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Teaching economics behind the global COVID-19 pandemic

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ABSTRACT

The global COVID-19 pandemic has upended our daily lives in unprecedented ways. Several extraordinary economic events have occurred and have brought some intriguing and important questions to everyone’s mind, creating an immersive teaching and learning environment. This paper shows how economic instructors may take advantage of this opportunity to educate their students with some key economic principles/theories using these COVID-19 related events. Integrating current events into economics instruction can stimulate students’ interests and inspire them to think about the economics behind each event. The relevance and relatedness of these events can also boost students’ motivation and engagement. This paper will foster reflection and discussion among economic instructors on how they may proactively connect what happens in the real world with what students learn in the classroom.

1. Introduction

The coronavirus pandemic has caused unprecedented disruption to everyone’s life. The virus has spread to almost every country, infecting more than 10 million people in the United States and 50 million around the world and it is still spreading at the time of this writing. Countries have taken significant measures to fight the spread of coronavirus. In the U.S., we have witnessed a series of extraordinary economic events. There were toilet paper shortages because of hoarding and profiteering. Schools, restaurants, and other businesses have been closed for an extended period of time. The U.S. government signed a massive $2 trillion stimulus package, the biggest economic stimulus in American history. The U.S. unemployment rate reached an all-time high since the great depression of 14.70% in April 2020. Some industries (such as airlines, oil, and sports) have taken the hardest hits while some others have thrived (online retailer, collaboration technology, and remote learning, for example) during the pandemic. And most astoundingly, the benchmark price for crude oil in the United States settled at negative $37.63 on April 20, 2020.

Why were there shortages of toilet paper? How can the price of crude oil be negative? What is the implication of the historically high unemployment rate? Where did the $2 trillion for the stimulus come from? Will this massive stimulus to the economy lead to inflation? Why does the U.S. government want to reopen businesses when there are still tens of thousands of confirmed cases each day? These are very intriguing economic questions that may linger in everyone’s mind. But the answers to these questions may not be readily available from the standard text or the Internet.

Economic events that occurred during the pandemic provide great teaching and learning opportunities for several reasons. First, these events are “tangible” and relevant. Everyone can “feel” the events and relate them to their daily lives. Relevance is important in the teaching and learning process because it is directly related to student engagement and motivation (Frymier and Schulman, 1995;
Second, these events are immersive\(^2\) in the sense that everyone hears and talks about them during the global COVID-19 pandemic. Everyone is directly or indirectly impacted by these events. Learning through immersion can enhance education by allowing multiple perspectives, situated learning, and transfer (Dede, 2009). Third, these events are rare and extreme. March et al. (1991) document that rare events attract more attention, are scrutinized more closely, and are more likely to be “richly” perceived in terms of their significance. Therefore, teaching economics out of these rare and extreme events will have a long-lasting effect on learning.

In this paper, we provide concise explanations to some important economic events that may have been haunting everyone during the pandemic: toilet paper shortage, negative crude oil price, $2 trillion stimulus package, unemployment hike, and economy reopening. Our explanations are by no means the only ways to connect these events with economic principles. Instead, we intend them to represent a starting point from which parents and economics instructors can address these types of questions to their children or students. Additionally, we hope this paper will foster reflection and discussion among economic instructors on how they may proactively connect what happens in the real world with what students learn in the classroom.

2. Toilet paper shortage

We will take two approaches to analyze the shortage of toilet paper that corresponded to the beginning of the pandemic. First, following the standard free-market approach, shortages are said to be caused by government intervention in the market through price controls. Second, using a more holistic approach, we examine herd behavior and particular supply chain conditions that lead to the shortage. It should be noted that these are not necessarily mutually exclusive explanations. We simply desire to provide two ways to connect these events to unique areas of economic theory.

We begin by examining the economic theory behind a shortage using a supply and demand (S&D) model. Fig. 1a and b illustrate the toilet paper market dynamics and tendencies. We will describe the changes in the toilet paper market through a step-by-step explanation: the initial pre-pandemic equilibrium price, the significant increase in demand, the decrease in supply, and finally we introduce the concept of a price ceiling.

Step 1: We begin the S&D analysis by establishing the initial equilibrium point which is represented by the intersection point between the pre-pandemic supply curve (S\(_1\)) and demand curve (D\(_1\)), denoted by price P\(_1\) and quantity Q\(_1\).

Step 2: After the pandemic hit, market demand for toilet paper increased drastically, shifting the demand curve from D\(_1\) to D\(_2\). While the increased demand for household toilet paper is well documented, less known is the decrease in demand for commercial toilet paper – that is, the toilet paper found in large rolls used by schools, airports, and numerous other businesses. While consumers were busy storing household toilet paper, businesses were busy canceling orders due to the widespread closures of public spaces.

Step 3: At the same time as the increase in demand, supply challenges in the toilet paper industry caused the supply curve to shift from S\(_1\) to S\(_2\) as illustrated in Fig. 1a. The decrease in supply can be linked to a negative shock due to producers facing challenges of maintaining their pre-pandemic levels of production, as well as the unbalanced demand for different types of toilet paper – much higher demand for household toilet paper, and lower demand for business use.

Step 4: Within this S&D approach, a shortage\(^3\) of a particular good occurs when the price of that good is below its market equilibrium level and quantity demanded (Q\(_D\)) is greater than quantity supplied (Q\(_S\)). This is because consumers are assumed to desire more of a good or service at lower prices (that is why the demand curve is downward sloping) and producers are assumed to supply a lower quantity to markets when the price is lower (this is why the supply curve is upward sloping). The question thus becomes: why isn’t the price of toilet paper at its higher equilibrium level (P\(_2\))? The answer: a price ceiling policy prevents the price from increases past an established upper limit.

Regulations that restrict prices from moving upward are called price ceilings. A price ceiling in Fig. 1b exists at P\(_c\); however, a price ceiling anywhere below P\(_2\) would also cause shortages because those prices correspond to situations in which quantity demand (Q\(_D\))

![Fig. 1. Supply and demand for toilet paper.](attachment:diagram.png)
remains greater than quantity supplied ($Q_S$). Why do governments regulate the movement of prices? Governments - at least in theory - seek the public’s best interest and are concerned by price gouging. Price gouging is defined as the increase in the price of a particular good or service beyond what is reasonable or fair. While government policy may be well-intentioned, the interference in the free movement of prices and the efficient functioning of the market causes the unintended consequence of shortages in the market.

An alternative explanation seeks answers beyond the S&D model of a competitive model and utilizes a less theoretical and more descriptive approach. Two general groups need to be considered: consumers and producers. We will examine each in turn.

As has been pointed out by behavioral economists, herd behavior is a phenomenon in which individuals follow the behavior of others without considering what may be best for themselves or the larger group (Banerjee, 1992). This applies to the events we have all heard about and may have personally engaged in during the early days of the pandemic. Newscasts and newspapers contained images of shoppers hauling multiple shopping carts with large packages of toilet paper. The very sight of these images has created a sense of urgency for others to follow suit. Social media memes soon followed along with stories being shared through news media sources. Many were conscious of the ridiculousness of such behavior and openly joked about it. This, however, did not stop these same people from going out to buy stockpiles of toilet paper themselves. The jokes stopped when they arrived at the store only to find the shelves empty. While the frustration with the limited supply of toilet paper caused grief for many, evidence suggests that this did not lead to an increased willingness to pay higher prices.

Herd behavior observed through consumers’ increased demand for toilet paper can be understood through game theory. A prisoner’s dilemma game works well to model the behavior of consumers facing decisions to hoard or not to hoard toilet paper. Amid the early pandemic panic purchases of toilet paper, consumers not only dealt with the consequences of their own choices, but also with the actions of others participating in the market. Simplified, consumers had the option to purchase more than they need - to hoard, or to purchase only what they need - not to hoard. The dilemma arises in that the cooperative action where all participants do not hoard, which ensures everyone has what they need, is undermined by the hoarding of even a single consumer. Even if a consumer understands that hoarding is not beneficial for the group, they may pursue this action because they believe others will also engage in hoarding. This, unfortunately, leads to widespread hoarding where most participants act as if others are going to hoard. These types of actions lead to not only difficulties for some to have enough toilet paper, but also significant waste caused by others with an excess stock of toilet paper.

Regarding the producers, the top companies that produce toilet paper are classified as multinational corporations with global supply chains. Three producers of toilet paper - Proctor and Gamble, Kimberly Clark Corp., and Georgia Pacific Consumer Product - hold a combined 78 percent of US market share. The challenges faced by global supply chains used by these companies explain the sudden decrease in toilet paper supply as illustrated by the shift of the supply curve from $S_1$ to $S_2$ in Fig. 1a above. As countries around the world began to systematically shut down cities and regional economic activity, production came to a crashing halt. With factories prevented from operating, due to both the real health risks as well as the directives from government bodies, down-stream production processes were unable to source their inputs for production. Later, once down-stream production processes were reopened, up-stream production processes were now under lock-down. These disruptions in the timing and operation of various parts of the supply chain significantly challenge the ability of companies to meet the surge in demand. Besides, the substantial decrease in international transportation added more difficulties for companies to provide “normal” quantities of toilet paper, let alone respond to the dramatic shift in the demands for different types of toilet paper.

![Fig. 2. Global supply and demand for crude oil.](image-url)
3. Negative crude oil price

The economy we are experiencing right now is unprecedented in the modern era. Negative interest rates, although strange, have been experienced in the European Union and Japan. Negative prices have now also occurred. The recent drop in US oil prices to a negative $37.63 shocked many. This shock is certainly warranted, being that this is an unprecedented occurrence. However, there indeed are logical and clear explanations for why this may occur under certain circumstances. We will begin by doing what economists do best, examine a model. Second, we will discuss some of the basic technicalities of oil production and why negative prices may make sense.

To understand the larger context, the S&D model is helpful. As officials began shutting economies down around the world in response to concerns over COVID-19, global oil demand experienced a dramatic decline. This is illustrated in Fig. 2 below by the shift in demand from D₁ to D₂. Not only did non-essential production facilities shut down, but the majority of workers found themselves not needing to drive to work or engage in non-essential travel. Between those who have been fortunate enough to work remotely and those not-so-fortunate who lost their jobs, most are staying home.

Simultaneous and unrelated to the sharp decline in demand, in early March of 2020, the breakdown of talks between the Organization for Petroleum Exporting Countries (OPEC) lead by Saudi Arabia and Russian, lead to a sharp increase in the global supply of crude oil. This is illustrated by the shift in the supply curve from S₁ to S₂. It is important to remember that the global oil industry is not a very competitive market and thus it may have some shortcomings in describing the market behavior specific to the oil industry. In introductory economics courses, OPEC is often used as an example of a cartel. Individual firms, often state-owned, certainly have the market power of which they frequently capitalize upon. It is within this context that we examined a sharp increase in the global supply of crude oil as Saudi Arabia and other OPEC nations attempted to drive the price of oil down and win the competition war against Russia. The drastic increase in overall supply in the crude oil market drove the price down drastically.

Now we understand that either the demand side or the supply side can cause a significant decrease in the market price, how can the price dip below zero into negative territory? A negative price implies that producers are willing to pay consumers to take their products. This is illustrated clearly in the S&D graph above by the portion of the supply curve S₂ that is below the $0 price line (also the Quantity axis). Negative oil prices would mean that oil suppliers pay someone else to take their oil, which does not sound right! Why not just turn off the pumps? This is where a very basic knowledge of oil-producing technology becomes helpful. Like many production processes, stopping and starting production is costly. US oil is predominantly extracted using hydraulic fracturing technology and requires the pressurized pumping of liquid into shale formations. This process is costly to stop and start and thus a crude oil producer would most likely take a short-term loss rather than having to pay for a costly stop and restart of their production. Even if oil producers have decided to stop production, with virtually all the potential storage at maximum capacity, the final barrels of oil extracted may not find a willing buyer without the added incentive of getting paid to take it off their hands.

4. $2 trillion stimulus package

On March 27, 2020, President Donald Trump signed the historic $2 trillion stimulus bill (CARES Act) to combat the economic impact of the coronavirus outbreak. Where did the money for the largest stimulus package in US history come from? In an interview on the show 60 min, former Federal Reserve chairman Ben Bernanke responded to the question “is that [stimulus] taxpayer money?” by stating “to lend to a bank, we simply use the computer to mark up the size of the account they have with the Fed.” That is, the stimulus money came from keystrokes in a federal computer system. This may seem overly simplistic, but this is how modern fiat money works. This notion of money creation through thin air is not without its critics. We will examine the basics of fiat money and

![Fig. 3. Funding of the stimulus programs.](#)
address concerns over potential inflation.

In a traditional introductory macroeconomics course, students are taught the circular flow model which illustrates, among other things, that the government receives financial inflows from two sources: taxes and government borrowing. In a time of crisis, a government will find it counterproductive to increase taxes because it would simply reduce the spending of those being taxed. The alternative, government borrowing, is the preferred method of financing government spending during an economic downturn. This is somewhat misleading. Where did the money come from in the first place? Due to the legal foundations of the US federal government and its ability to create sovereign currency, the government can pay now, and borrow and/or tax later. Decisions to change the rates of borrowing and taxing always happen as separate processes from the initial spending. Unlike households that are constrained in their spending by the amount they receive in income or can borrow, governments that issue sovereign currency are not financially constrained (Bell, 2000).

After the CARES Act was signed into law in late March of 2020, Congress directed the Federal Reserve to credit the specific accounts involved in the legislation on behalf of the US Treasury. The US Treasury’s account within the Federal Reserve is debited through these transactions. The federal government is not required to assign particular tax revenues or borrowing inflows to its spending. The US Treasury’s eventual issuance of treasury securities does not create additional government debt because their account was already debited through Congress’s directive to the Federal Reserve. The idea behind the issuance of these securities rather serves a monetary stabilization role to drain excess savings from the private sector - both from businesses and households.

Fig. 3 illustrates the connection between the US Congress, the Federal Reserve, the Treasury, primary dealers, and private investment. The US Congress has what is referred to as the “power of the purse.” This means that when Congress passes laws, they have the legal authority to fund those programs without consideration of changes in taxation or government-issued debt (Treasury securities). This is labeled as #1 below. As was stated above, the Federal Reserve, in its capacity as the account holder for the US federal government, is given the duty of crediting and debiting accounts as directed by Congress (#2). In its role as the monetary authority, the Federal Reserve can buy and sell securities (#3). However, expansionary monetary policies applied in times of contracting economic conditions will always be accompanied by net purchases of securities that will inject money into the financial sector. Private investment groups purchase large quantities of treasury securities during a financial crisis as they seek safe havens for their funds and the Federal Reserve routinely steps in to provide additional liquidity, or cash availability, with large purchases of securities from primary dealers (#4). In this way, the Federal Government, through the Federal Reserve, purchases its own debt that was issued by the

![Fig. 3](image1.png)

**Fig. 3** The federal government’s monetary operations: (1) power of purse, (2) Federal Reserve account holder, (3) purchase and sell securities, and (4) liquidity provision.

![Fig. 4](image2.png)

**Fig. 4.** Aggregate Supply and Aggregate Demand during the pandemic.

![Fig. 5](image3.png)

**Fig. 5.** The effect of stabilization policies.
Critics of the CARES Act argue that $2 trillion government spending will lead to high and damaging levels of inflation. Fears of a situation similar to Germany during the interwar period, Zimbabwe in 2007–2008, and the recent bout of hyperinflation in Venezuela have led these critics to suggest that government spending needs to be held back or accounted for through increases in tax revenue. These fears are often overstated and often accompanied by a general distrust of government involvement in economic activity. It is, however, prudent to not dismiss the possibility of inflation altogether. When an economy is near or at full capacity of its productive resources, continued government creation of money will likely cause inflation. This is not the type of economy we are facing during this pandemic induced economic crisis and the government stimulus being put forward through the CARES Act is not going to lead to dangerous levels of inflation.

In addition to the question of where stimulus money comes from, one may ask, why does the government need to provide stimulus to begin with? A commonly used macroeconomic model, the aggregate demand and supply model (AD/AS), helps illustrate why governments often pursue economic stimulus to combat recessions and other significant economic downturns.

During ‘normal’ economic times, a long-term equilibrium exists and is represented by the intersection between three curves: the short-run aggregate supply curve (SRAS), the aggregate demand curve (AD), and the long-run aggregate supply curve (LRAS), as illustrated in Fig. 4a below. The LRAS curve represents the long-run potential output in the economy. In other words, if all resources are being utilized at a sustainable level, an economy can produce at a quantity equal to where the LRAS curve lies along the Real Output axis (the x-axis). Assume that the US economy was at a point of long-run equilibrium before the pandemic7. When the economic effects of the pandemic hit the US economy in March of 2020, the economy experienced two sudden and simultaneous shocks: a negative supply shock and a negative demand shock. Fig. 4b depicts this situation. The result of this double negative shock was that economic output dropped sharply from Yf to Y1, and unemployment increased.

Attempting to curb the negative impact of the sudden drop in economic output, government bodies around the world - including the US - did their best to pass economic stabilization policies to bolster spending and inject liquidity into the economy. The CARES act is a form of a fiscal policy intended to provide funds for both households and businesses to incentivize spending. Monetary policy relates to government actions intended to support the financial system. This is most often accomplished through open market operations in which the Federal Reserve makes purchases of bonds so that financial institutions have access to greater quantities of credit. These two forms of stabilization policy, fiscal and monetary, are illustrated in the AD/AS model by a rightward shift in the AD curve, AD1 to AD2. Fig. 4c demonstrates that the outcome of these policies is a higher level of real output, Y1 to Y2, and the potential of a higher price level, PL1 to PL2. While there is a theoretical possibility of such stabilization policies resulting in a higher price level, most macroeconomists agree that the policies put into place during this pandemic crisis will not result in a higher price level in the near future.

5. Unemployment rate hike

The unemployment rate was near a record low at just 3.5 % in February 2020. These low unemployment rates had not been seen in the United States since the late 1960s. In the last two weeks of March, this exceptional employment picture was flipped on its head. In the week before Saturday, March 21, 3.3 million individuals filed initial unemployment claims. Almost 7 million individuals filed initial claims in the following week. Weekly initial claims remained above 3 million per week through the end of April. The unemployment rate rose from historic lows in February to historic highs in April resting at 14.7 %. While this is the highest official unemployment rate on record, unofficial measures of unemployment were far worse during the Great Depression.

In the fall of 2020 the unemployment picture improved quite significantly from the worst point in April, but still remains at an unhealthy level of 7.9 % in September. These numbers may present a better picture than what people are experiencing in reality. The September 2020 “Employment Situation Summary” published by the Bureau of Labor Statistics (BLS) stated that 4.5 million individuals were prevented from joining the labor force due to the pandemic. These people who are not measured in the labor force are not included in the official unemployment rate of 7.9 %. While these measures are interesting in their own right, in this section, we discuss the drivers of these historic numbers.

A key driver of this sudden spike in unemployment can be boiled down to the simple principle that one person’s spending is another person’s income (Krugman and Wells, 2018). This basic principle is a fundamental concept in economics. Because much of the global population was forced to engage in social distancing measures and remain at home due to health concerns around COVID-19, spending in many industries stopped. According to the BLS, the leisure and hospitality sector was the hardest hit industry, while several other individual industries were also severely impacted: air transportation, motion picture and sound recording, and motor vehicle and parts production. These are the businesses that require in-person consumption of their goods and services. As spending on these various goods and services abruptly and significantly dropped, so did the cash flows for the businesses that employ millions of workers.

The pandemic we currently find ourselves in illustrates the importance of how consumers access markets. Business models that were already built on remote product delivery (Amazon for example) have thrived during this economic crisis, while those businesses that depend on in-person exchanges have struggled the most. Businesses require cash flows to survive because the workers who keep those businesses functioning require income to simply subsist in a modern economy. Thus, when consumers stop spending money at businesses, those businesses cannot sustain their levels of employment.

In addition to the important principle regarding the fundamental relationship between spending and income, this pandemic has presented some unique conditions that have perpetuated the high level of unemployment. Directly related to the topic above, the CARES Act included special unemployment benefit programs that were designed to provide unique assistance to those facing unemployment during the pandemic. Three programs provided assistance in distinct ways. First, the Federal Pandemic Unemployment Compensation (FPUC) program aimed to provide the receiving unemployment benefits an additional $600 each week. The pandemic
Energy Unemployment Compensation (PEUC) program provided access to additional federal unemployment benefits for those who have exhausted their existing state benefits. Finally, the Pandemic Unemployment Assistance (PUA) program provided benefits to those who normally are illegible for benefits; those who are self-employed, contract workers, or gig workers.

The enhanced unemployment benefits may create perverse incentives and cause unintended consequences. As stated above, the FPUC program provided an additional $600 in unemployment benefits above those benefits provided by individual states, which can be equal to some percentage of their past pay up to a weekly maximum. Imagine a person was making $500 per week before they were unemployed. If that person became unemployed and was receiving benefits, they would receive some fraction, for example, 1/3 of the $500 per week to equal $167 in benefits from their state. Being that they are making far less than they were making while employed, there is a strong incentive to find employment again. With the FPUC program, the individual will be compensated with $767 per week ($167 from their states plus $600 from the FPUC program) in unemployment benefits. One can easily see that this individual is making more from unemployment benefits than they were making at their job. Thus, there is a strong incentive for them to continue receiving unemployment than to find a job.

The underlying relationship between spending and income means that when an economy experiences a significant drop in overall spending, there will almost inevitably be a drop in income and employment. This COVID-19 pandemic has produced a unique situation in that spending plummeted at a rate not seen in modern times. In addition, the CARES Act enhanced unemployment benefits created an incentive for those receiving unemployment to remain unemployed rather than take a job for the previous pay.

6. Reopening the economy

The question as to why the government would want to reopen the economy as cases of COVID-19 still remain at high levels is far from straightforward and will require different responses as the current situation evolves. We will respond here building on the primary economic principles that may be taught in an introductory economics course. However, we should remember that the pandemic-induced recession we are experiencing is a unique situation that will likely test the limits of a standard set of simple economic principles.

Standard approaches to economics typically promote a free market stance suggesting that if markets can provide optimal and efficient outcomes for society, then government involvement is not necessary or warranted. The caveat is thus, if markets do not lead to optimal or efficient outcomes, governments may intervene to promote societies’ welfare. In this particular situation, it is unknown exactly what markets can achieve on their own or what government intervention may look like. In short, this is a recession unlike any in modern history.

Recall the principle, as already discussed above, that one person’s spending is another person’s income (Krugman and Wells, 2018). As the US federal government seeks a remedy to this economic crisis as fast as possible, it is advocating for a widespread economic exchange to resume so that spending rebounds and thus keeps as many people employed as possible. This desire to seek an economic recovery is balanced with the ever-evolving responsibility to maintain a healthy public and functional healthcare system. While technology is such that many things can be done remotely, a significant number of services are still only available in the context of close physical proximity. From restaurants to hair salons, many of the services people depend upon are facing government ordered restrictions. While some argue these government-ordered closures are the primary roadblock to returning to economic normality, there are of course serious and direct health concerns as a result of the pandemic that limit peoples’ willingness to seek these services.

It should be stated here that there are significant differences in opinion regarding the on-going government-ordered closures. The current partisan political environment certainly sheds much light on how eager states are to reopen their economies. A recent article in the New York Times shows that during the early months of the pandemic the largest infection rates and death tolls fell upon primarily urban areas with higher population density (Medina and Gebeloff, 2020). These same locations correlate strongly with left-leaning political ideology and the Democratic Party. Thus, it may not be much of a surprise that Democratic leaders have advocated for a slower reopening than their Republican counterparts. Politicians are certainly responsive to the incentive of serving further terms in office. The infections concentrating in urban, predominantly Democratic, locations simply compound the ideological tendency to favor a heavier government intervention than those on the right of the ideological spectrum. The infection and death rates increased in rural areas relative to urban areas in the late summer and fall of 2020, but it has not changed the general attitude toward reopening economies held by politicians on either side of the political spectrum.

The general partisan approach to reopening has also been impacted by the special employment programs initiated by the CARES Act as was discussed in the section above. The Republicans, favoring a swift reopening, did not vote in favor of extending the special unemployment benefits while the Democrats continued to push for an extension of those programs in the late summer of 2020. In line with a general hands-off approach, Republicans believe the extended benefits would continue to hamper the economic progress and disincentivize people returning to work.

There are differences of opinion when it comes to the risks some are willing to take to reopen the economy. These opinions reflect the differences in relative values of economic well-being versus public health and safety. The differences in values illustrate the classic and age-old principle of opportunity cost. While we all can value both economic performance and public health, to prioritize one over the other certainly has an opportunity cost. Evidence from the later months of 2020 has shown that as states in the United States as well as some locations in Europe begin a phased reopening, cases of COVID-19 have surged. Many states have resorted back to more stringent measures to control the infection rates including the closure of restaurants and bars and required face coverings. A few states, however, have maintained their reopening processes despite a surge in cases. The trade-off between the freedom of economic exchange and public health continues to be an important lesson not only for public leaders, but for every person living through this historic period.
7. Discussion

The world is different now than it was before the COVID-19 pandemic. Since the outbreak of the pandemic, several extraordinary events have occurred. Most people, especially young students, have never seen such dramatic changes in every facet of their daily lives due to these events. Since the price of oil, toilet paper, the unemployment rate, stimulus checks, and economic reopening relate to everyone, and there are important economic principles and theories behind each of these hot topics, they serve as great teaching and learning tools in economics.

Whether we are impacted by the sudden lack of toilet paper due to the herd behavior and the sudden uptick in demand or are enjoying the exceptionally low prices of gas due to oil prices plummeting, these are memorable economic times. As the health crisis continues and pushes the level of economic uncertainty into uncharted territory, unemployment will negatively impact many more millions. These impacts ripple through the economy as spending drops. The consequences of a drop in spending are no secret to those who have studied the economy. Governments around the world have moved to provide countercyclical stimulus during this sudden downturn. The U.S. government has allocated more than $2 trillion to support the economy during this severe recession. Governments will need to be prepared to spend even more if economies are forced to remain in lockdown. The decision to reopen parts of the economy is difficult and will come with a cost. Some will be willing to pay that cost in terms of increased health risk, while others will seek a more cautious path forward.

Mankiw (2019) urges economics instructors to keep reminding students that economic theories and models are abstractions of the real world. The COVID-19 pandemic is the real world now. Economics instructors (and parents) need to be prepared to connect economic theories and models to the extraordinary events observed during the COVID-19 era.

8. Conclusion

In this note we have shared some teaching thoughts on the economics behind the coronavirus pandemic and answered those related questions. Parents can learn from this paper and be prepared to discuss similar questions that may be raised by their children. Instructors who teach economics can use each of the economic events that happened during the global pandemic to explain relevant economic principles and theories, or assign each question as a case study for students to discuss and present.

The benefits of using current economic events to teach economics are threefold. First, these events are relevant and closely related to each of us. Relevance and relatedness are essential in the learning process as they can boost student engagement and motivation. Second, these events impact everyone directly or indirectly, providing an immersive learning experience for students. In a sense, we are all participants in an economic environment created by the COVID-19 pandemic. This natural immersive learning environment can stimulate students’ interests and inspire them to think about the economics behind each event. Lastly, these events are rare and extreme. Rare and extreme events are perceived to be more significant and can draw more attention, making learning more effective and long-lasting.

This paper also serves as an example of finding ways to connect what students learn in the classroom with what happens in the real world. We encourage economics instructors to ponder current and relevant events, and link them with economic principles and theories they teach. This will engage students more and the relevance of their studies will become clearer, which in turn leads to better learning outcomes.

Notes

1 According to the World Health Organization (WHO), global coronavirus cases exceeded 50 million on Nov. 9, 2020, with more than 1.25 million deaths. It took six months to hit 10 million cases since January. It took only four months to quintuple to 50 million cases. Data source: https://covid19.who.int.
2 Immersive learning refers to an educational approach that teaches by placing a student directly in an environment. It has been successfully used by language educators. The benefits of language immersion education include academic achievement, language and literacy development, and cognitive skills. Shapley et al. (2011) find that technology immersion has a positive effect on student’s technology proficiency. Business programs such as Harvard Business School offer immersion programs or courses. The global COVID-19 pandemic provides a natural environment that everyone is deeply immersed in. Economics educators should take advantage of the economic events caused by the pandemic to teach relevant economic theories and principles, and reap some of the benefits of immersion learning.
3 The term ‘shortage’ within the S&D model refers to a specific condition of disequilibrium in which quantity demanded is greater than quantity supplied and implies that the price of the particular good or service is below its equilibrium level. The specificity of this term within the model may lead to confusion due to the wide colloquial use of the term to refer to specific supply side conditions. These production side availability issues are better referred to as supply shocks within the model.
4 State of the Industry Almanac (2017, April) Grocery Headquarters, V.83 No. 4
5 It is actually the price of crude oil futures contracts that dropped below zero. Using crude oil price to explain makes it easier for students to comprehend without losing the big picture. If students understand what a futures contract is, then instructors can discuss crude oil futures directly here.
6 Ben Bernanke discusses recession, financial rescues, and recovery in CBS “60 min” show on March 12, 2009. The video of the interview can be found at https://www.cbsnews.com/news/ben-bernanke-greatest-challenge/2/.
7 The US economy was most likely at a point of expansion before the COVID-19 pandemic. This would be illustrated by a slight inflationary gap in which the short-run equilibrium (the intersection point between SRAS and AD curves) is beyond (to the right) of the sustainable output level of the LRAS curve.

8 Data are from the Bureau of Labor Statistics (BLS): Seasonally adjusted unemployment rate: https://beta.bls.gov/dataViewer/view/timeseries/LNS14000000. Seasonally adjusted civilian labor force level: https://beta.bls.gov/dataViewer/view/timeseries/LNS11000000. Seasonally adjusted unemployment level: https://beta.bls.gov/dataViewer/view/timeseries/LNS13000000.

CRediT authorship contribution statement

Chengping Zhang: Conceptualization, Methodology, Validation, Investigation, Writing - original draft, Writing - review & editing, Supervision. Jonathan Ramse: Methodology, Validation, Investigation, Writing - original draft, Writing - review & editing, Visualization.

Appendix A. Recommended class activities

To facilitate class discussions on the economics behind the pandemic-related events, instructors can either ask students to discuss in groups of 3–4 students or assign each event as a case study and encourage students to dig out the economic principles and theories behind the events on their own first. Students then share their findings and thoughts in class. Finally, instructors summarize the key points and provide additional insights when needed. The following are some recommended questions to stimulate students’ thinking around each of these economic events during the pandemic.

Toilet paper shortage

1 Discuss why there was a toilet paper shortage at the beginning of the COVID-19 pandemic.
2 Sketch the supply and demand curves and see how they may have shifted when the shortage happened.
3 Think out of the “supply and demand” box. Are there any other possible explanations such as government intervention and human behavior?
4 When people see others hoard toilet paper, what should they do? Use game theory to analyze the best choices for consumers.

Negative crude oil price

1 Can the price of a commodity be negative? Why or why not?
2 What is special about crude oil as a commodity? Can crude oil prices be negative? If yes, under what condition?
3 Try to explain the negative crude oil price using the traditional supply and demand model. Does it work? What adjustment do we need to make for it to work?

$2 trillion stimulus package

1 How is money created? Where did the $2 trillion come from?
2 Why did the government need to provide the stimulus?
3 Sketch aggregate supply/aggregate demand (AS/AD) curves for the pre-pandemic economy. How do the AS/AD curves shift due to the pandemic? Due to the CARES Act?
4 Discuss how stabilization policies may help during an economic downturn.
5 What are some possible long-term effects of the CARES Act?

Unemployment rate hike

1 How is the unemployment rate calculated? What can cause the unemployment rate to increase or decrease?
2 Where can you find the US unemployment rate information? Find the monthly unemployment rates in the US from January 2019 to October 2020 and comment on the trend if there is any.
3 What problems can high unemployment rates bring to the society and the economy?
4 What recommendations would you make to fight the high employment rate hike due to the pandemic?

Reopening the Economy

1 Is reopening the economy a good idea when there is still a large number of confirmed coronavirus cases each day in the US?
2 What are the pros and cons of reopening the US economy during this highly uncertain period?
3 What are the potential consequences if the economy is shut down for an extended period of time?
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