

I start off my introduction to economics class by telling students that economics is harder than the physical sciences, which, as you can imagine, is not what the students wanted to nor what they expected to hear. I go on to explain that in the physical sciences, they can use laboratories to help them isolate a cause and effect relationship. A Chemist can add a chemical to a mixture in an environment that is pristine enough that she can have confidence that other chemicals are not being added to the mixture at the same time. The chemist can have some confidence that the chemical change that occurs happens because she added a particular chemical to the mixture.

In economics, we usually test our theories by observing what happens in the real world. Here is an example of how we might test a theory, say for instance, the theory that economists have the most faith in -- The Law of Demand. This law simply says: holding other things constant, people want to buy less of a good or service when its price increases. To test this, we could look at what happens to the sales of Breyers Ice Cream at a local Kroger store when the price increases from \$3.50 in one week to \$4.00 during the next week. The Law of Demand suggests that Kroger should see their ice cream sales decrease.

What actually happens may be much different. The little tag phrase, "holding other things constant," in the definition of the Law of Demand captures why we might get unexpected results. Simply, other things are not held constant because these purchases do not happen in a laboratory; they happen at Kroger during different weeks and perhaps by different people.

During the first week, there may have been several influences that lowered ice cream sales for reasons completely independent of the price. For instance, a freak cold spell may have dropped the temperature to 55 F and Walmart may have been giving away free popsicles this week as part of a promotion. Both of these effects will cause ice cream sales at Kroger to drop, even though the price of ice cream is relatively low.

Likewise, in the second week, there may have been several events that increased ice cream sales for reasons that have nothing to do with the increased price of ice cream. For instance, the temperature may have reached 95 F, and an ice cream lovers convention may have been holding their annual meeting in town.

To overcome this type of problem, economists have employed two strategies to test our theories. First, they try to find cases when the variables that we care about change, but for one reason or another, other variables remain relatively constant. Second, we look for really big changes to analyze -- because this allows for the relationship that we are interested in to show up in the data, even if other variables are changing. Basically, our main effect swamps everything else. A good example of this second approach occurred when economists analyzed the Great Depression. During this time, the changes in the money supply and in Gross Domestic Product (a measure of the value of output produce in a year) were so large that the link between them became clear. During normal times, so many other variables impact Gross Domestic Product that the influence of changes in the money supply was not obvious.

In the past, economists have had trouble gaging the effect of the minimum wage on employment because the minimum wage was not set at a very high level.

Often, the minimum wage had been set at about what someone could have earned at Lowes before the new minimum wage was put into effect.

In some years, the minimum wage was even set below the prevailing market wage. I have had many semesters in which almost all of my students were earning more than the minimum wage. Those earning the minimum wage were typically foreign students who were not allowed to work off campus.

When the minimum wage is set at a level so close to the market wage, it is really hard to uncover its impact on employment. Other influences, such as changes in the growth of the whole economy, changes in regulations, changes in taxes, or changes in exports to other countries, may influence employment even more than a relatively small change in minimum wage.

Bernie Sanders and Hillary Clinton are proposing a big change that will allow economist to more easily test our theories. They want to raise the minimum wage to \$15 an hour.

This large minimum wage increase will influence a lot of workers since many workers currently earn less than \$15 an hour. This change is big enough that the influence of the required wage increase will swamp the other events that impact employment.

While both the Great Depression and a \$15 minimum wage are big events that can allow economics to move forward, these big events are accompanied with a lot of suffering.

The Law of Demand, our most fundamental law in economics, predicts that an increase in the minimum wage will cause firms to hire fewer workers. That is, when the price of labor goes up, firms want fewer workers. Economists have ample empirical evidence that people want to buy less of something when its price increases.

We have found ways to overcome the shortcomings of not testing theories in a laboratory on this issue for many different goods and services.

It would be a shame to ignore this evidence and enact Bernie and Hillary's proposed \$15 minimum wage, which will inflict the substantial human suffering that comes with job losses.

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