

## Melvin Hinich

Melvin J. Hinich is the Mike Hogg Professor of Government and Professor of Economics at the University of Texas at Austin. He is also a Research Professor at the Applied Research Laboratories of UT.

He was born on April 29, 1939 in Pittsburgh, PA. He married Sonje Gregg in 1966 and they have one child, Amy Leksana, and two grand daughters Caitlin and Rachel Leksana.

He received a BS and MS in Mathematics from the Carnegie Institute of Technology in 1959 and 1960, respectively. He earned his Ph.D. in Statistics from Stanford University in 1963.

He began his academic career with the Graduate School of Industrial Administration at Carnegie Institute of Technology in September 1963. He began a fruitful collaboration with Otto Davis in September 1963 on the development of the multidimensional spatial theory of the electoral process. This theory uses a voter utility that is proportional to the weighted Euclidean distance between a candidate's position (and party's position) in a latent ideological space whose dimensions are linked to real political issues.

In 1973 Hinich went on leave to the Department of Economics at Virginia Tech. He stayed on as a Professor of Economics at Virginia Tech. He spent the 1976-77 academic year as a Sherman Fairchild Distinguished Fellow at the California Institute of Technology. Hinich began a long and fruitful collaboration with James Enelow in 1978 on both theoretical expansions of spatial theory and on using the Cahoon – Hinich method to estimate spatial maps of candidates in American politics using the thermometer scores from ICPSR surveys. The collaboration produced the first book on the modern spatial theory of elections: *The Spatial Theory of Voting* by J. Enelow and J. J. Hinich, Cambridge University Press (1984). Then they produced an edited volume on spatial theory: *Advances in the Spatial Theory of Voting*, J. Enelow and M. J. Hinich (eds.), Cambridge University Press, (1990). The Enelow and Hinich collaboration was maintained at a distance since Enelow was at SUNY Stony Brook while Hinich was at Virginia Tech and then Texas. Enelow moved to the University of Texas at a time when both scholars were turning to different aspects of political science research.

He has supervised a number of Ph.D. theses in Statistics, Economics, and Political Science and has been co-chair of theses in Mechanical Engineering and Library Science.

In 1982 he moved to the University of Texas in the Department of Government. The next year he was made a member of the Department of Economics. Michael Munger was hired as an Assistant Professor in 1986 and soon began

collaboration on extending the spatial theory of elections that has resulted in several papers and three books: *Ideology and the Theory of Political Choice*, University of Michigan Press, (1994), *Analytical Politics* Cambridge University Press, (1997), and *Empirical Studies in Comparative Politics*, Kluwer Academic Publishers, (1999).

He has published papers in the fields of Statistics, Signal Processing, Economics, Political Science, Biomedical Engineering, Pharmacy, and Library Science. His signal processing papers deals with a variety of applications from geophysics to finance. He invented bispectral and trispectral based test for the presence of nonlinearity in stationary stochastic processes. He also developed tests for time reversibility and aliasing using higher order spectral methods. One of his most important signal processing accomplishments is a method to detect weak modulated periodic signals in noise and analyze the modulation processes using a concept he has called signal coherence.

He and Professor Douglas Patterson, Virginia Tech, used the Hinich bispectrum method to discover stochastic nonlinearity in daily rates of the returns from several NYSE stocks. They extended their work on nonlinearity to high frequency stock data. Using simple third order correlation methods called the Hinich Bicorrelation and Cross Bicorrelation Tests, they found that the nonlinearity in asset returns appears to be episodic in nature. The methods were extended and refined in collaboration with Professor Chris Brooks at the University of Reading in England and applied to foreign exchange data and UK financial data. The scope of this research on nonlinearity has now been extended to the study of financial data in Asia and in Latin America. He is working with Professor Claudio Bonilla, UDD, on analysis of Chilean stock rates of return.

One of his contributions to time series analysis and signal processing is a simple and robust method for detecting and locating mean and slope changes in linear time series models.

He has also made contributions in the policy area of food regulation and has coauthored a book on food regulation with Professor Richard Staelin.

Hinich helped form the Department of Statistics at Carnegie Mellon. One of his statistics Ph.D. students, Lawrence Cahoon, developed a metric multidimensional scaling methodology that is based on the parametric weighted utility model for voting choice. This methodology was further developed by Hinich over many years and is now called the Hinich MAP Method.

He is a fellow of the Institute of Mathematical Statistics, the American Statistical Association and the Public Choice Society.