

Temas de Pronósticos Macroeconómicos

Del 6 al 10 de octubre de 2014
Banco Central de Venezuela
Caracas, Venezuela

Programa

Profesor: Pablo Lavado

El objetivo de este curso es proveer las bases para la aplicación de técnicas de predicción de corto plazo.

I. Día 1, sesión 1: Modelos Lineales de Pequeña Escala

(a) Filtro de Kalman

- i. Representación Estado-Espacio
- ii. Derivación y Estimación de Parámetros
- iii. Ejemplo
- iv. Aplicación en Matlab

(b) Referencias

- Hamilton, *Time Series Econometrics*
- Fama y Gibbons (1982), *"Inflation, Real Returns and Capital Investment"*
- Stock y Watson (1991), *A probability model of The Coincident Economic Indicators*

II. Día 1, sesión 2: Modelos Lineales de Pequeña Escala

(a) Euro-Stings y Latin-Stings (Indicador de Crecimiento de Corto Plazo)

- i. Representación Estado-Espacio
- ii. Alternativa: Modelos de Gran Escala
- iii. Modelos de Factores
- iv. Resultados Empíricos (Euro y Latin Stings)

(b) Referencias

- Angelini et al (2008), *"Short-term forecasts of Euro area GDP growth"*
- Arouba, Diebold and Scotti (2008), *"Real-time measurements of business conditions"*
- Giannone, Reichlin and Small (2008), *"Nowcasting: The real-time informational content of macroeconomic data"*
- Mariano and Murasawa (2003), *"A new coincident index of business cycles based on monthly and quarterly series"*
- Mariano and Murasawa (2010), *"A Coincident Index, Common Factors, and Monthly Real GDP"*
- Barhoumi et al (2008), *"Short Term Forecasting of GDP using large monthly datasets: A Pseudo Real Time Forecast Evaluation Exercise"*

- Proietti and Moauro (2006), *"Dynamic Factor Analysis with Nonlinear Temporal Aggregation Constraints"*
- Rogers and Wright (2005), *"News and Noise in G-7 GDP Announcements"*
- Dean Croushore (2008), *"Frontiers of real-time data analysis"*
- Marcellino, Stock and Watson (2006), *"A comparison of direct and iterated multistep AR methods for forecasting macroeconomic time series"*
- Croushore and Stark (2003), *"A real-time data set for macroeconomists: Does the data vintage matter?"*

III. Día 2, sesión 1: Modelos Lineales de Pequeña Escala

(a) Modelos Bridge

- i. Ambiente
- ii. El Modelo
- iii. Ejemplo
- iv. Aplicación en Matlab

(b) Referencias

- Klein and Sojo (1989), *"Combinations of High and Low Frequency Data in Macroeconometric Models"*
- Baffigi, Golinelli and Parigi (2004), *"Bridge Models to Forecast the euro area GDP"*

IV. Día 2, sesión 2: Modelos Lineales de Pequeña Escala

(a) Mixed DATA Sampling (MIDAS)

- i. El Modelo
- ii. Estimación
- iii. Extensiones
- iv. Ejemplo
- v. Aplicación en Matlab

(b) Referencias

- Ghysels, Santa Clara and Valkanov (2004), *"The MIDAS touch: Mixed DATA Sampling regression models"*
- Ghysels, Sinko and Valkanov (2007), *"MIDAS regressions: further results and new directions"*
- Ghysels, Santa Clara and Valkanov (2006), *"Predicting volatility: Getting the most out of return data sampled at different frequencies"*
- Clements and Galvao (2005), *"Macroeconomic forecasting with mixed-frequency data: Forecasting US output growth and inflation"*
- Forsberg and Ghysels (2007), *"Why do absolute returns predict volatility so well?"*
- Winkelried (2012), *"Predicting Quarterly aggregates with monthly indicators"*

- Kuzin, Marcelino and Schumacher (2006), "*MIDAS vs. mixed-frequency VAR: Nowcasting GDP in the euro area*"

V. Día 3, sesión 1: Modelos Lineales de Pequeña Escala

(a) Mixed Frequency Var (MF-VAR)

- i. Representación Estado-Espacio y Filtro de Kalman
- ii. Observaciones Perdidas
- iii. Problemas y Algunas Soluciones
- iv. Application en Matlab

(b) Mixed Frequency Dynamic Factor Models

- i. Supuestos Básicos y Representación Estado-Espacio
- ii. El Modelo
- iii. Aplicación en Matlab

(c) Referencias

- Arouba, Diebold and Scotti (2008), "*Real-time measurements of business conditions*"
- Zdrozny (1988), "*Gaussian-Likelihood of continuous-time ARMAX models when data are stocks and flows at different frequencies*"
- Zdrozny (1990), "*Estimating a multivariate ARMA model with mixed-frequency data: An application to forecasting U.S. GNP at monthly intervals*"
- Camacho and Domenech (2012), "*A factor model of economic and financial indicators for short-term GDP forecasting*"
- Kuzin, Marcelino and Schumacher (2006), "*MIDAS vs. mixed-frequency VAR: Nowcasting GDP in the euro area*"

VI. Día 3, sesión 2: Modelos Lineales de Gran Escala

(a) Componentes Principales

(b) Análisis Factorial

(c) Selección de Variables

(d) Modelos Pequeños vs. Grandes

(e) Referencias

- Giannone, Reichlin and Small (2008), "*Nowcasting: The real-time informational content of macroeconomic data*"
- Barhoumi et al (2008), "*Short Term Forecasting of GDP using large monthly datasets: A Pseudo Real Time Forecast Evaluation Exercise*"
- Proietti and Moauro (2006), "*Dynamic Factor Analysis with Nonlinear Temporal Aggregation Constraints*"
- Boivin and Ng (2006), "*Are more data always better for factor analysis?*"
- Bai and Ng (2008), "*Forecasting economic time series using targeted predictors.*"

- Alvarez. Camacho y Perez Quirós (2011), *"Finite sample performance of small versus large scale dynamic factor models"*
- Stock and Watson (2002), *"Macroeconomic Forecasting Using Difusion Indexes"*
- Banbura and Modugno (2010), *"Maximum Likelihood estimation of factor models on data sets with arbitrary pattern of missing data"*

VII. Día 4, sesión 1: Modelos No Lineales

(a) Markov Switching Model (MS)

i. Media Condicional

- A. Estimación
- B. Pruebas de Hipótesis
- C. Ejemplo

ii. Varianza Condicional

- A. Switching ARCH models
- B. Switching GARCH models
- C. Un ejemplo

iii. MS dynamic non-linear factor models

(b) Referencias

- Perez-Quirós and Timmermann (2000), *"Firm Size and Cyclical Variations in Stock Returns"*
- Camacho, Perez-Quirós and Poncela (2011), *"Green shots in the Euro Area. A real time approach"*
- Camacho, Perez-Quirós and Poncela (2010), *"Real time Common Factor Markov Switching Models"*
- Camacho and Perez-Quirós (2007), *"Jump-and-rest effect of U.S. business cycles. Studies in Nonlinear Dynamics and Econometrics"*
- Kuan (2002) *"Lecture on the Markov Switching Model" - Institute of Economics, Academia Sinica.*
- Hamilton (1989) *"A New Approach to the Economic Analysis of Nonstationary Time Series and the Business Cycle"*
- Camacho, Perez-Quirós and Saiz (2008), *"Do European Business Cycles look like one?"*
- Lin, Hung and Kuan (2002), *"The dynamic behavior of short term interest rates in Taiwan: An application of the regime switching model"*
- Gray (1996), *"Modeling the conditional distribution of interest rates as a regime switching process"*
- Hsu and Kuan (2001), *"Identifying Taiwan's business cycles in 1990s: An application of the bivariate Markov switching model and Gibbs sampling"*

- Hansen (1992), *"The likelihood ratio test under nonstandard conditions: Testing the Markov switching model of GNP"*
- Kim (1994), *"Dynamic linear models with Markov-switching"*
- Diebold and Rudebusch (1996), *"Measuring business cycles: A modern perspective"*

VIII. Día 4, sesión 2: Modelos No Lineales

(a) Threshold Autoregressive models (TAR)

i. Modelo

ii. Una extensión - Smooth Transition Models (STR)

A. Función de Transición

iii. Ejemplo

iv. Referencias

- Hamilton, *"Calling Recessions in Real Time"*
- Camacho (2004), *"Vector Smooth Transition Regression Models for US GDP and the Composite index of Leading Indicators"*
- Tersvirta (1994). *"Specification, estimation and evaluation of smooth transition autoregressive models"*

IX. Día 5, sesión 1

(b) Probando lo adecuado de las predicciones

i. El Problema de la Predicción

ii. La Función de Pérdida

iii. Consideraciones Generales

A. Pocos o Muchos Predictores

B. Lineal o No Lineal

C. Horizonte de Predicción

iv. Inestabilidad del Modelo

v. Evaluación

vi. Pruebas Estadísticas

A. La F

B. La Prueba Morgan-Granger-Newbold

C. La Prueba Meese and Rogoff

D. La Prueba Diebold and Mariano

E. Pruebas No Paramétricas

vii. Combinando Predicciones

viii. Referencias

- Diebold and Lopez (1995), *"Forecast Evaluation and Combination"*
- Diebold and Mariano (1995), *"Comparing Predictive Accuracy"*

X: Día 5, sesión 2

(c) Nowcasting and Real-time Analysis

- i. Evaluación de los Modelos en tiempo real
- ii. Revisión de los datos y rezagos en la publicación
- iii. Indicadores Duros y Suaves
- iv. Modelo de Factores
- v. Estimación y Predicción
- vi. Referencias

- Banbura, Giannone and Reichlin (2010), *"Nowcasting"*
- Banbura, Giannone, Modugno and Reichlin (2011), *"Nowcasting with daily data"*
- Banbura, Giannone, Modugno and Reichlin (2012), *"Nowcasting and the Real time data flow"*
- Giannone, Reichlin and Simonelli (2009), *"Nowcasting Euro Area Economic Activity in Real-time: The Role of Coincident Indicators"*
- Giannone, Reichlin and Small (2007), *"Nowcasting: the real-time informational content of macroeconomic data"*