

Econometrics as a Toolkit for Economic Forecasting

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Economic events tend to co-occur, precede, or succeed one another. Understanding the essence of such relationships – that is, identifying causal mechanisms that facilitate correlation among economic variables – is at the core of econometric analysis. Throughout a relatively brief history of the study of econometrics, numerous methods and techniques have been proposed and developed – all aimed to give an empirical content to economic models. These methods and techniques allow us to test economic theories, examine individuals' preferences, evaluate policy outcomes, etc.

Econometric models rely on correct (and accurate) identification of the causal mechanism in the underlying process. But they are also predictive by nature. They help us make economic forecasts even when the causal mechanism is not well identified. In other words, while correlation does not necessarily imply causality, if the goal is forecasting, a mere correlation might as well suffice.

Roots of forecasting extend far back to the beginning of human history. In their quest for predicting the future, people have attempted to make forecasts of their own, or have used services of others. Fortunetellers, for example, have been forecast experts of some sort, basing their predictions on magic. They are less common now. Astrologers, who rely on astronomical phenomena to project the future, maintain their relevance to this date. Over time, and particularly with the development of the study of econometrics, more rigorous forecasting methods have been introduced and developed. Nonetheless, all methods – primitive or complex, spurious or scientifically substantiated – have one thing in common: they all rely (or, at least, pretend to rely) on *information*.

Information is key in forecasting. It comes in many forms, but after it is organized and stored, what we end up with is data. Two distinct types of data are available – *cross-sectional* and *time series*. The cross-sectional data are collected from different individuals or locations (e.g., households, districts, countries) in a given period of time. The time series are chronologically stored data, collected at regular intervals over a period of time. While both kinds of data can be applied to make a guess about an event, a diverse set of forecasting methods typically rely on time series data, and involve analyzing available information to project historical patterns into the future. The underlying assumption is that the past tends to repeat itself, at least to some extent. So, if we well study the past, we shall be able to forecast an event with some degree of accuracy.

Accurate forecasting is difficult. No matter how rich the available data are, or how well the econometric model fits the data, there still is a surprise element concerning the forecast – something that has never happened in past, and is only specific to the future. And because of this, there is no such thing as precise forecast. But some forecasts are better than others. And in search of such forecasts the study of time series econometrics has evolved.