



ECONOMICS IN ONE VIRUS: CHAPTER 9

# Why couldn't I get a COVID-19 test in February and March 2020?

GRADE LEVEL: 9-12 (ADVANCED)

TIME ESTIMATE: 60-90 MINUTES

## Lesson Overview

Students will participate in a warm-up in which regulatory policies would directly affect their lives. After exploring important vocabulary, students will investigate the impact of regulatory policies on the availability and cost of COVID-19 tests early in the pandemic. Students will analyze the costs and benefits of regulatory policies. Students will evaluate regulatory changes that occurred as a response to the COVID-19 pandemic. Finally, students will apply their knowledge of regulatory costs and benefits of deregulation to a policy.



## Objectives

- Students will be able to explain the effect of regulations on innovation and entrepreneurship.
- Students will be able to evaluate government regulations.

## Vocabulary

- Deregulation
- Innovation
- Entrepreneurship
- Regulation

## Materials

- Warm-Up Hypothetical Part 1
- Signs for the wall that read “Speed” and “Accuracy”
- Warm-Up Hypothetical Part 2
- Vocabulary preview
- Vocabulary slips of paper
- Regulatory Reading #1
- Pencils
- Invention Template Form A
- Invention Template Form B
- Regulatory Reading #2
- Deregulation Reading Exit Ticket

## Pework (if applicable)

Students should have an understanding of cost benefit analysis, but it is not entirely necessary. Place a sign that read “speed” on one side of the room. Place a sign that reads “Accuracy” on the opposite side of the room.

## Warm-Up

- Distribute Warm-Up Part 1
- Tell students that
  - Colleges are concerned about admissions after changes to federal law regarding admissions policies. Many of the best and most competitive colleges want to reinstate mandatory standardized scores with required writing sections. The company that publishes and scores the tests, concerned about the time and cost associated with scoring of written sections of the test, has been investigating artificial intelligence solutions that could score written responses in a fraction of the time it takes human scorers. According to the company's own research, the accuracy rate of human scorers is 87% while the accuracy of the algorithm is closer to 75%. As a test taker is speed or accuracy more important to you?
- i. Take a poll of the class

- ii. Have students stand along a gradient according to how strongly they feel about the two binary options
  - iii. Have a few students report out about why they are standing where they are standing.
  - iv. Remind students that the quick option is also the less costly option.
- **Distribute Warm-Up Hypothetical Part 2**
  - **Discuss Hypothetical policy**
    - Colleges, teachers, and scorers are concerned about the impact of artificial intelligence on the labor market. Colleges want standardized test scores to be as accurate as possible. Teachers and scorers want to continue to be paid to score tests. They convince Congress to pass a law that states that all standardized tests will be scored by two human scorers before scores can be reported. This will improve accuracy to 90%. As a result, scores are going to take longer to be reported and tests are going to cost more. Do you agree with this policy? Why or why not?
      - i. Have students share out their responses
      - ii. Was the addition of the cost an important feature?
      - iii. Who should be making these kinds of decisions?

## **Lesson Activities**

- **Vocabulary preview**
  - Talk through examples with students and allow them to copy yours or to come up with their own. They may not have the background knowledge to generate their own examples.
  - **Deregulation**
    - i. The removal of regulations or restrictions, especially in a particular industry
    - ii. Give an example of deregulation.
      - a. Deregulation in the banking industry allowed banks to lend money to more people than they would have under the previous regulations.
      - b. Deregulation of the telecommunications industry drove down prices for long-distance telephone services.
  - **Entrepreneurship**
    - i. The process of discovering new ways of managing, organizing, or combining resources or of developing new products or services in the pursuit of profit within markets
    - ii. Give an example of entrepreneurship.
      - a. Oppenheimer helped develop nuclear technology.

- b. Ruth Handler created a doll named after her daughter Barbara, and that doll is incredibly popular
  - Innovation
    - i. The process of devising a new idea, product, or way of doing things
    - ii. Give an example of an innovation.
      - a. Android phones were the first to use swipe to make typing faster.
      - b. Problems with mini USBs led to the development of C-type charging cables.
      - c. Most new cars now come with backup cameras to prevent accidents in parking lots.
  - Regulation
    - i. A rule or directive made and maintained by an authority
    - ii. Give an example of regulation.
      - a. California passed new regulations about raising pigs.
      - b. According to regulations, all imported juices must be blended with Florida orange juice.
      - c. According to regulations, 10 percent of gasoline in the United States must be made up of corn ethanol.
- Have students draw pictures of symbols that will help them remember each word.
- Optional Extension: Slips of Paper
  - Print these words and cut them into strips. Fold each strip in half. Have two students volunteer to improvise a scene. Give each student all four words, but keep the strips folded up and in random order. Ask the rest of the class for a location or for a relationship between two people. The two students should start a scene based on that suggestion. After about three lines of dialogue for each student, they should start pulling the words out one by one and incorporate them into the scene by justifying their use. Each student should only use one word in a given turn of dialogue.
  - The point of this is that the students have to know the meanings of the words in order to justify their usage in the scene.
  - For fun and to keep the scene going longer, you can add random words to other slips of paper.
- Reading # 1
- Distribute Reading #1.
- Have students read carefully and answer questions.
- Read the Excerpt A
  - When Secretary of Health and Human Services Alex Azar declared a public health emergency on January 31, in theory he gave the FDA the flexibility to speed up diagnostic tests. But in practice the regulations they adopted for universities, hospitals, and research labs made it more difficult to deliver a viable test.

- Following the emergency declaration, these labs had to go through a rigorous process of receiving Emergency Use Authorization for any tests they developed. These polymerase chain reaction tests were well known, and labs would ordinarily have been able to use them without FDA approval, provided they were for non-commercial use. Yet, the FDA explicitly introduced a higher hurdle than normal during the pandemic, because of the supposed higher risk associated with faulty testing.
  - i. According to the text, how did the FDA make it more difficult for COVID-19 tests to enter the market?
    - a. They required an Emergency Use Authorization
    - b. They established higher hurdles than the ones that existed for other tests.
  - i. Why do you think the FDA made it more difficult for COVID-19 tests to enter the market? Explain your answer with reasoning. Be prepared to report out.
- According to both excerpts, how did FDA regulations affect the development and use of COVID-19 tests? Provide evidence from the text.
  - a. Answers will vary but may include
    - They were worried companies would sell faulty tests.
    - They were worried that the tests would not give consumers accurate information.
    - They were worried that consumers would get scammed.
- Discuss answer with students and try to support the idea that the FDA was right to keep consumers safe. This will set up the next section of the lesson.

### • Simulation

- Put students in groups of 4–5. Grouping here is flexible. It is a creative activity.
- Tell them that they are going to design the inventions of their wildest dreams. If they can imagine it, they can build it. Money and resources are no object. Their invention has to provide a benefit that makes life easier. At the end of five minutes, the class will vote on which team created the most useful invention.
- Hand half of the teams Invention Form A, which has no regulations. Hand the other half of the team invention Form B, which has regulations as to the types of shapes to be used (Circles only) and the number of inspections that have to be acquired (Two signatures from you at least one minute apart). Form B regulations are there to ensure consumer health and safety.
- Let students create for 5 minutes while you circulate around the room. Check in with groups often, but give criticism to Form B groups so that they are encouraged to change their designs. Remind all groups of the time when there are 3, 2, and 1 minute remaining.
- Have student groups present their inventions to the room. It might help to hang the drawings on the wall or on the whiteboard.

- If the winning group was a Form A group, ask a Form B team to describe the limitations they had and how those limitations made their processes more difficult than the Form A team.
- If the winning group was a Form B group, ask them to discuss how the limitations on their work made the process more difficult, then ask a Form A team to report out on the ease and creativity involved in their process.
- Discuss the effect of regulation on the creative process.
- **Regulatory Reading #2**
  - Review information from regulatory reading #1 and ask students to predict the effect of FDA regulations on the development of COVID-19 tests
  - Read Excerpt A: These regulations meant labs ended up weighed down by the laborious and risk-averse Emergency Use Authorization process. Foreseeing the vast effort required, some decided against developing tests despite having the capacity to do so. The *Washington Post* reports that one academic clinic - The Mayo Clinic - had to put a third of its 15 rapid response-team members to work solely on the FDA's data and paperwork demands. A laboratory at the University of Washington some absurd well-publicized regulatory difficulties because they had not burned copies of their application onto discs or mailed a hard copy to Washington, DC. While all these labs were going through that bureaucratic process, they were not able to put their tests to use, and the virus was spreading across the country unchecked.
  - Read Excerpt B: In setting the high sensitivity bar, the FDA was, in fact putting insufficient weight on the two massive advantages of rapid testing that, combined, could dwarf any sensitivity problem. First, given they are cheaper, the strip tests could be undertaken more frequently across a wider population for a given testing budget, meaning they would be more likely to identify asymptomatic cases at the time the person is actually infectious than if we relied on people seeking out a PCR test only when they suspected that they might be infected.
  - Second, because the strip test results are provided rapidly (in 15 to 20 minutes, sometimes at home, compared to one to three days for PCR tests at best), potentially infectious people can isolate themselves immediately and notify those they have been in contact with sooner. These advantages minimize the window of transmission between people becoming infectious and ultimately isolating - the time the person would likely be out spreading the disease.
  - Have students answer: According to both excerpts, how did FDA regulations affect the development and use of COVID-19 tests? Provide evidence from both texts.
    - Slowed the development of tests
    - Made development of test more expensive
    - Made some companies decide not to produce
    - Kept tests off the market

- Prolonged the pandemic
- Discuss student answers.
- **Deregulation Exit Ticket**
  - Tell students that COVID-19 also led to some deregulation of certain markets. Have students read the deregulation reading and complete the graphic organizer.
  - Reading:
    - But plenty of the waivers were related to granting more flexibility for the operation of businesses and their services too. The Department of Transportation provided regulatory relief to truckers in terms of working hours for transporting emergency good and services, for example. The Environmental Protection Agency eased enforcement of environmental obligations. The Alcohol and Tobacco Tax and Trade Bureau waived revenue laws to allow distilleries to produce hand sanitizer for sale. State governments waived regulations restricting restaurants from offering delivery and takeout of alcohol. Restrictions on single-use plastic bags were lifted. Certain localities delayed increasing their minimum wage.
  - Use the graphic organizer to determine whether each regulations should end permanently or be reinstated. Provide reasoning for each.
  - Answers will vary.

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## Warm-Up Hypothetical Part 1

Directions: Read the hypothetical situation and answer the question below.

Colleges are concerned about admissions after changes to federal law regarding admissions policies. Many of the best and most competitive colleges want to reinstate mandatory standardized scores with required writing sections. The company that publishes and scores the tests, concerned about the time and cost associated with scoring of written sections of the test, has been investigating artificial intelligence solutions that could score written responses in a fraction of the time it takes human scorers. According to the company's own research, the accuracy rate of human scorers is 87% while the accuracy of the algorithm is closer to 75%. As a test taker is speed or accuracy more important to you?

- As a test taker is speed or accuracy more important to you? Why? Be prepared to defend your answer.

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# Why couldn't I get a COVID-19 test in February and March 2020?

## Warm-Up Hypothetical Part 2

Directions: Read the Breaking News update and respond to the questions below.

### BREAKING NEWS

Colleges, teachers, and scorers are concerned about the impact of artificial intelligence on the labor market. Colleges want standardized test scores to be as accurate as possible. Teachers and scorers want to continue to be paid to score tests. They convince Congress to pass a law that states that all standardized tests will be scored by two human scorers before scores can be reported. This will improve accuracy to 90%. As a result, scores are going to take longer to be reported and tests are going to cost more.

- Do you agree with this policy? Why or why not?

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# Why couldn't I get a COVID-19 test in February and March 2020?

## Vocabulary Preview

Directions: Read the definition of each vocabulary and provide an example of each. Draw a picture or symbol to help you remember each definition.

Word, Definition, and Example	Picture or Symbol
<p>Deregulation: the removal of regulations or restrictions, especially in a particular industry</p> <p>Give an example of deregulation:</p>	
<p>Entrepreneurship: the process of discovering new ways of managing, organizing, or combining resources or of developing new products or services in the pursuit of profit within markets</p> <p>Give an example of entrepreneurship:</p>	
<p>Innovation: the process of devising a new idea, product, or way of doing things</p> <p>Give an example of an innovation:</p>	
<p>Regulation: a rule or directive made and maintained by an authority</p> <p>Give an example of market failure:</p>	

# Why couldn't I get a COVID-19 test in February and March 2020?

## Vocabulary Slips of Paper Game

Directions: Print these word and cut them into strips. Fold each strip in half. Have two students volunteer to improvise a scene. Give each student all four words, but keep the strips folded up and in random order. Ask the rest of the class for a location or for a relationship between two people. The two students should start a scene based on that suggestion. After about three lines of dialogue for each student, they should start pulling the words out one by one and incorporate them into the scene by justifying their use. Each student should only use one word in a given turn of dialogue.

<b>Deregulation</b>	<b>Deregulation</b>
<b>Entrepreneurship</b>	<b>Entrepreneurship</b>
<b>Innovation</b>	<b>Innovation</b>
<b>Regulation</b>	<b>Regulation</b>

# Why couldn't I get a COVID-19 test in February and March 2020?

## Regulatory Reading #1

In setting the high sensitivity bar, the FDA was, in fact, putting insufficient weight on the two massive advantages of rapid testing that, combined, dwarf any sensitivity problem. First, given they are cheaper, the strip tests could be undertaken more frequently across a wider When Secretary of Health and Human Services Alex Azar declared a public health emergency on January 31, in theory he gave the FDA the flexibility to speed up diagnostic tests. But in practice the regulations they adopted for universities, hospitals, and research labs made it more difficult to deliver a viable test.

Following the emergency declaration, these labs had to go through a rigorous process of receiving Emergency Use Authorization for any tests they developed. These polymerase chain reaction tests were well know, and labs would ordinarily have been able to use them without FDA approval, provided they were for non-commercial use. Yet, the FDA explicitly introduced a higher hurdle than normal during the pandemic, because of the supposed higher risk associated with faulty testing.

—*Economics in One Virus*, p. 135

- According to the text, how did the FDA make it more difficult for COVID-19 tests to enter the market?

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- Why do you think the FDA made it more difficult for COVID-19 tests to enter the market? Explain your answer with reasoning. Be prepared to report out.

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# Why couldn't I get a COVID-19 test in February and March 2020?

## Simulation Form A

Directions: Your team is going to design the inventions of your wildest dreams. If you can imagine it, you can build it. Money and resources are no object. Your invention has to provide a benefit that makes life easier. Use the space below to draw your invention to the best of your ability. At the end of five minutes, the class will vote on which team created the most useful invention.

A large, empty rectangular box with a thin black border, intended for students to draw their invention. The box is centered on the page and occupies a significant portion of the lower half of the document.

# Why couldn't I get a COVID-19 test in February and March 2020?

## Simulation Form B

Directions: Your team is going to design the inventions of your wildest dreams. If you can imagine it, you can build it. Money and resources are no object. Your invention has to provide a benefit that makes life easier. Use the space below to draw your invention to the best of your ability. At the end of five minutes, the class will vote on which team created the most useful invention. In order to protect health and safety, you can only use circles in your invention. Sharp edges are scary! Furthermore, you must have your invention inspected by the teacher twice with at least a full minute between the two inspections. The teacher will sign and time stamp each "inspection".

A large, empty rectangular box with a thin black border, intended for students to draw their invention. The background of the entire page features a faint, light gray network of interconnected circles and lines, resembling a molecular or social network structure.

# Why couldn't I get a COVID-19 test in February and March 2020?

## Regulatory Reading #2

### Excerpt A

These regulations meant labs ended up weighed down by the laborious and risk-averse Emergency Use Authorization process. Foreseeing the vast effort required, some decided against developing tests despite having the capacity to do so. The *Washington Post* reports that one academic clinic - The Mayo Clinic - had to put a third of its 15 rapid response-team members to work solely on the FDA's data and paperwork demands. A laboratory at the University of Washington some absurd well-publicized regulatory difficulties because they had not burned copies of their application onto discs or mailed a hard copy to Washington, DC. While all these labs were going through that bureaucratic process, they were not able to put their tests to use, and the virus was spreading across the country unchecked.

—*Economics in One Virus*, p. 136



## Excerpt B

In setting the high sensitivity bar, the FDA was, in fact putting insufficient weight on the two massive advantages of rapid testing that, combined, could dwarf any sensitivity problem. First, given they are cheaper, the strip tests could be undertaken more frequently across a wider population for a given testing budget, meaning they would be more likely to identify asymptomatic cases at the time the person is actually infectious than if we relied on people seeking out a PCR test only when they suspected that they might be infected.

Second, because the strip test results are provided rapidly (in 15 to 20 minutes, sometimes at home, compared to one to three days for PCR tests at best), potentially infectious people can isolate themselves immediately and notify those they have been in contact with sooner. These advantages minimize the window of transmission between people becoming infectious and ultimately isolating – the time the person would likely be out spreading the disease.

—*Economics in One Virus*, p. 138-139

- According to both excerpts, how did FDA regulations affect the development and use of COVID-19 tests? Provide evidence from both texts.

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# Why couldn't I get a COVID-19 test in February and March 2020?

## Regulatory Reading #2

But plenty of the waivers were related to granting more flexibility for the operation of businesses and their services too. The Department of Transportation provided regulatory relief to truckers in terms of working hours for transporting emergency good and services, for example. The Environmental Protection Agency eased enforcement of environmental obligations. The Alcohol and Tobacco Tax and Trade Bureau waived revenue laws to allow distilleries to produce hand sanitizer for sale. State government waived regulations restricting restaurants from offering delivery and take out of alcohol. Restrictions on single-use plastic bags were lifted. Certain localities delayed increasing their minimum wage.

—*Economics in One Virus*, p. 145

Policy	End Permanently	Reinstate	Rationale
Limiting number of hours that long haul truckers can work continuously			
Strict environmental regulations on clean air and water			
Alcohol companies may not produce any other products			
Alcohol may not be delivered or ordered for takeout			
Single use plastic bags are prohibited			
Minimum wages will not increase			