonetheless serve as a control for inflation.

unemployment is a poor omen for private sector employment, it presents an opportunity for the government to both stimulate aggregate demand as well accomplish public good. Remember that the government is only limited in its expenditure by the unutilized resources of the nation. This virus has caused a great deal of devastation, both through a loss of life and wealth, but the ashes left in its wake may provide the necessary catalyst for a robust rebirth of employment policy within the United States.

Appendix A: A Short Study into the Cause of Inflation

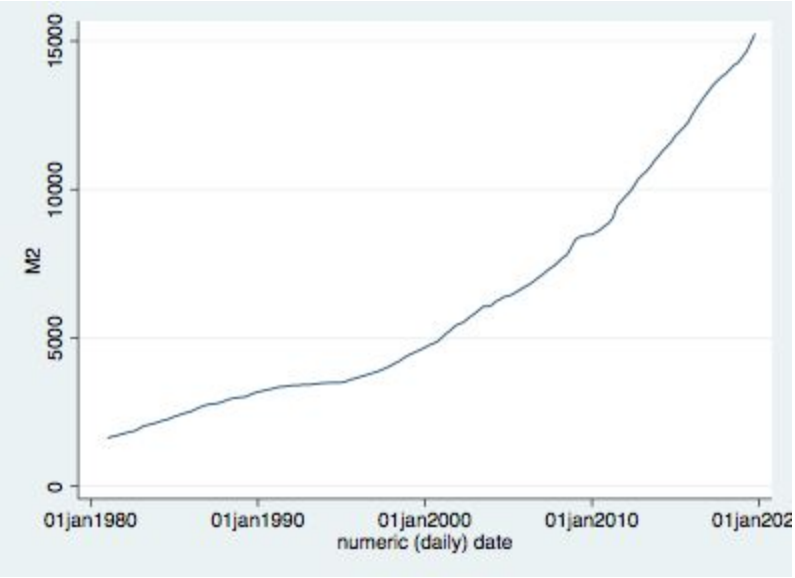
One of the central claims of MMT is that increases in the money supply do not immediately lead to inflation. If this claim is not true, MMT's central premise that the federal government should drastically increase its expenditure to combat unemployment would be wildly misguided.

The Neoclassical model still proposes that any large increase in the MS will lead to inflation, as this will result in "too much money chasing too few goods." MMT proposes a theory of reverse causality, in which inflation results from other economic variables, and then the endogenous MS automatically increases to incorporate banks' and individuals' demands for more money to maintain their lifestyles in the face of increased prices.

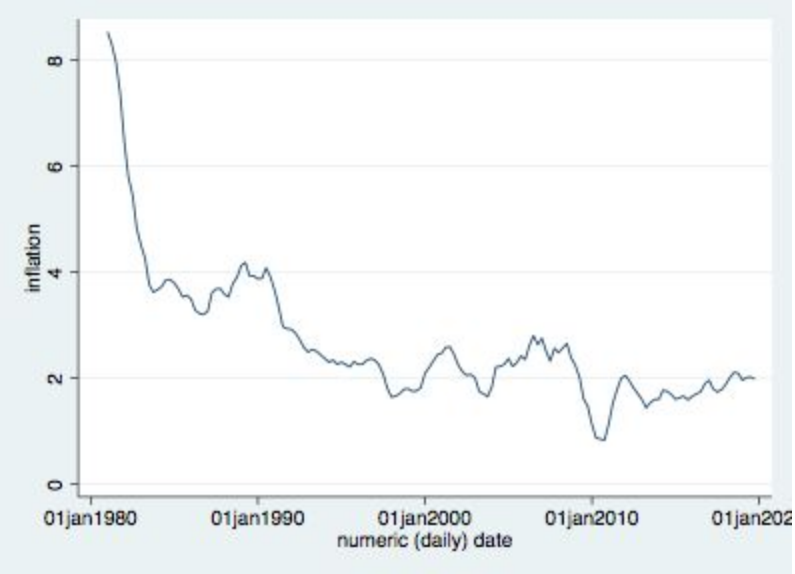
The following statistical analysis has been performed with data that is publicly accessible through FRED.

Variables of interest:

"M2"- This variable is used as a proxy for the money supply, and it denotes all of the "money" found within both the economic categories of M1 as well as M2. M1 includes all physical currency in circulation, as well as all money contained in checking accounts or other demand deposits. This category also includes travelers' checks, but it would be impressive to find one these near-extinct financial assets in the wild. M2 contains everything found in M1, as well as a variety of financial assets that are less liquid. This category includes the money found in accounts that cannot always be immediately withdrawn, such as savings, time deposits, as well as money mutual funds. M3 is less liquid than M2, and includes financial assets such as repurchase agreements and long-term time deposits. Due to the highly illiquid nature of M3, it was not included in this statistical analysis, because we are interested in analyzing the relationship between the money supply and the inflation rate in the short term. The data that was used for M2 was quarterly, and it extended from the first quarter of 1981 until the final quarter of 2019. This variable is measured in billions of dollars, and shows a strong positive trend over time.[16]



[16] https://fred.stlouisfed.org/series/M2



"Inf"- This variable is the seasonally-adjusted quarterly inflation rate for consumer prices. This data was accessed through FRED, and it was originally developed by the Federal Reserve branch in Dallas, Texas.[17] The Dallas Federal Reserve created this inflation data set by tracking the price fluctuation of consumer prices, and then trimming any clear outliers in order to prevent large deviations in a certain commodity from having an unnaturally large effect on the inflation rate. The data spans from Q1 of 1980 until Q4 of 2019. A graph of this variable over time can be seen on the left.

As is clear, the inflation rate shows a strong negative trend throughout the recorded period. Furthermore, it appears that a structural break occurred somewhere in the mid 1980s, where the rate of inflation stabilized after a period of significant decreases.

"T"- this is a generated time variable that increases by one for each quarter of data. This variable is used to control for time trends.

Before the Test:

Essentially, this project will be a test of causality regarding fluctuations in the money supply as well as the inflation rate. Typical linear regression simply tests for relationships between two variables, but does not actually examine causality. While a typical OLS-time series regression may reveal the relationship between two variables over time, it does not completely signify that one variable is directly causing the change. Furthermore, there are other common traps to analyzing time series data that must be avoided. The first is a spurious relationship, which results when two variables each have their own unique time trend. As we can see from our data, inflation has a negative trend, while the money supply has a strong positive trend.

[17] https://fred.stlouisfed.org/series/PCETRIM12M159SFRBDAL

```
regress inflation M2
```

Source	SS	df	MS	Number of obs	=	156
				F(1, 154)	=	84.10
Model	91.3480219	1	91.3480219	Prob > F	=	0.0000
Residual	167.272174	154	1.08618295	R-squared	=	0.3532
				Adj R-squared	=	0.3490
Total	258.620196	155	1.66851739	Root MSE	=	1.0422

inflation	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
M2	-.0002026	.0000221	-9.17	0.000	-.0002462	-.000159
_cons	3.918033	.159647	24.54	0.000	3.602653	4.233414

A simple regression of "M2" upon inflation reveals a statistically significant negative relationship between the two variables. This model shows that a decrease in the MS is associated with an increase in inflation. Now, if that doesn't sound correct, it's because it is not. Without accounting for the time trend, by including the variable "t", we are allowing for long term-changes over time to influence our regression. When we add "t" to the regression, we see the opposite relationship, which is also statistically significant.

```
regress inflation M2 t
```

Source	SS	df	MS	Number of obs	=	156
				F(2, 153)	=	169.25
Model	178.113264	2	89.0566321	Prob > F	=	0.0000
Residual	80.5069317	153	.526189096	R-squared	=	0.6887
				Adj R-squared	=	0.6846
Total	258.620196	155	1.66851739	Root MSE	=	.72539

inflation	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
M2	.0004038	.0000497	8.13	0.000	.0003057	.000502
t	-.0534923	.0041657	-12.84	0.000	-.061722	-.0452625
_cons	4.381064	.1168212	37.50	0.000	4.150273	4.611854

This model signals that when accounting for time, positive increases in the money supply are associated with positive increases in the inflation rate. If we were to end our analysis here, we would fall into the same trap that has captured many Neoclassical economists. While this model shows that increases in the money supply are associated with an increase in the inflation

rate, this model does say anything about the causality of this relationship. A Neoclassical would describe this model as evidence that increases in the money supply lead to increases in the inflation rate, while a post-Keynesian would simply argue that the money is increasing *because of* the increase in the inflation rate. To truly comprehend this relationship we will need to use a more complicated statistical tool, a test for Granger causality.

This test relies on lagged values of the variables of interest, and their ability to predict future values of these same variables. Essentially, if the inflation rate Granger causes changes in the money supply, lagged values of the inflation rate should have some predictive power on future values of the money supply. In lay man's terms, we are going to take a bunch of past values of the inflation rate, and see if they can help us predict more recent values of the growth of the money supply. We will also do the opposite, which, if true, would suggest inflation is truly a product of increases in the MS.

First, we need to check for a few more common time-series traps. For one, there is a clear structural break in the inflation variable, that seems to take place around 1985. From an economic perspective, conflict theory proposes that labor force protections, such as high union membership, can lead to significant inflation due to the wage-price spiral (Cooper & Mishel 2015). We've already spoken about how this occurred in the 1970s, and about how the conservative revolution of the 1980s led to the destruction of many of these labor force protections and a corresponding decrease in the level of inflation. A structural break occurs when some major change occurs within a variable, so that the relationship between that variable and another completely changes at the point of the break. In this sense, it's likely that the change in politics led to a decrease in workers protections, which would certainly have an effect on the inflation rate. Furthermore, we know from our discussion about the Federal Reserve that this institution completely abandoned its policy of controlling the MS in the early 1980s. Essentially, we believe that many important determinants of the inflation rate changed during the early 80s, and we know that an important determinant of the money supply changed during the same period, so it would be improper to blindly test these relationships over the entire period without first considering the possibility of a structural break.

A Chow test was used to statistically analyze a potential structural break at t=20, or Q4 1985. To perform this test, a binary variable was created for all values t<20, and then this binary used to create interactive terms between the other variables. A regression including these new terms as well as these old terms revealed that all of the interactive terms were statistically significant. To be sure, a test of joint significance on all of the interactive terms revealed an F-stat of 655.22, which confirmed the suspicion of a structural break at time t.

```
. regress inflation M2  dt dtinflation dtM2
```

Source	SS	df	MS	Number of obs	=	136
				F(4, 131)	=	790.74
Model	69.5382529	4	17.3845632	Prob > F	=	0.0000
Residual	2.88004959	131	.021985111	R-squared	=	0.9602
				Adj R-squared	=	0.9590
Total	72.4183025	135	.53643187	Root MSE	=	.14827

inflation	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
M2	.0011602	.0000899	12.91	0.000	.0009825	.001338
dt	-.0605749	.0017582	-34.45	0.000	-.0640531	-.0570967
dtinflation	.0098775	.0003457	28.57	0.000	.0091936	.0105614
dtM2	-4.49e-06	4.26e-07	-10.54	0.000	-5.34e-06	-3.65e-06
_cons	1.321494	.1771052	7.46	0.000	.9711379	1.671851

```
. test dt dtinflation dtM2

( 1)  dt = 0
( 2)  dtinflation = 0
( 3)  dtM2 = 0

       F(  3,   131) =  655.22
            Prob > F =    0.0000
```

A further sensitivity test was performed before trimming the data to eliminate the structural break. A QLR, or Supremum Wald Test, was used to test the same hypothesis as the Chow test. This test comes pre-packaged in STATA, and it automatically tests for a structural break at every value of "t" within the specified bounds. The test revealed a likely structural break at t=20, with a p-value of .0000. These two tests were taken as evidence of the structural break, and new variables were created for t > 20 and used for the remainder of the calculations.

```
. estat sbsingle, ltrim(1) rtrim(89)
        1         2         3         4         5
.................

Test for a structural break: Unknown break date

                             Number of obs =       156

Full sample:                 1 - 156
Trimmed sample:              4 - 20
Estimated break date:        20
Ho: No structural break

     Test            Statistic          p-value
------------------------------------------------
     swald            35.3332           0.0000
------------------------------------------------
Exogenous variables:           inflation
Coefficients included in test: inflation _cons
```

After trimming the data, numerous Dicky-Fuller tests were performed to test for the presence of a unit root in either, or both, of our variables of interest. These tests revealed that both variables had unit roots. Now, there is still a great deal of debate within Economics literature regarding whether to control for unit roots in statistical tests such as this one. This analysis does not attempt to address this debate, but to acknowledge sensitivity to the issue, tests of Granger Causality were performed on two models- one that controlled for the unit root, and one that allowed the unit root to affect the data. While the following diagrams will only display the unit-root controlled model, the other model will be shown at the conclusion of this chapter. The inclusion or omission of the unit root did not lead to any serious difference between the results.

In order to control for the unit root, first differences were used for both of the variables. The variable "dinf" which represents the first difference of the inflation rate, or the rate of change from last period of inflation was created. Likewise, the variable "dM2" was created to display the first difference in the money supply, or the nominal increase in the MS from the last period.

The basic model for these tests can be seen below:

$$\hat{dinf} = \beta_0 + \beta_1 L_1 dinf + \beta_2 L_2 dinf + \beta_3 L_3 dinf + \beta_4 L_4 dinf + \beta_5 L_1 dM2 + \beta_6 L_2 dM2 + \beta_7 L_3 dM2 + \beta_8 L_4 dM2 + \beta_9 t + u_i$$

This model tests the effects of four lags of inflation as well as four lags of the money supply to predict a future value of the inflation rate. The only control variable in this regression

is “t”, which controls for a time trend. Several other models with different lengths of lags were tested, but the model with four lags of each variable resulted in the lowest AIC and BIC, so this model was used for the analysis. Furthermore, when using quarterly data, is it highly recommended that time series regressions incorporate at least a full cycle of data. The output of this regression can be seen below.

```
reg dinf L.dinf L2.dinf L3.dinf L4.dinf L.dM2 L2.dM2 L3.dM2 L4.dM2 t
```

Source	SS	df	MS	Number of obs	=	131
				F(9, 121)	=	8.63
Model	1.14469699	9	.127188554	Prob > F	=	0.0000
Residual	1.78259557	121	.014732195	R-squared	=	0.3910
				Adj R-squared	=	0.3457
Total	2.92729256	130	.022517635	Root MSE	=	.12138

dinf	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dinf						
L1.	.4479228	.0799748	5.60	0.000	.2895915	.606254
L2.	-.0189704	.0876287	-0.22	0.829	-.1924544	.1545136
L3.	.2418274	.088067	2.75	0.007	.0674756	.4161792
L4.	-.4728569	.0817932	-5.78	0.000	-.6347882	-.3109256
dM2						
L1.	.0001681	.0002608	0.64	0.520	-.0003481	.0006844
L2.	-.0002297	.000287	-0.80	0.425	-.000798	.0003386
L3.	.0002611	.0002854	0.91	0.362	-.0003039	.0008261
L4.	-.0002661	.0002575	-1.03	0.303	-.0007759	.0002436
t	.0003134	.0005688	0.55	0.583	-.0008127	.0014394
_cons	-.0314934	.0299959	-1.05	0.296	-.0908782	.0278915

A test of joint significance revealed that all lags of inflation were statistically significant in predicting the value of inflation, but this is not surprising. However, on the other hand, a test of joint significance on all of the money supply lags revealed that these four lags were *not* statistically significant in predicting the future value of inflation. Furthermore, when seen individually, none of the past values of the money supply were statistically significant in predicting the value of inflation. Furthermore, tests of joint significance on every combination of MS lags were performed, and none of them were statistically significant.

```
. test L1.dM2 L2.dM2 L3.dM2 L4.dM2

 ( 1)  L.dM2 = 0
 ( 2)  L2.dM2 = 0
 ( 3)  L3.dM2 = 0
 ( 4)  L4.dM2 = 0

       F(  4,   121) =    0.45
            Prob > F =    0.7734
```

To the left is the output from a test of joint significance on all of the lags of M2. A P value of .7734 is very far from significant, in fact, if we were to decrease our confidence level to even 25%, these results would still be insignificant. This proves to be serious evidence against the claim that increases in the MS lead to increases in the inflation rate.

Now we will take a look at the post-Keynesian theory. If changes in the money supply do not precipitate changes in the inflation rate, it is likely that changes in the inflation rate lead to automatic increases in the money supply. To test this hypothesis, we will use the similar, but inverse, model shown below.

$$\hat{dM2} = \beta_0 + \beta_1 L_1 dM2 + \beta_2 L_2 dM2 + \beta_3 L_3 dM2 + \beta_4 L_4 dM2 + \beta_5 L_1 dinf + \beta_6 L_2 dinf + \beta_7 L_3 dinf + \beta_8 L_4 dinf + \beta_9 t + u_i$$

This model regresses lagged values of the inflation rate and money supply onto a future value of the money supply. If the lagged values on the inflation rate are significant, it will add credence to the post-Keynesian theory, suggesting that increases in the inflation rate lead to automatic increases in the money supply. This theory is based on the idea of the endogenous money supply, which automatically responds to changes within the economy. The output from this regression can be seen below.

```
. reg dM2 L.dM2 L2.dM2 L3.dM2 L4.dM2 L.dinf L2.dinf L3.dinf L4.dinf t
```

Source	SS	df	MS	Number of obs	=	131
				F(9, 121)	=	29.91
Model	487669.653	9	54185.517	Prob > F	=	0.0000
Residual	219225.903	121	1811.78433	R-squared	=	0.6899
				Adj R-squared	=	0.6668
Total	706895.556	130	5437.65813	Root MSE	=	42.565

dM2	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
dM2						
L1.	.4421202	.0914465	4.83	0.000	.2610778	.6231626
L2.	-.1303404	.1006609	-1.29	0.198	-.3296253	.0689444
L3.	.0661681	.1000754	0.66	0.510	-.1319575	.2642936
L4.	-.0223376	.0902957	-0.25	0.805	-.2011018	.1564265
dinf						
L1.	35.49653	28.04612	1.27	0.208	-20.02817	91.02122
L2.	59.85852	30.73022	1.95	0.054	-.9800598	120.6971
L3.	-30.84247	30.88393	-1.00	0.320	-91.98537	30.30042
L4.	31.34315	28.68382	1.09	0.277	-25.44403	88.13034
t	.9464975	.199463	4.75	0.000	.551608	1.341387
_cons	-23.16883	10.51918	-2.20	0.030	-43.99432	-2.343339

As you can see, upon first glance, it does not appear that the lagged values of inflation have a significant causality upon values of the money supply. Individually these lagged variables are not statistically significant. However, a test of joint significance upon all four of these lags tells a different story.

```
test L1.dinf L2.dinf L3.dinf L4.dinf

( 1)  L.dinf = 0
( 2)  L2.dinf = 0
( 3)  L3.dinf = 0
( 4)  L4.dinf = 0

       F(  4,    121) =    2.57
            Prob > F =    0.0413
```

This test of joint significance reveals that all four lags of the inflation rate are jointly significant at a 95% confidence level. This suggests that the inflation rate *is* a determinant of the money supply, and it suggests that the endogenous money supply is in fact the reality. And while all four lags are significant, further tests of joint significance on different combinations of the lags revealed that the earlier lags were *more* significant.

```
. test L1.dinf L2.dinf

 ( 1)  L.dinf = 0
 ( 2)  L2.dinf = 0

       F(  2,   121) =    4.35
            Prob > F =    0.0150
```

The first two lags are significant at a 98% confidence level, while the first three lags are significant at a 96% confidence level. These results suggest that increases in inflation have a near immediate effect in the economy, with an increase in the rate of inflation leading to significant increases in the money supply in the next two quarters.

```
. test L1.dinf L2.dinf L3.dinf

 ( 1)  L.dinf = 0
 ( 2)  L2.dinf = 0
 ( 3)  L3.dinf = 0

       F(  3,   121) =    2.90
            Prob > F =    0.0378
```

These results reveal that there is statistical evidence that increases in the rate of inflation Granger Cause changes in the money supply. This adds significant supporting evidence to the Post-Keynesian theory of "reverse causality", with the money supply automatically responding to changes in the inflation rate.

As promised, the same regressions will be performed with variables that do not control for the unit root.

```
reg M2 L1.M2 L2.M2 L3.M2 L4.M2 L1.inf L2.inf L3.inf L4.inf t
```

Source	SS	df	MS	Number of obs	=	132
				F(9, 122)	>	99999.00
Model	1.7628e+09	9	195862518	Prob > F	=	0.0000
Residual	219865.181	122	1802.17361	R-squared	=	0.9999
				Adj R-squared	=	0.9999
Total	1.7630e+09	131	13457881.9	Root MSE	=	42.452

M2	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
M2						
L1.	1.432874	.090826	15.78	0.000	1.253075	1.612673
L2.	-.5430991	.1562449	-3.48	0.001	-.8524014	-.2337967
L3.	.1653397	.1586347	1.04	0.299	-.1486935	.4793729
L4.	-.0536279	.0909032	-0.59	0.556	-.2335798	.1263241
inf						
L1.	41.49567	29.27491	1.42	0.159	-16.45693	99.44827
L2.	22.91034	48.8542	0.47	0.640	-73.80143	119.6221
L3.	-83.77969	48.45145	-1.73	0.086	-179.6942	12.13479
L4.	25.93169	29.42408	0.88	0.380	-32.31621	84.17958
t	.882113	.5132871	1.72	0.088	-.1339902	1.898216
_cons	-44.26612	40.84375	-1.08	0.281	-125.1204	36.58816

This regression includes all of the variables in their normal forms, so that the inflation rate is simply the quarterly rate of inflation and the MS is the value of the total MS.

This regression shows lagged values of both variables regressed upon the money supply, and returns four individually insignificant inflation lags. However, on a test of joint significance, all four of these legs are just barely insignificant at the 95% confidence level, with a p-value of .0503. Other tests of joint significance reveal that combinations of the first two lags are statistically significant at a 98% confidence level, and the first three lags are jointly significant at a 97% confidence interval. To ensure that this discrepancy in the joint significance of the four inflation lags was not the result of the additional observation that was gained by omitting the first differences of these variables, a new variable

was created, “inflation_test”, that omitted the observations for “t”=21. The same regression was performed, to reveal another p-value of .0503 for the test of joint significance on the four inflation lags. This suggests that the loss of significance did not come from the dropped observation, but from the presence of a unit root. Overall, this slight loss of significance does not affect the validity of the results, and it suggests that, even while allowing for the unit root, there is statistically significant evidence that changes in the inflation rate Granger Cause changes in the money supply.

```
reg inf L1.inf L2.inf L3.inf L4.inf L1.M2 L2.M2 L3.M2 L4.M2 t
```

Source	SS	df	MS	Number of obs	=	132
				F(9, 122)	=	433.93
Model	66.3788282	9	7.37542535	Prob > F	=	0.0000
Residual	2.07359775	122	.016996703	R-squared	=	0.9697
				Adj R-squared	=	0.9675
Total	68.4524259	131	.522537602	Root MSE	=	.13037

inf	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inf						
L1.	1.335218	.0899041	14.85	0.000	1.157244	1.513192
L2.	-.3982491	.1500327	-2.65	0.009	-.6952538	-.1012444
L3.	.0810652	.1487959	0.54	0.587	-.213491	.3756215
L4.	-.1303625	.0903622	-1.44	0.152	-.3092435	.0485186
M2						
L1.	.0002745	.0002789	0.98	0.327	-.0002776	.0008267
L2.	-.000692	.0004798	-1.44	0.152	-.0016419	.0002578
L3.	.0005322	.0004872	1.09	0.277	-.0004322	.0014966
L4.	-.0000839	.0002792	-0.30	0.764	-.0006365	.0004688
t	-.0041379	.0015763	-2.63	0.010	-.0072583	-.0010174
_cons	.4310457	.1254324	3.44	0.001	.1827398	.6793515

Regressing the unit root model upon the inflation rate did not beget any novel results. All lags of the MS on the inflation rate, as well as all combinations of these lags in joint tests, were statistically insignificant. This further suggests that changes in the money supply do not Granger cause changes in the inflation rate.

It must here be noted that all of these models were tested for serial correlation within the error term. Manual tests of serial correlation were performed, in which the models’ residuals were collected and added into the regression. These tests revealed that the residuals were not statistically significant, either individually or jointly, and thus no serial correlation was present. Furthermore, Breusch-Godfrey tests were used to test for serial correlation in the error terms of each of the lagged values, and all of these tests revealed no statistically significant evidence of serial correlation. To add another layer of security, Durbin’s alternative tests were performed on each model, and these tests also yielded no evidence of serial correlation.

Conclusion:

Here we must toe the dangerous line of not belitting but also not lauding the results of these tests. It's important to note that these results are the product of an analysis of the inflation rate and money supply in only the period from Q4 1985 until Q4 2019. Furthermore, we must emphasize that saying that changes in the inflation rate Granger causes changes in the money supply *is not* the same as stating that the inflation rate causes the change in the money supply.

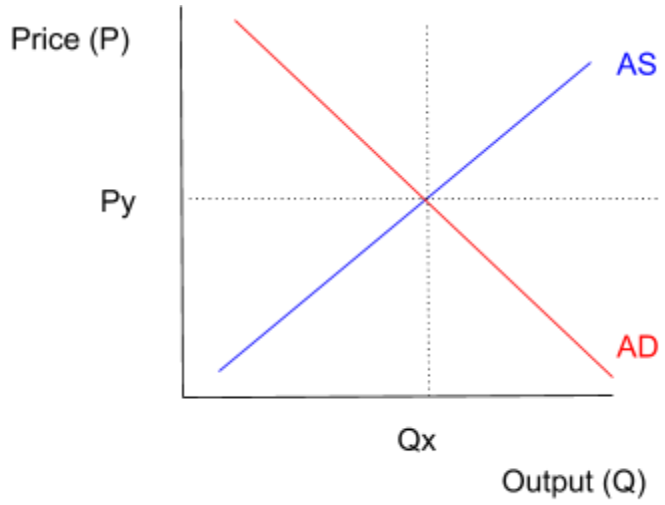
These tests of Granger Causality have only revealed that during the period sampled, knowing the past values of the inflation rate helped predict future values of the MS. Likewise, the tests revealed that knowing the past value of the MS did not provide any statistically

significant predictive power on the future rate of inflation. These results *suggest* that the MS responds to changes in the rate of inflation, but it must be emphasized that *they do not definitively prove this hypothesis*. Furthermore, while these results suggest that post-Keynesians have a better framework for analyzing inflation in the modern economy, *we cannot take these results as evidence of conflict theory*. While many economists have published convincing studies about inflation generated from labor market conflict, all that we can "conclude" from this specific test is that inflation during the given period was more than likely *not* the product of increases in the MS.

Appendix B: A Model for Analyzing Inflation During a Pandemic

As was mentioned in an earlier section, the normal tools for boosting an economy out of a recession may not be as helpful as we would hope during the current time of economic crisis. Essentially, this can be traced to the fact that the global economy is not currently facing the typical recession based demand crisis. Instead, our nation is facing both a blend of demand crisis, from individuals who have slowed their spending due to their uncertainties about the future, and a supply crisis, catalyzed by stay-at-home orders and the inability of many industries to function during the pandemic. MMT proposes that dramatic government spending[18] is the key to dealing with a typical demand crisis, but its literature is relatively light on dealing with a supply crisis. In a typical recession, this spending is translated into increased demand, which then leads to a corresponding increase in supply. However, the upwards mobility of our supply is currently limited, and it is entirely possible that this dramatic spending will lead to a boost in demand that cannot be matched by a corresponding increase in supply. If this is the case, we will surely experience inflation. While the information presented in Appendix A was purely empirical, the analysis presented here will be naturally theoretical, due to the lack of historical precedent or data for our current situation.

Below you'll see a crudely drawn graph of supply and demand. Please note that these graphs are drawn from the Neoclassical perspective, in which any increase in AD will lead to an increase in the price level. Later in the appendix we will look at these relationships from a PK perspective.

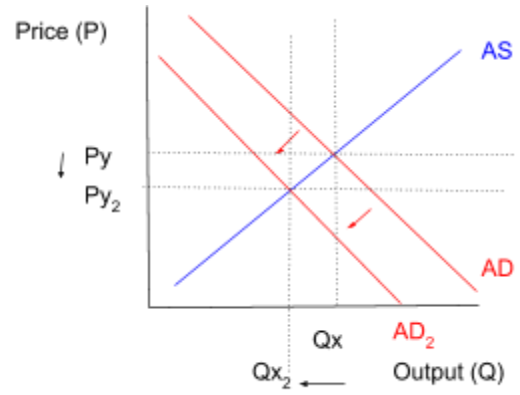


[18] Both through direct expenditure as well as the JG program.

The graph above shows an economy at equilibrium.[19] The Y-axis shows the price of output (P), and the X-axis shows the quantity of output produced. The blue line represents the aggregate supply curve, while the red line represents the aggregate demand curve. The level of AS is determined by many economic factors, including the prevailing wage, the state of technology, as well as labor productivity. AS represents the maximum capacity, or the productive potential of an economy. In a normal economy, while there are unemployed workers as well as unused productive resources, AS is able to increase in order to incorporate rises in AD.

Aggregate demand is composed of government expenditure, consumption, investment, and the net trade balance. If any one of these factors increases, AD will increase to display the increase in demand. The equilibrium price is given by Py and the quantity produced is given by Qx.

In the economy pictured above, the equilibrium level of output and price of output is given by the intersection of the AS and AD curves. This economy is well balanced. Now let's take a look at an economy in trouble. Let's say that for some reason, consumer faith drops. Maybe it was the news of a major bank filing for bankruptcy, or maybe the news of an upcoming nuclear war. For one reason or another, investors and consumers begin to lose faith that the economy is going to perform well in the future.

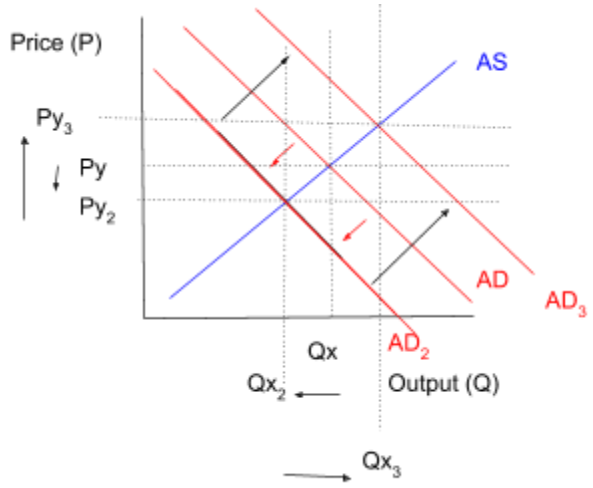


This situation has led to a decrease in demand, and the AD curve shifts down to AD_2. The new equilibrium output is represented by Qx_2 and the new price level is represented by Py_2. It's important to note, that due to this decrease in demand, the total quantity of output, as well as the price of output has fallen. This shows a struggling economy, as a lower quantity of output

[19] It's important to note that these 'equilibrium' graphs are presented to simplify the discussion as well as make it more accessible to those without a background in Post-Keynesian economics. Many Post-Keynesian economists refrain from using equilibrium graphs because they perceive the economy to be in a state of perpetual, and cyclical, motion.

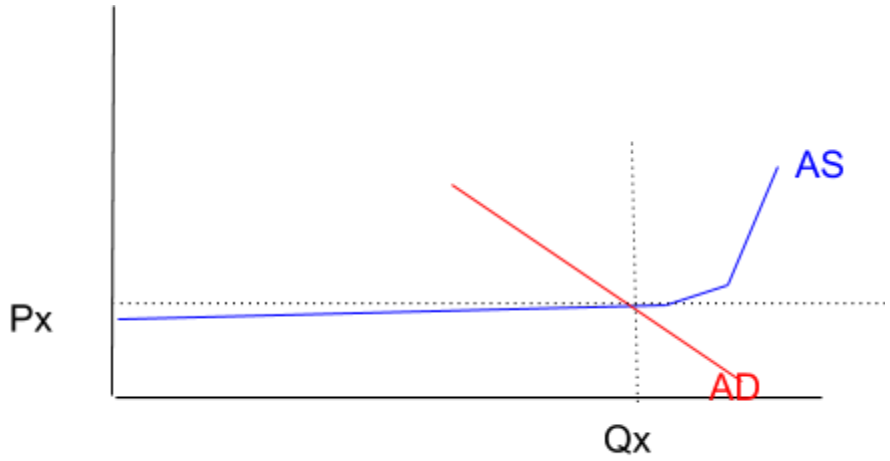
implies that workers are losing their jobs, which will lead to a larger decrease in consumption, and then another decrease in output. Essentially, if the government does not take any action in this economy, it's likely that a negative spiral will begin until supply and demand eventually fall upon a new, much smaller equilibrium level.

In this situation, an Austrian or Monetarist economist, like Hayek or Friedman, would argue that the government should allow the free market to run its course, and allow the bread lines to form and the economy to restructure itself. A Keynesian would argue that the previous statement is ludicrous, and demand that the government immediately take drastic steps to bolster aggregate demand by increasing its own expenditure. Neoclassical economists have adapted some Keynesian notions, such as the aforementioned belief, but they typically prefer to only make small changes to the economy. A Neoclassical would argue that stimulus is necessary, but that too large of a stimulus would immediately lead to inflation, as demand would outweigh the supply of the economy.



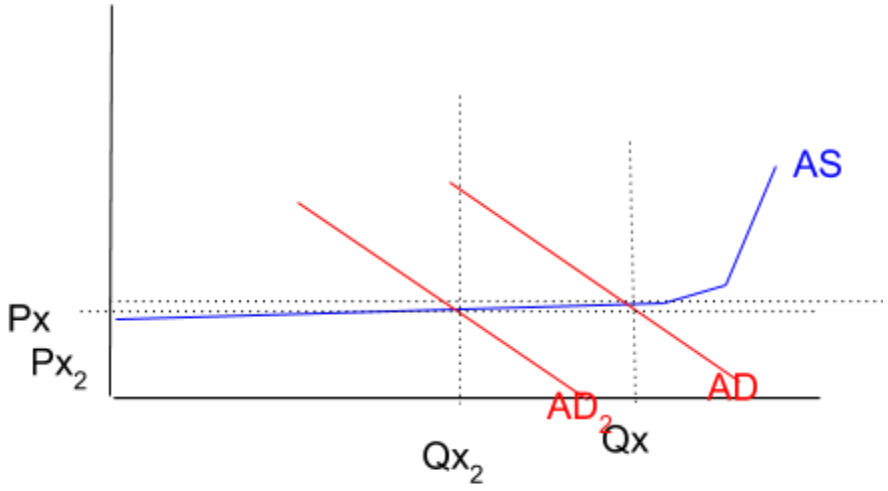
Here we see the effects of a stimulus package that was too large, and has boosted AD above its previous equilibrium volume. This represents the short run effect of increasing demand above the immediate productive potential of an economy. While a Monetarist and Neoclassical would argue that inflation would result, and that the economy would return to its previous equilibrium value within time, a MMTer would argue otherwise. A massive influx quickly may lead to some inflation due to supply bottlenecks, but this demand increase, if sustained will likely lead to an expansion of the economy and a corresponding increase in supply that will decrease prices.

Now, MMT proposes that the AS curve is of a different nature. While this doesn't lead to massive changes to the graph, it does imply that the economy can sustain more robust increases in AD without causing inflation.

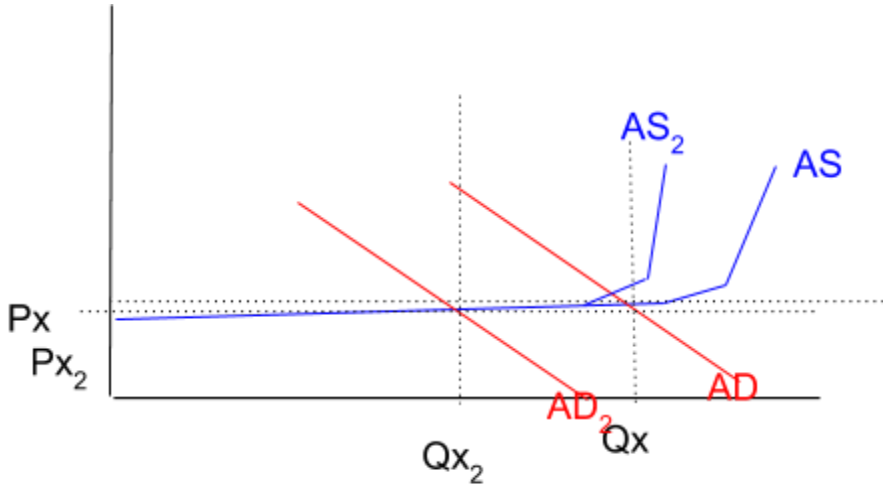


Here we see the PK conception of the AD and AS curves. Notice that the AS curve is much flatter for the majority of the graph, illustrating the PK belief that prices are relatively "sticky", and that the price level does not usually increase until the economy nears the point of full employment. Here, the point of "full employment" can be seen in the section of the AS curve that goes nearly vertical. This represents the upper bound of the economy's productive capability, and once we reach this point the price level begins to rise due to the excess costs, such as paying overtime wages and navigating supply bottlenecks, of increasing production further. This increase is first gradual, which can be seen in the portion of the AS curve that begins to steepen, and then intensifies in the final portion of the curve that becomes nearly vertical.

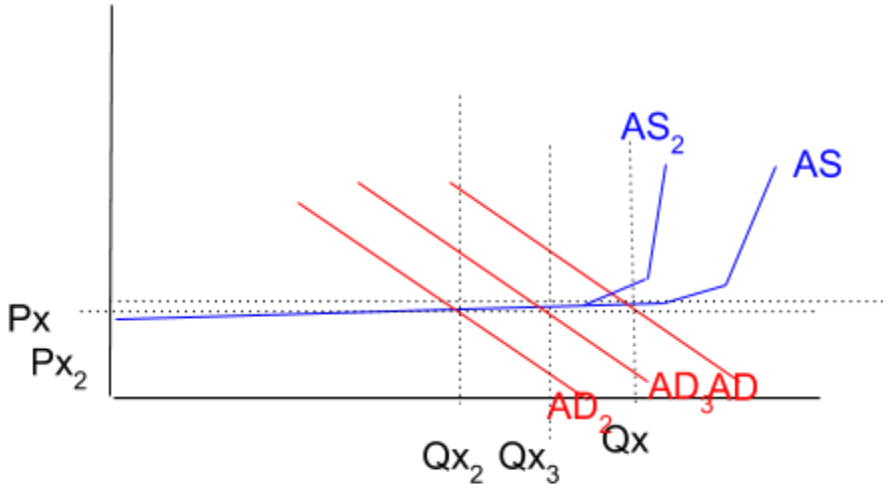
So how would the MMTers characterize the current crisis? Here we are approaching purely theoretical grounds, so take this analysis with a grain. We know that there was a supply shift due to the stay-at-home orders, but there was also a demand shift, due to the changes in consumption patterns. If we imagine that this demand shift occurred first, as the stock market began to fall in late February and individuals began to change their consumption patterns, the graph would be as follows.



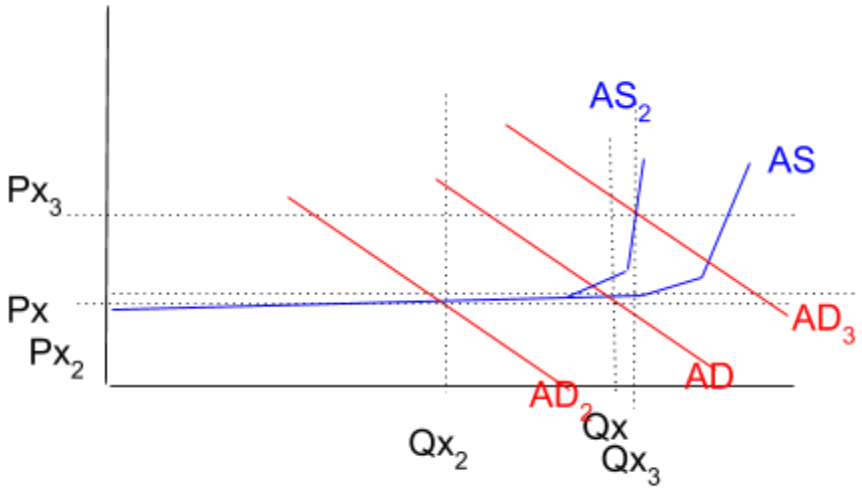
Here we see the effects of the demand shift. The price level has dropped slightly, and the overall level of output has decreased rather severely. This is consistent with empirical evidence, which shows that US GDP contracted 4.8%, and that the rate of inflation has decreased. While we haven't actually seen any real deflation yet, this could be explained by the automatic stabilizers that have kicked in. Essentially, as people file for unemployment and begin accepting other forms of government assistance, the level of demand will slightly increase. These effects will be shown on a later model. Now, we need to analyze the supply constraints.



Here we see that the maximum level of output in our nation has been significantly decreased due to the stay-at-home orders and business closures. This is reflected by the new AS curve, which shares the relatively flat section with our past AS curve, but shows the steepening effect of full employment at a much lower level of total output. This change in itself does not constitute any real threat to the economy, because of the low level of demand. However, where this could begin to cause problems as stimulus measures begin to take effect.



The AD_3 curve shows the effects of a stimulus package that brings the nation closer to the point of full employment without overwhelming the economy. By many measures this would be an apt plan for recovery. It is weak in the sense that it does not bring the nation all the way to the point of full employment, but it is strong in the fact that it does not cause inflation by pushing the economy past its productive potential. Output has increased, with only a negligible increase in the price level. The following graph will show the danger of an overzealous stimulus proposal.



Here we see the effects of a stimulus package (AD_3) that puts the economy far beyond the point of full employment. Price level has increased dramatically, with only a very minor increase in output.

Now, keep in mind that this is all theoretical. Trying to estimate the true values for these macroeconomic shifts go far beyond the scope of the undergraduate level. But we can still learn something from these theoretical depictions. For one, the basic principles of MMT still hold, although we must realize that our economy is experiencing a temporary decrease in productive potential. Aggressive expansionary fiscal policies should be attempted to bring the economy as close to possible to the point of full employment. Increases in unemployment and decreases in inflation are both indicators that our AD has not yet hit the point of full employment, and that we still have upwards mobility despite the supply shock.

Works Cited

Acharya, Bhargav. "US Treasury to Tap Wall Street Advisory Firms on Airline Aid: WSJ." Edited by Sam Holmes. *Channel News Asia*. Last modified April 2, 2020. https://www.channelnewsasia.com/news/business/us-treasury-to-tap-wall-street-advisory-firms-on-airline-aid--wsj-12600744.

Amadeo, Kimberly. "JGTRRA, The Jobs and Growth Tax Relief Reconciliation Act of 2003." *The Balance*. Last modified February 7, 2019. https://www.thebalance.com/jobs-and-growth-tax-relief-reconciliation-act-2003-3305769

The Associated Press. "Claims for Unemployment Benefits Remain at Record Levels." Edited by Rachel La Corte. *U.S. News and World Report*. Last modified April 16, 2020. Accessed April 19, 2020. https://www.usnews.com/news/best-states/washington/articles/2020-04-16/claims-for-unemployment-benefits-remain-at-record-levels.

Bernanke, Ben. "A Century of U.S. Central Banking: Goals, Frameworks, Accountability." Speech presented in Cambridge, MA, July 10, 2013. *Board of Governors of the Federal Reserve System*. Last modified July 10, 2013. Accessed April 15, 2020. https://www.federalreserve.gov/newsevents/speech/bernanke20130710a.htm.

Bernanke, Ben S. "Remarks on Milton Friedman's 90th Birthday." Speech presented at Conference to Honor Milton Friedman, University of Chicago, Chicago, IL, November 8, 2002. *The Federal Reserve Board*. Last modified November 8, 2002. https://www.federalreserve.gov/boarddocs/Speeches/2002/20021108/default.htm.

Board of Governors of the Federal Reserve System. "Federal Reserve Act." Federal Reserve. Last modified March 10, 2017. https://www.federalreserve.gov/aboutthefed/fract.htm.

Board of Governors of the Federal Reserve System. "Federal Reserve Actions to Support the Flow of Credit to Households and Businesses." Press release. March 15, 2020. Accessed April 14, 2020. https://www.federalreserve.gov/newsevents/pressreleases/monetary20200315b.htm.

Board of Governors of the Federal Reserve System. "Interest on Required Reserve Balances and Excess Balances." Policy Tools. May 1, 2020. https://www.federalreserve.gov/monetarypolicy/reqresbalances.htm.

Bratosin, Ramona Georgiana. "The Wage Negotiation in Times of Crisis." *Valahian Journal of Economic Studies* 3, no. 1 (2012): 37-42. https://search-proquest-com.peach.conncoll.edu/docview/1399684575/abstract/AA33D800132C49FEPQ/1?accountid=10255.

Calmes, Jackie. "House Passes Stimulus Plan With No G.O.P. Votes." *The New York Times*, January 28, 2009. https://www.nytimes.com/2009/01/29/us/politics/29obama.html.

Cantor, Eric. "Commentary: Big Risk in Obama's Economic Stimulus Plan." *CNN*. Last modified 2009. https://www.cnn.com/2009/POLITICS/01/16/cantor.stimulus/index.html.

Centers for Disease Control and Prevention. "Cases in the U.S." Centers for Disease Control and Prevention. Last modified May 4, 2020. https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html.

Cheng, Jeffrey, and David Wessel. "What Is the Repo Market, and Why Does It Matter?" *Brookings*. Last modified January 28, 2020. https://www.brookings.edu/blog/up-front/2020/01/28/what-is-the-repo-market-and-why-does-it-matter/.

Committee for a Responsible Federal Budget. "Q&A: Everything You Should Know about the Debt Ceiling." *Committee for a Responsible Federal Budget*. Last modified February 27, 2019. Accessed April 15, 2020. http://www.crfb.org/papers/qa-everything-you-should-know-about-debt-ceiling.

Cooper, David, and Lawrence Mishel. *The Erosion of Collective Bargaining Has Widened the Gap between Productivity and Pay*. Washington D.C.: Economic Policy Institute, 2015.

Devine, Author G. *A Guide to What's Wrong with Economics*. Edited by Edward Fullbrook. London: Anthem, 2004.

European Union. "Unemployment Statistics." *Eurostat*. Last modified February 2020. https://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment_statistics#Unemployment_in_the_EU_and_the_euro_area.

Farber, Henry, Daniel Herbst, Ilyana Kuziemoko, and Suresh Naidu. "Unions and Inequality over the Twentieth Century: New Evidence from Survey Data." Working paper, *National Bureau of Economic Research*, Cambridge, MA, May 2018. https://www.nber.org/papers/w24587.

Federal Reserve Bank of St. Louis. "10-Year Breakeven Inflation Rate." Infographic. *FRED*. March 1, 2020. https://fred.stlouisfed.org/series/T10YIE.

Fischer, Stanley. "Long-term Contracts, Rational Expectations, and the Optimal Money Supply Rule." Working paper, Massachusetts Institute of Economics, Cambridge, MA, October 1975. http://dspace.mit.edu/bitstream/handle/1721.1/63894/longtermcontract00fisc.pdf;jsessionid=854D84862B5415F62CD2A34CDF0D8AE8?sequence=1.

"Former House Majority Leader Eric Cantor on Reopening the Economy, Capitalism during Coronavirus and More." Video. *CNBC*. Posted by Andrew Ross Sorkin, April 24, 2020. https://www.cnbc.com/video/2020/04/24/former-house-majority-leader-eric-cantor-on-reopening-the-economy-capitalism-during-coronavirus-and-more.html.

Friedman, Benjamin M. "Lessons on Monetary Policy from the 1980s." *Journal of Economic Perspectives* 2, no. 3 (Summer 1988): 51-72.

Galbraith, James K. "Is the Federal Debt Unsustainable?" *Levy Institute of Economics*, 2011.

Gowa, Joanne. *Closing the Gold Window: Domestic Politics and the End of Bretton Woods*. Ithaca, NY: Cornell University Press, 2019.

Harvey, James. "Theories of Inflation." *Marxism Today*, January 1977, 24-27.

Harvey, P. *Securing the Right to Employment: Social Welfare Policy and the Unemployed in the United States*. Princeton, NJ: Princeton University Press, 1989.

Hong Kong Monetary Authority. *Central Banks' Exit Strategies from Quantitative Easing*. By Joseph Yam. August 13, 2009. Accessed April 14, 2020. http://hkma.gov.hk/eng/news-and-media/insight/2009/08/20090813/.

Horton, Emily. "The Legacy of the 2001 and 2003 'Bush' Tax Cuts." *Center on Budget and Policy Priorities*. Last modified October 23, 2017. https://www.cbpp.org/research/federal-tax/the-legacy-of-the-2001-and-2003-bush-tax-cuts#_ftnref8.

Hung, Ho-fung, and Daniel Thompson. "Money Supply, Class Power and Inflation: Monetarism Reassessed." *American Sociological Review* 81, no. 3 (June 2016): 447-46.

The Impact of Raising the Federal Minimum Wage to $12 by 2020 on Workers, Businesses, and the Economy: Hearings Before the Committee on Education (2016) (statement of David Cooper). https://www.epi.org/publication/the-impact-of-raising-the-federal-minimum-wage-to-12-by-2020-on-workers-businesses-and-the-economy-testimony-before-the-u-s-house-committee-on-education-and-the-workforce-member-forum/.

Innes, A. Mitchell. "The Credit Theory of Money." Excerpt from *The Banking and Law Journal* 31, no. 2 (December 1914): 151-68.

Innes, A. Mitchell. "What Is Money?" *Banking and Law Journal*, 30, no. 5 (May 1913): 377-408.

Kalecki, Michal. "Political Aspects of Full Employment." *The Political Quarterly*, 14, no. 4 (October 1943): 322-330.

Keynes, John Maynard. *The General Theory of Employment, Interest, and Money*. Amherst, NY: Prometheus Books, 1997.

Kovlak, D. L. "What You Should Know about Repos." *Management Accounting*, no. 67 (1986).

Krugman, Paul. "A Return of That 70's Show?" *The New York Times*, June 2, 2008. Accessed April 19, 2020. https://www.nytimes.com/2008/06/02/opinion/02krugman.html.

"Labor Force Participation Rate." Infographic. *FRED*. April 13, 2020. https://fred.stlouisfed.org/series/CIVPART.

Lerner, Abba P. "Functional Finance and the Federal Debt." *Social Research* 10, no. 1 (February/March 1943): 38-51.

———. "Money as a Creature of the State." *The American Economic Review* 37, no. 2 (May 1947): 312-17.

Marglin, Stephen. "What Do Bosses Do? The Origins and Functions of Hierarchy in Capitalist Production." *Review of Radical Political Economics* 6, no. 2 (1974): 60-112.

McGrath, Maggie. "63% Of Americans Don't Have Enough Savings To Cover A $500 Emergency." *Forbes*. Last modified January 6, 2016. Accessed April 15, 2020. https://www.forbes.com/sites/maggiemcgrath/2016/01/06/63-of-americans-dont-have-enough-savings-to-cover-a-500-emergency/#6ad2c2cb4e0d.

Meer, Jonathan, and Jeremy West. "The Effect of the Minimum Wage on Employment Dynamics." Working paper, *National Bureau of Economic Research*, Cambridge, MA, August 2013. http://www.nber.org/papers/w19262.

Merrill, Jeremy B. "Unemployment Shot up Quickly, but Be Careful How You Read That Chart." *Quartz*. Last modified March 26, 2020. https://qz.com/1826170/us-unemployment-claims-coronavirus-vs-the-2008-recession/.

Mitchell, William. "Job Guarantee." Bill Mitchell. http://www.billmitchell.org/Job_Guarantee.php.

Mitchell, William, and Joan Muysken. "Full Employment Abandoned." Unpublished manuscript, The University of Newcastle, Callaghan, NSW Australia, 2008.

Mitchell, William, L. Randall Wray, and Martin Watts. *Macroeconomics*. London, U.K.: Macmillan Education, 2019.

Monetary Policy and the State of the Economy: Hearings Before the Committee on Financial Services, 112th, First (2011) (statement of Ben Bernake). Accessed April 10, 2020. https://www.govinfo.gov/content/pkg/CHRG-112hhrg67941/pdf/CHRG-112hhrg67941.pdf.

Moore, Basil John. *Horizontalists and Verticalists: The Macroeconomics of Credit Money*. Cambridge, UK: Cambridge University Press, 1988.

Muth, John F. "Rational Expectation and the Theory of Price Movements." *Econometrica* 29, no. 3 (July 1961): 315-35. http://links.jstor.org/sici?sici=0012-9682%28196107%2929%3A3%3C315%3AREATTO%3E2.0.CO%3B2-G.

Organization for Economic Co-operation and Development. "Long-Term Government Bond Yields: 10-year: Main (Including Benchmark) for the United States." Infographic. *FRED*. April 17, 2020. Accessed April 17, 2020. https://fred.stlouisfed.org/series/IRLTLT01USM156N.

Palley, Thomas I. "The Backward Bending Phillips Curves: Competing Micro-Foundations and the Role of Conflict." *Economic Investigation* 68, no. 270 (October 2009): 13-36.

Pollin, Robert. "The 'Reserve Army of Labor' and the Natural Rate of Unemployment." *Review of Radical Political Economics*, September 1998.

"President Obama Interview." Video. CSPAN. May 22, 2009. Accessed April 10, 2020. https://www.c-span.org/video/?286541-4/president-obama-interview.

Rogers, Alex. "Eric Cantor's Huge Pay Day." *Time*, September 2, 2014. https://time.com/3257774/eric-cantor-moelis-new-job/.

Rosenberg, Sam, and Thomas E. Weisskopf. "A Conflict Theory Approach to Inflation in the Postwar U.S. Economy." *The American Economic Review* 71, no. 2 (May 1981): 42-47.

Rowthorn, Robert. "Conflict, Inflation, and Money." *Marxism Today*, 1977.

Saez, Emmanuel, and Gabriel Zucman. "Wealth Inequality in the United States since 1913." *The Quarterly Journal of Economics* 131, no. 2 (May 2016).

Schroeder, Peter. "Cantor: GOP Healthcare Reform Repeal Key to Getting Economy Back on Track." *The Hill*. Last modified January 1, 2011. https://thehill.com/homenews/house/136755-cantor-gop-effort-to-repeal-health-reform-key-to-getting-economy-back-on-track.

Sheard, Paul. *Repeat after Me: Banks Cannot and Do Not 'Lend Out' Reserves*. August 13, 2013. https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/programs/senior.fellows/2019-20%20fellows/BanksCannotLendOutReservesAug2013_%20(002).pdf.

Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Illustrated by Jim Manis. Electronic Classic Series. Pennsylvania State University, 2005. Accessed April 14, 2020. https://eet.pixel-online.org/files/etranslation/original/The%20Wealth%20of%20Nations.pdf.

Smith, Kelly Anne. "Your Guide To The Federal Stimulus Package." Forbes Magazine. Last modified March 27, 2020. https://www.forbes.com/sites/advisor/2020/03/27/your-guide-to-the-federal-stimulus-package/#56b6432a2711.

Snell, Kelsey. "What's inside the Senate's $2 Trillion Coronavirus Aid Package." National Public Radio. Last modified March 26, 2020. Accessed April 19, 2020. https://www.npr.org/2020/03/26/821457551/whats-inside-the-senate-s-2-trillion-coronavirus-aid-package.

Sorkin, Andrew Ross. "President Obama Weighs His Economic Legacy." *The New York Times Sunday Magazine*, May 1, 2016, 54. Accessed April 10, 2020. https://www.nytimes.com/2016/05/01/magazine/president-obama-weighs-his-economic-legacy.html.

Temin, Peter, and Paul Anthony Samuelson. *Economics: An Introductory Analysis*. 6th ed. Tokyo: McGraw-Hill Book Company, 1963.

Urban Institute & Brookings Institute. "What Did the 2008–10 Tax Stimulus Acts do?" *Tax Policy Center*. https://www.taxpolicycenter.org/briefing-book/what-did-2008-10-tax-stimulus-acts-do.

U.S. Bureau of Economic Analysis and U.S. Census Bureau. "Trade Balance: Goods and Services, Balance of Payments Basis (BOPGSTB)." Infographic. *FRED*. Accessed April 16, 2020. https://fred.stlouisfed.org/series/BOPGSTB.

U.S. Bureau of Labor Statistics. "Union Membership Rate 10.5 Percent in 2018, down from 20.1 Percent in 1983." *U.S. Bureau of Labor Statistics*. TED: The Economics Daily. Last modified January 25, 2019. Accessed April 2, 2020. https://www.bls.gov/opub/ted/2019/union-membership-rate-10-point-5-percent-in-2018-down-from-20-point-1-percent-in-1983.htm.

U.S. Bureau of Labor Statistics Office of Employment and Unemployment Statistics. *Union Membership in the United States*. By Megan Dunn and James Walker. September 2016. Accessed April 2, 2020. https://www.bls.gov/spotlight/2016/union-membership-in-the-united-states/pdf/union-membership-in-the-united-states.pdf.

U.S. Bureau of Labor Statistics. “Union Members — 2019.” *U.S. Bureau of Labor Statistics*. News Release. Publication no. USDL-20-0108. January 22, 2020. Accessed April 2, 2020. https://www.bls.gov/news.release/pdf/union2.pdf.

U.S. Department of the Treasury. "Daily Treasury Yield Curves." *US Department of the Treasury*. Last modified May 3, 2020.

https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield.

China Power. "Is It a Risk for America that China Owns over 1$ Trillion in U.S. Debt?" Infographic. 2019. Accessed April 17, 2020. https://chinapower.csis.org/us-debt/.

Wonnacott, Paul, and Richard D. Irwin. *Macroeconomics*. Homewood: R.D. Irwin, 1974.

Wray, L. Randall. *Modern Money Theory (2nd Edition)*. Basingstoke, ZULU: Palgrave Macmillan, 2015.

———. *Understanding Modern Money: The Key to Full Employment and Price Stability*. Northampton, MA: Edward Elgar, 1998.