

Meeting: 1000, Albuquerque, New Mexico, AMS CP 1, Session for Contributed Papers

1000-62-218 **Rod Freed*** (raf12@cox.net), 25832 Empresa, Mission Viejo, CA 92691, and **Lily Llamas** (silly_tex@yahoo.com), Department of Mathematics, CSU Dominguez Hills, 1000 E. Victoria St., Carson, CA 90747. *Techniques of Statistical Mechanics Applied to Macroeconomics.*

We construct a macroeconomic model by using an approach parallel to that used in statistical mechanics. The function which solves the Liouville equation in the statistical mechanics application can be used to find the probability that the state of the physical system lies in some region. In our application the function which solves the Liouville equation can be used to find the probability that consumer's and firm's beliefs about the means and variances of the distributions which describe the behavior of other consumers and firms lie in some region (we take a Bayesian perspective here). Using this function as our prior density, we obtain the posterior density of a vector of macroeconomic variables (e.g., GDP, CPI, etc.). We indicate why our approach is to be preferred to the traditional approach. Finally, by using the conditional empirical distribution, we estimate the probabilities that the vector of macroeconomic variables will hit each of a number of targets. (Received August 24, 2004)