



# DISTINGUISHED SPEAKER SEMINAR



**Professor Mark Watson  
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**“Measuring the Uncertainty about  
Long-Run Predictions”**

**Tuesday 29 January 2013 at 14:15  
Auditorium E1 building 2624**

Abstract: This paper quantifies the uncertainty in long-run predictions of economic time series. Let  $x_t$ ,  $t = 1, \dots, T$  denote sample values of a series of interest and  $\bar{x}_{T+1:T+h} = h^{-1} \sum_{i=1}^h x_{T+i}$  denote the sample value over the next  $h$  time periods. We construct prediction sets,  $A_T$ , with the property that  $P(\bar{x}_{T+1:T+h} \in A_T) = 1 - \alpha$ , where  $\alpha$  is a pre-specified constant. We suppose that both  $T$  and  $h$  are large and construct prediction sets using asymptotic approximations. Much of the uncertainty about  $\bar{x}_{T+1:T+h}$  arises from uncertainty about the low-frequency characteristics of stochastic process characterizing  $x$ . We use a flexible parameterization of the local-to-zero spectrum and construct prediction sets using both Bayes and frequentist methods. We apply the methods to construct prediction sets for U.S. macroeconomic variables over the next 10-75 years.

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