

A Tribute to Tom Sargent and Chris Sims

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I have known Tom Sargent and Chris Sims since I was a graduate student at the University of Minnesota in the mid 1970's. I decided to go the University of Minnesota over places like the University of Chicago based on very little information...in fact, in complete ignorance of who Chris and Tom were. I now understand that I had front row seat observing what would turn out to be path-breaking research. It was my good luck that they both played a central role in graduate education while I was at Minnesota.

I was research assistant first for Chris and then for Tom. Chris became my advisor; Sargent was a member of my committee and was kind enough to make me a co-author on one of my first publications. Tom likes to make reference to regretting making a bad trade: he claims to have swapped Bob Litterman to Chris in exchange for me. This trade may have included some "players to be named later." While I know nothing of the details of any such deal, what Tom has never suspected is that I was deliberately incompetent in computer programming so that he would find other roles for me. Sorry, Tom; this was my devious strategy to become a co-author.

In any event, during the mid to late 1970's and beyond, Chris and Tom have had a major influence on my research that of a myriad of other scholars including many exceptional formal students. Chris had a particularly profound impact on the early stages of my career and Tom's impact has continued in what has now turned to be a long-term collaboration.

Tom Sargent and Chris Sims made seminal contributions to the fields of macroeconomics and time series econometrics. Time series analysis has a long history. For instance, in the late 1920's Yule and Slutsky initiated the development and application of time series methods pertinent to economic analysis; but Chris and Tom are unique in the way they used economic models in conjunction with time series analysis to address policy-relevant questions in macroeconomics. Starting in the 1970's, Tom and Chris made a series of remarkable contributions by bringing to bear important insights from economic dynamics to give meaningful interpretations of time series data. These insights come only with rigorous economic modeling and careful and creative empirical analysis.

Time series econometrics confronts important challenges including the following. How do we use macroeconomic time series data to "identify" and measure the economic impact of interpretable shocks, like technological innovations or monetary policy shifts? How do we assess the accuracy of the resulting measurements? Even more ambitious is to ask how might we use existing historical data to make inferences about the impact of alternative macroeconomic policies, including ones that are outside the range of historical experience.

These questions cannot be answered on purely statistical grounds without some form of economic modeling. Tom and Chris addressed these challenges by devising and applying methods that used time series statistical methods concurrently dynamic economic models. Their approaches were clearly distinct, but they were also complementary.

In his development and application of statistical methods, Chris carefully and rigorously explored the consequences of approximating potentially complex underlying dynamic economic systems with tractable statistical methods. He also characterized the observable implications of dynamic models with a recursive structure in which some feedback connections are precluded. The presence or absence of such structures is vital to how we build models and interpret evidence.

In related work he both developed and applied methods that measure the contributions from alternative sources of fluctuations and the uncertainty associated with those measurements. He and others proposed ways to infer meaningful shocks to a dynamic system by using “identifying restrictions” from economic analysis.

From an empirical standpoint, work by Chris and other researchers who used his methods challenged the monetarist view of macroeconomic policy and its impact on economic activity. The idea of focusing on a single relationship using a monetary aggregate as the explanatory time series ceased to be palatable. Instead it became essential to study a whole collection of time series simultaneously, allowing for flexible intertemporal and interrelated feedbacks. Chris used what are called vector autoregressions, which are designed to be a convenient and flexible model of economic time series. In Chris’s own words “with a variety of identifying assumptions a consistent picture has emerged: monetary contraction produces a decline in output and a decline in inflation with both responses smooth and delayed and the decline in output quicker.” These insights have been extended to accommodate changes in monetary regimes during the post-war period to provide a more complete picture. His empirical analyses and those of others serve as a motivation for economic models that feature fiscal policy and its interaction with monetary policy as an essential determinant of prices and inflation.

This is merely one example, albeit an important one. Chris’s impact on applied research in macroeconomic time series is pervasive, extending to policy research from governmental agencies. Methods that he initiated continue to be refined by himself and many other researchers.

Tom Sargent is an innovator in developing and using state-of-art dynamic economic models to deduce the implied restrictions on the economic time series. His approach allows researchers to examine or test model implications using data on economic time series. His resulting empirical analyses explored a wide variety of macroeconomic questions including unemployment and inflation. He complemented his empirical focus with a willingness to explore an extraordinary range of current and historical evidence through the lens of alternative economic models, always with the purpose of understanding the ramifications for economic policy. Along with other eminent scholars including many that are present here, he initiated research showing prescriptions for how macroeconomic policy should be altered

when economic actors are forward-looking and rational. Based on this research, issues about credibility and commitment on the part of policy makers became central to the analysis of policy. Tom in collaborations with others, innovated by exploring the implications of these ideas in empirical investigations, for example, in his studies of European hyperinflations and fiscal policies used historically by European countries to finance wars. Complementary to some of Chris's work, Tom and Neal Wallace, showed why considerations of fiscal policy and its interactions with monetary policy are crucial to understanding the determination of prices and inflation.

Tom's interests are far-reaching in his quest for more insights on monetary and fiscal policy by using modern macroeconomic theory to interpret episodes in economic history. His most recent paper prepared as his Nobel address, is great example of this, in which revisits historical evidence on the fiscal history of the US. This and other such work provides the platform for this fascinating discussion of long-term economic and political consequences of fiscal struggles.

Tom's approach to research questions has been diverse and eclectic, continually searching and finding insightful tools for interpreting economic time series. While he initially featured models in which individuals formed rational expectations, he subsequently focused on models with learning dynamics that can occur when it is hard to distinguish among competing models with historical evidence.

In closing, I salute and offer a toast to Tom Sargent and Chris Sargent for their impressive achievements so far, and encourage them to keep on inspiring those of us who are eager learn more from their continuing scholarship.

Lars Peter Hansen
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