

COVID-19: What's better for our economy, more frequent testing at home or more accurate testing at the doctor's office?

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Our nation's fight with coronavirus disease 2019 (COVID-19) posed many challenges in 2020 and beyond. COVID-19 is not the first challenge with a virus that the United States and the world have faced. COVID-19 was preceded by, among others, severe acute respiratory syndrome (SARS), Ebola virus disease (Ebola or EVD), and acquired immunodeficiency syndrome (AIDS), which is caused by the human immunodeficiency virus (HIV). The earlier experience raised several critical questions as we move forward. Specifically, what structures should be in place amid the current pandemic, when will a vaccine be available, how effective will it be, and how quickly will it be available to the public? The COVID-19 pandemic has increased the interest in diagnostic testing. Many observers also believe that a lack of information about the virus has exacerbated the pandemic's disruption of the U.S. economy.

In their article, "[A theory of voluntary testing and self-isolation in an ongoing pandemic](#)" (National Bureau of Economic Research, Working Paper 27941, October 2020), economists Thomas F. Hellmann and Veikko Thiele examine the voluntary self-testing by private individuals and the economic impact as we transition into the "new normal" in our economy. As the authors explain, there are two points of view at play, one being the clinical mainstream view, which is that testing should be performed by healthcare professionals in a medical setting, such as hospitals or clinics. The theory here is that testing accuracy will be increased, thereby reducing the number of false positives that occur. The second point of view is that of public health, which views accuracy as less important than identifying as many infected people as early and as quickly as possible in order to prevent (or slow down) the virus's spread.

From an economic perspective, if people understand the limitations of self-testing, such as the greater possibility of false positives and false negatives, is accuracy as important as availability, price, and ease of use? What happens if people who test at home do not understand the limitations of testing outside of a medical facility? Although less accurate, new testing technology is being developed that is faster and cheaper than the earlier testing methods. Symptomatic individuals are tested by qualified medical staff, unlike home-based tests designed for asymptomatic individuals. Self-testing allows people to decide whether to go out or self-isolate at home. The term "going out" would include work, socializing, shopping, and eating out. The decision to self-isolate reduces the spread of infection but hurts the economy, while going out helps the economy but increases the spread of infection.

Hellmann and Thiele obtained three main sets of results. First, people who self-test fall into two categories—those who would self-isolate without testing, and those who will go out regardless. Cheaper and easier-to-use home-based testing would increase self-testing by both groups. Second, there is economic value in home-based tests,

even if they are not as accurate as clinical tests. Clinical tests will warn against false-negative results, which otherwise would likely result in people going out while possibly being infected. In other words, with self-testing, there tends to be an assumption of perfect tests with no false negatives. Realistically, though, the alternative to an imperfect test is no test at all. As mentioned previously, some people with false-positive tests will self-isolate, whereas others will go out anyway. Finally, although it is less accurate, self-testing provides some useful information, which is better than none at all. The information from self-testing will help keep more high-risk people at home while allowing low-risk people to go out and contribute to the economy. People who do not fully understand test accuracy tend to self-test more, which reduces infection risk. The authors argue that reducing the price of testing reduces the infection risk, which aids the U.S. economy.