

EITM for Dummies

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EITM is a method that unifies formal theory (specifying relations) with empirical (statistical, observational) analysis. The formal portion is instrumental because pure observation is unlikely to identify the underlying mechanisms – causes – that drive what we observe. Let us demonstrate the importance using an example from physics:

By the end of the 16th century, Tycho de Brahe collected an enormous amount of data with precise measurements of the position of planets. However, it was Johannes Kepler who, in 1619, offered a theory of the planetary movements:

1. The orbit of each planet is an ellipse which has the Sun at one of its foci.
2. Each planet moves in such a way that the (imaginary) line joining it to the Sun sweeps out equal areas in equal times.
3. The squares of the periods of revolution of the planets about the Sun are proportional to the cubes of their mean distances from it.

While de Brahe's observations constituted the first step in understanding the solar system, without Kepler's laws (his specified relations), mankind was at best able to observe where the planets were going and at which speed, but did not know the exact mechanism and was thus unable to predict what could happen if any of the parameters changed (e.g., hypothetical change in the distance from the Sun).

We are now at a moment in time where data are becoming increasingly accurate and abundant. However, we still, for the most part, lack formal specification – laws, or mechanisms – that would explain what guides human behavior. This lack of formalization prevents us from accurately predicting human reactions if any of the important societal variables change. In the social sciences with their infinite number of variables, this may look like a daunting task. However, we believe this can be done if we base our theories on underlying societal forces that are universal - for example, in all human societies people form expectations and learn from their mistakes. We also realize that not all theories will get things right the first time around; however, formalization allows new students to build upon the older theories and in that process accumulate knowledge. Overall, we believe uniting theory with empirics is crucial for the advancement of our current knowledge; it is an inevitable path for social science, and it is precisely what EITM is attempting to do.