Course Description: This is an advanced PhD-level course in macroeconomics. We will study macroeconomic issues using various tools of applied economic analysis. The course will focus on developing empirical techniques that are primarily, though not exclusively, applications of the structural VAR model. These tools are used to provide answers to important macroeconomic questions. In contrast to a course in time series econometrics, this class will stress issues pertaining to structural identification and de-emphasize, though not ignore, issues pertaining to statistical inference.

Student Interests: Feel free to give me feedback regarding topics you find appealing that are excluded from this syllabus or topics listed on the syllabus that you like (since there is no way we cover all the topics here, and I might not cover a topic unless the interest is very high).

Grading is based on a midterm examination and possibly also a paper. If you don’t hand in a paper then your course grade will be one letter grade lower than your midterm grade. If you also hand in a paper, then the paper and the midterm are given equal weight in your grade for the course.

Midterm: The midterm examination will be an open book test. Once you have picked up the test you are not permitted to communicate about this exam with anyone else using any means. I intend for this test to be a take-home (at least 24 hours) exam and for it to be given some time near the end of the semester. Test questions may be drawn from any material covered in class prior to the examination. We will try to arrange a mutually agreeable date for the exam, but if unable to agree on a date, then the midterm will be administered in the final exam period. In this case you would be allowed no more than 3 hours to take the exam.

Paper: There are three paper options: (1) Option A: write a paper that includes some original research; (2) Option B: present someone else’s high quality research in class; or (3) NO PAPER OPTION: don’t write a paper or present research in class. As soon as possible discuss with me the option you are choosing and your paper topic, unless you are choosing this last option. If you want to present a paper in class (Option B), then we need to try to put this into the schedule reasonably soon. If you tell me you have chosen a paper option, but fail to provide me with the paper or do not provide the in-class presentation by the deadline, then by default you will have selected the No Paper Option.

No Paper Option: Your course grade is one letter grade below your grade on the Midterm (e.g. if you get an A on the midterm, you will be given a B for the course). This is the default option if you fail to tell me otherwise. Also, if the deadline passes and you still have not submitted your paper and established (i.e. recontracted with me) a new deadline, then by default you will have selected this option.

Paper Option A: The paper is due during our final exam period which is scheduled for Wednesday, May 9 from 1:30 to 4 pm. The paper serves as the final exam. I am willing to extend this deadline somewhat. But, if you are unable to hand in the paper by this date, you must commit to me in e-mail a future deadline for handing in the paper. The paper should be based on some new research that you do on an interesting and important macroeconomic topic. You will write a paper that documents what you’ve accomplished, how your work is related to existing research (e.g. it may complement, question, or refute other research), what macroeconomic implications can be derived from your research, and where this research should go next. The topic can be theoretical and/or empirical on anything that interests you, subject to the constraint that the topic be of interest to macroeconomists. Hence, the range of topics is fairly wide open. Your paper is allowed to provide a careful review of the relevant literature, but should
then attempt to break new ground with some original research. Your grade for the paper will be based on how much you are trying to accomplish in your paper, how well your research plan is designed to answer the questions you address, and how well you answer those questions. Your paper should not merely review a literature. If that is the kind of paper you are thinking about writing, then I would recommend to you the next option. It is optimal for you to be writing a paper that will become a chapter in your dissertation. But that is certainly not a requirement. An easy way to perform new research is to apply an existing method to a new data set or alternatively to make some small but significant and hopefully important modification to someone else’s model. If the model is theoretical then you would determine how the economy behaves differently under your new assumption and if the model is econometric you would estimate it and examine how the model is affected by your new assumptions.

**Paper Option B:** Present in class an existing paper or a selection of findings/results from a group of related papers. The presentation does not need to be based on your own research. But the paper(s) should make important contributions (in terms of theory and/or econometrics) to current research. Of course, the subject matter must be on a macroeconomic topic that I want the class to be exposed to. The paper(s) you present need not be published. In fact, recent working papers are usually closest to the research frontier and therefore may be of more interest. Your grade for the presentation will be based on the importance of the material that you select, relevance to the material covered in this course, how well you present that material and how well you respond to questions from the audience (myself and the students in attendance) about the paper(s) you present. If a paper appears on the syllabus, that is one way to indicate relevance to the course, but that is not a necessary condition for relevancy. Keep in mind that time is a significant constraint. If you take an entire class period to present work that should only require half a class period, I must factor this inefficient use of class time into your paper grade. If you choose Option B, the topic and material that you choose must be approved by me.

**My Web Page:** [http://www.people.ku.edu/~jkeating/](http://www.people.ku.edu/~jkeating/) has links to My Courses, My Working Papers, My Publications, as well as to Other Research, Resources, News, Etc.. This last selection provides links to a variety of sources for Published Articles, Working Papers, Research Resources, Teaching Resources, News Sources and some other items (ETC.). Typically, I will use my Web page to distribute important course materials (e.g. homework assignments, solutions, etc.). However, if there is something that I don’t wish to make publicly available (for example, if I am not allowed to make something public due to copyright laws) I will use BlackBoard. (I do not post grades on BlackBoard)

**Readings:** The list of articles and books on this syllabus is enormous. I don’t believe it is humanly possible to read all of these selections in one semester. And there are many more topics below than we can cover in a semester. I only expect you to read material that I stress in class or material that you find particularly interesting. You can think of this as a list articles and books that you should read on a topic if you want to work toward becoming expert in that area.

**Textbooks:** I have ordered 3 textbooks this semester:


There are also various other books that you should have access to. I suggest you obtain any book that will benefit you in completing your dissertation or in your professional career, of course subject to your budget constraint. In the reading list a KEYWORD is accompanied by chapter, section, etc. to indicate relevant readings from books or on-line lectures notes. The book include:

- **WALSH** = Monetary Theory and Policy, 3rd ed., Walsh, Carl E., MIT Press, 2010;
- **WOODFORD** = Interest and Prices: Foundations of a Theory of Monetary Policy, Michael Woodford,
Princeton University Press, 2003;
HAYASHI = Econometrics, Fumio Hayashi, Princeton University Press, 2000
FAVERO = Applied Macroeconometrics, Favero, Carlo, Oxford University Press, 2001

On-line Texts/Resources: The list of on-line material continues to grow. Some that are relevant for this course:
ESIMS = http://www.nd.edu/~esims/grad_macro_11.html which is web page of Eric Sims of Notre Dame for his course materials on DSGE modeling.
JACEK = http://www.jaceksuda.com/teach/pse2011/index.html which is a web page of Jacek Suda that covers material on time series econometrics
PAGAN & DENNIS = Modern Macroeconometrics, a course by Adrian Pagan & Richard Dennis, taught at the Center for Applied Macroeconomic Analysis at the Australian National University.
COCHRANE = Time Series for Macroeconomics and Finance, John Cochrane’s intro to time series;
PAGAN = Applied Macroeconometrics, a Web page for a course Adrian Pagan taught at Johns Hopkins (Pagan also provides lecture notes for a 1st year course in Econometrics);
HANSEN = Econometrics, Bruce Hansen’s notes for a 1st year text in econometrics;
JUSELIUS = The Cointegrated VAR Model: Econometric Methodology and Empirical Applications, Katarina Juselius, found by going to http://www.econ.ku.dk/okokj/, paging down on right side of the page until you get to “Lecture plan for Advanced Econometrics 2005”, then clicking on the underlined course title. This page provides links to chapters by number and by course topic;
OGAKI = Structural Macroeconometrics, by Masao Ogaki, Kyungho Jang, and Hyoung-Seok Lim:
Click on second author and at the next page click “Book” to get to the various chapters;
BIERENS = Econometrics Lecture Notes for advanced course work;
MIT = Time Series Analysis Lecture Notes for an advanced time series econometrics course at MIT;
ZIVOT = Time Series Econometrics Lecture Notes by Eric Zivot, some typed, others handwritten.

Those of you with strong interests in financial econometrics might wish to purchase Financial Econometrics: Problems, Models and Methods by Christian Gourieroux and Joann Jasiak, Princeton University Press, 2001 or The Econometrics of Financial Markets, by John Y. Campbell, Andrew W. Lo and A. Craig MacKinlay, Princeton University Press, 1997. Many of the tools we use to answer macro questions are used in these books to deal with financial applications, and some of tools used in these books are hardly used at all in macroeconometrics. Nelson Mark’s International Macroeconomics and Finance (Blackwell 2001) is more related to the material that we cover in this course.

The syllabus has many references to National Bureau of Economic Research Working Papers (denoted NBER WP). Since the Economics Department subscribes to this series you can download these papers for yourself or use the department’s hard copy (if you can find it) to make a copy for yourself. The syllabus references other working papers, some which come from other universities and some from the Federal Reserve System. Most items from the 12 Federal Reserve Banks and from the Board of Governors of the Federal Reserve System may be ordered free of charge or downloaded from the Web. You may order items from the Web or you may call the Feds (the only toll free numbers that I know are as follows: Kansas City Fed (800)333-1010; St. Louis Fed 800-333-0810; and Dallas Fed 800-333-4460).

The University subscribes to most of the journals referenced here, and therefore many published papers are available on the Web. Another source is called JSTOR, from which you are currently able to download articles from a wide selection of journals. The primary limitation with JSTOR is that it will not allow us to download the last 5 years or so of the journal (sometimes its less that 5). Also, ECONLIT is a
useful tool for tracking down papers, primarily papers that are published in relatively good journal and those that are NBER Working Papers.

**Statistical Programs**, should you need them to write the paper, are left to your own discretion. If you decide to use RATS programming language, you may want to order the *RATS Handbook for Econometric Time Series* (Wiley) by Walter Enders. This manual helps you easily accomplish a lot of important tasks in RATS. This book and other texts can be purchased from Estima (the producer of RATS software), the publisher or from the Web. I’m guessing most of you really like E-Views because this software package allows you to easily implement many complicated econometric techniques. But ease of use has its costs. E-Views is not very flexible for doing some things out of the ordinary. With E-Views you are often limited to standard applications of well-known procedures, and can’t easily, if at all, do something too different from the standard application. Sometimes a referee (or maybe even a dissertation adviser) will ask you to do something E-Views won’t easily permit. But E-Views continues to get better.

**Additional Abbreviations:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ECMT</td>
<td>Econometrica</td>
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<tr>
<td>JMCB</td>
<td>Journal of Money, Credit, and Banking</td>
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<tr>
<td>QJE</td>
<td>Quarterly Journal of Economics</td>
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<tr>
<td>CRCS</td>
<td>Carnegie-Rochester Conference Series</td>
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<tr>
<td>JPE</td>
<td>Journal of Political Economy</td>
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<tr>
<td>EER</td>
<td>European Economics Review</td>
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<tr>
<td>JMACRO</td>
<td>Journal of Macroeconomics</td>
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<tr>
<td>HBMAC</td>
<td>Handbook of Macroeconomics</td>
</tr>
<tr>
<td>BPEA</td>
<td>Brookings Papers on Economic Activity</td>
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<tr>
<td>AER</td>
<td>American Economic Review</td>
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<tr>
<td>RESTAT</td>
<td>Review of Economics and Statistics</td>
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<tr>
<td>JME</td>
<td>Journal of Monetary Economics</td>
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<tr>
<td>JFE</td>
<td>Journal of Financial Economics</td>
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<tr>
<td>JEDC</td>
<td>Journal of Economic Dynamics and Control</td>
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<tr>
<td>JECMTS</td>
<td>Journal of Econometrics</td>
</tr>
<tr>
<td>HBECMTS</td>
<td>Handbook of Econometrics</td>
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</table>

**Course Outline**

1. **Introduction to Identification and Time Series Analysis**


   The issue is devoted primarily to testing for causality. Authors include Clive W. J. Granger, James Heckman, Donald B. Rubin, James M. Robins, Jerry A. Hausman, John Geweke, Kevin D. Hoover, Jean-Pierre Florens, P. Adams, M. D. Hurd, D. McFadden, A. Merrill, T. Ribeirio, Jérôme Adda, Tarani Chandola, Michael Marmot, James M. Poterba and Fabrizia Mealli.


   Heckman J. “Causal Parameters and Policy Analysis in Economics: A Twentieth Century Retrospective”
QJE 115(1), February 2000, p 45-97. (also NBER WP #7333)

Slutsky E. "The Summation of Random Causes as the Source of Cyclic Processes" ECMT 1937, 105-146


Haavelmo, T. “The probability approach in econometrics”, Supplement to Econometrica 12, July 1944

JUSELIUS: 1,2

2. Tools for Dynamic Analysis

CANOVA: 1,3,4
HELMUT: 1,2,3,4
COCHRANE: 1,2,3,4,5,6,7
OGAKI: 1,2,3,4,8
HAYASHI: 1,2,3,4,6,8,4 through 8.7
ENDERS: 1,2,5
TSA: 1,2,3,4,10,11
FAVERO: 1,2,3,4,5,6


Sims, Christopher A. "Macroeconomics and Reality," ECMT 1980, 1-48


Watson M. "Vector Autoregressions and Cointegration" HBECMTS chapter 47, section 4


2A. Bayesian VAR models


### 2B. Asymmetric VAR models

Helmut: 5


Keating J. "Macroeconomic Modeling with Asymmetric Vector Autoregressions," JMACRO 2000


### 2C. Inference on a VAR's Moving Average Representation (MAR)

Lutkepohl, Helmut “Asymptotic of Impulse responses and Forecast Error Variance Decompositions in VAR Models” RESTAT 1990

Mittnik S. and P. Zadrozny "Asymptotic Distributions of Impulse Responses, Step Responses, and Variance Decompositions of Estimated Linear Dynamic Models, ECMT 1993


Horowitz, J “The bootstrap” Chapter 52 in *Handbook of Econometrics*, Volume 5

Horowitz J. "Bootstrap Methods in Econometrics: Theory and Empirical Performance" presented at Econometric Society's 7th World Congress

Bradley Efron and Robert Tibshirani *An Introduction to the Bootstrap*, Chapman & Hall, 1993

Hall, P. "Methodology and Theory for the Bootstrap" in HBECMTS chapter 39

Sims C. and T. Zha "Error Bands for Impulse Responses" ECMT 67(5), September 1999, 1113-55.


**2D. VARMA Models**

Helmut: 6,7,8,9


Dufour J. & D. Pelletier” Linear estimation of weak VARMA models with a macroeconomic application”

**2E. Model Selection Issues**


2E. Local Projections


2F. Seminal papers on SVAR (structural VAR) modeling


Sims, C. (1986) “Policy analysis with econometric models” Minneapolis Federal Reserve Bank, Quarterly Review


3. Determining the Effects of a Shock to Monetary Policy

3A. Short-Run Identifying Restrictions

Farmer R., The Macroeconomics of Self-Fulfilling Prophesies, Ch 11

Bernanke B. and A. Blinder "The Federal Funds Rate and the Channels of Monetary Transmission," AER 1992, 901-21

Leeper, E and D Gordon, "In Search of the Liquidity Effect," JME 1992


Christiano L., M. Eichenbaum and C. Evans “Monetary Policy Shocks: What Have We Learned?” Chapter 2 Handbook of Macroeconomics (also NBER WP #6400)


Strongin, Steven "The Identification of Monetary Policy Disturbances: Explaining the Liquidity Puzzle" JME 1995, 463-97

Bernanke B. and I. Mihov "Measuring Monetary Policy" QJE 113(3), August 1998, pages 869-902 (also NBER WP #5145)


Evans C. and K.Kuttner “Can VARs Describe Monetary Policy?” Chicago Fed WP

Cover, J."Asymmetric Effects of Positive and Negative Money-Supply Shocks" QJE 1992, 1261-82


Dwyer M. “Impulse Response Priors for Discriminating Structural Vector Autoregressions” UCLA WP


Jean Boivin & Marc Giannoni “Has Monetary Policy Become More Effective?” 2006 RESTAT 445-462,


Dueker, Mike, The monetary policy innovation paradox in VARs, A discrete explanation, St. Louis Fed Review, 2002.


Brissimis & Magginas (2006) “Forward-looking information in VAR models & the price puzzle” JME

3B. Searching for Structure


3C. Using Sign Restrictions


Faust J. “The Robustness of Identified VAR Conclusions about Money” CRCS 1998 (Also Uhlig’s comments)

Atsushi Inoue Lutz Kilian “Inference on Impulse Response Functions in Structural VAR Models” working paper


10
Journal of Economic Literature,


3D. The Narrative Approach


Romer C. and D. Romer "New evidence on the monetary transmission mechanism," BPEA 1990


Shapiro, M. "Federal reserve policy: Cause and effect" Ch:9 in Monetary Policy, ed. G. Mankiw,


Leeper E. “Narrative and VAR Approaches to Monetary Policy: Common Identification Problems” JME 1997, 641-657 (Also the response of Romer and Romer)


3E. Jim Hamilton’s Approach


Hamilton J. “Measuring the Liquidity Effect” AER 1997, 80-97

Hamilton J. “Supply and Demand for Federal Reserve Deposits” CRCS 1998 (and UCSD WP)


3F. Long-Run Identifying Restrictions


Fung B. and M. Kasumovich “Monetary Shocks in the G-6: Is There a Puzzle?” JME 1998, 575-592


Keating J. “When do Long-Run Recursive Identification Restrictions and World Orderings Yield Identical Results?” 2010 WP

3G. Introduction to Unit Roots

HELMIUT: 11
HAYASHI: 9
COCHRANE: 10
OGAKI: 13
ENDERS: 4
TSA: 15, 16, 17


Stock J. "Unit Roots, Structural Breaks and Trends" HBECMTS chapter 46


Dickey & Fuller “Distribution of the estimators for autoregressive time series with a unit root” JASA 1979, 427-431.


Christian L. and M. Eichenbaum ”Unit Roots in Real GNP: Do We Know, and Do We Care?,” CRCS 1990, 7-62, (and comments by J. Stock)

Dong Wan Shin and Oesook Lee “An instrumental variable approach for tests of unit roots and seasonal unit roots in asymmetric time series models” JECMTS, Volume 115, Issue 1, July 2003, Pages 29-52


4. The Effects of Aggregate Demand and Supply

Blanchard, O.J. and D. Quah "The Dynamic Effects of Aggregate Demand and Supply Disturbances," AER 1989, 655-673


Gali, Jordi "How Well Does the IS-LM Model Fit Postwar U.S. Data?," QJE 1992, 709-38


4A. The Debate about Using SVAR models to Assess Real Business Cycle Models


4B. Introduction to Cointegration

HAYASHI: 10
OGAKI: 14,15,16
COCHRANE: 10
JUSELIUS: 34,5,6,7,8,9,10,11,12,13,14
TSA: 18,19,20

Watson M. "Vector Autoregressions and Cointegration” HBECMTS chapter 47, sections 2 and 3


Lutkepohl H. and P. Saikkonen “Impulse Response Analysis in Infinite Order Cointegrated Vector
4C. Common cycles


4D. Structural Factor Models


Forni, Mario, Marco Lippi & Lucrezia Reichlin “Opening the Black Box: Structural Factor Models versus Structural VARs” 2003 WP

Forni, Mario & Giannone, Domenico & Lippi, Marco & Reichlin, Lucrezia, 2009. "Opening The Black Box: Structural Factor Models With Large Cross Sections," *Econometric Theory*, pp. 1319-1347,

Reichlin, Lucrezia “Factor models in large cross-sections of time series” 2002 WP


Belviso, Francesco and Milani, Fabio (2006) "Structural Factor-Augmented VARs (SFAVARs) and the Effects of Monetary Policy," *Topics in Macroeconomics*: Vol. 6 : Iss. 3, Article 2


Jushan Bai & Serena Ng “A PANIC Attack on Unit Roots and Cointegration,” Econometrica, Volume 72 Issue 4, July 2004


4E. Identifying Fundamental Shocks using Model-Based Measures


5. Is Sticky Price Adjustment Important for the Economy?
Keating J. & I. Kanyama “Is Sticky Price Adjustment Important for Output Fluctuations?” 2011 WP

Ng S. “Can Sticky Prices Account for the Variations and Persistence in Real Exchange Rates?” *Journal of International Money and Finance*, (also Boston College WP)


Cogley T. “Empirical Evidence on Nominal Wage and Price Flexibility” QJE 1993, 475-491


Michael C. Davis, James D. Hamilton “Why Are Prices Sticky? The Dynamics of Wholesale Gasoline Prices” JMCB 2004 (and NBER WP # 9741)

6. Testing for Causal Relationships

6A. Granger Causality and Economic Causality

Granger C. "Investigating Causal Relations by Econometric Models and Cross-Spectral Methods," ECMT
1969, 424-438 (also in LS)

Sims, Christopher A. "Money, Income and Causality," AER 1972, 540-552. (also in LS)

Leamer, Edward “Vector Autoregressions for Causal Inference," CRCS 1985

Geweke, J. "Inference and Causality in Economic Time Series" HBECMTS chapter 19


6B. Judea Pearl’s Methods


6C. Roberto Rigobon’s method


6D. Kevin Hoover’s Method


Hoover, K. Causality in Macroeconomics, Cambridge Univ.Press, 2001


Hoover K. "The Causal Direction between Money and Prices" JME 1991

Keating J. “Using Parameter Instability to Test for Causal Relationships” WP


7. Testing for Structural Breaks


Donald W. K. Andrews “Tests for Parameter Instability and Structural Change with Unknown Change Point” Econometrica, 1993 (and A Corrigendum to fix Table for critical values in January 2003)


Anindya Banerjee, Stepana Lazarova & Giovanni Urga “Bootstrapping Sequential Tests for Multiple Structural Breaks” 2003

Jushan Bai “Likelihood ratio tests for multiple structural changes” JECMTS 91 (1999)


Andreas Beyer & Roger Farmer “Identifying the Monetary Transmission Mechanism using Structural Breaks” ECB WP


Bruce E. Hansen “Testing for structural change in conditional models” _JECMTS_, 2000
Altissimo & Corradi (2003) “Strong rules for detecting the number of breaks in a time series” JECMTS

8. Limitations and Pitfalls in Structural Time Series Modeling


Lippi M. and L. Reichlin "VAR Analysis, Nonfundamental Representations, and Blaschke Matrices" JME 1994

Christiano L. and M. Eichenbaum "Temporal Aggregation and Structural Inference in Macroeconomics," CRCS 1987


Braun P. and S. Mittnik "Misspecifications in Vector Autoregressions and Their Effects on Impulse Responses and Variance Decompositions" JECMTS 1993

Misconception” JME 1992, 87-93


9. Testing Neutrality and Superneutrality Propositions


Keating J. "Interpreting Permanent Shocks to Inflation when Money Growth is Endogenous" WP


10. Expected Monetary Policy


11. The Effects of Fiscal Policy


Giavazzi F., T. Jappelli and M. Pagano “Searching for Non-Keynesian Effects of Fiscal Policy” WP


J. Cummins, K. Hassett & R.G. Hubbard “A reconsideration of investment behavior using tax reforms as natural experiments” BPEA 1994

12. Policy Rules

“Inflation Targeting” July-August 2004 issue of Economic Review by the FRB of St. Louis

WOODFORD


McCallum B.T. “Issues in the design of monetary policy rules” Chapter 23 Handbook of Macroeconomics

McCallum B. “Recent Developments in Monetary Policy Analysis: The Roles of Theory and Evidence” *Journal of Economic Methodology*; 6(2), July 1999, pages 171-98 (also NBER WP #7088)


Taylor J. "What Would Nominal GNP Targeting Do to the Business Cycle?," CRCS 1985

McCallum B. "Robustness Properties of a Rule for Monetary Policy", CRCS 29(0), Autumn 1988, pages 173-203

McCallum, B. "Could a Monetary Base Rule Have Prevented the Great Depression?" JME 26(1), August 1990, 3-26.

*Monetary Economics: Theory and Policy*, by B. McCallum, Chapter:16
Monetary Policy, ed. G. Mankiw, Ch: 1,2


Svensson L "Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets" EER

Woodford M. "Nonstandard Indicators for Monetary Policy: Can Their Usefulness be Judged from Forecasting Regressions?" Ch:3 in Monetary Policy, ed. G. Mankiw

Bernanke B. and M. Woodford “Inflation Forecasts and Monetary Policy” JMCB 29(4), Part 2 November 1997, pages 653-84 (also NBER WP #6157)

13. Policy Analysis with Dynamic IS-LM Models

WOODFORD

Benigno P. & M. Woodford “Optimal stabilization policy when wages&prices are sticky, The case of a distorted steady state,” NBER WP


WALSH: Chapter 11


26


14. Rational Expectations Econometrics

Chapter 3 from Gregor Smith’s *Macroeconomics Lecture Notes for a Masters Course*


Soderlind P. “Solution and Estimation of Rational Expectations Macro models with Optimal Policy” EER 1999, 813-823

Gaspar J. and K. Judd “Solving Large Scale Rational Expectations Models” *Macroeconomic Dynamics* 1997, 45-75

Cogley, T. “Estimating and testing rational expectations models when the trend specification is uncertain” JEDC, October 2001


Sarno, Lucio & Dan Thornton “The efficient market hypothesis and identification in structural VARs” St. Louis Fed Economic Review, 2004

15. Calibration

CANOVA: 7

FAVERO: 7,8

WALSH: Chapter 2


Watson, M "Measures of Fit for Calibrated Models" JPE, 1993, pp. 1011-41.


16. DSGE Models

DeJong, David with Chetan Dave (201) Structural Macroeconometrics, 2nd ed., Princeton.

ESIMS: This web page has a list of PDF documents on topics that are useful for understanding how to analyze DSGE models. Topics include-
- Time series; Neoclassical Growth; Value Function Iteration; Log-linearization;
- Solving Linearized Rational Expectations Models; Quantitative Analysis in DSGE Models;
- Using Dynare to Solve DSGE Models; Real Business Cycle Model;
- Stylized Facts and the Empirical Performance of RBC; Extensions of Basic RBC Model;
- Investment; New Keynesian; Optimal Monetary Policy; Medium Scale DSGE Models.

Harold Uhlig at: http://www.wiwi.hu-berlin.de/wpol/html/toolkit.htm provides his paper “A toolkit for analyzing nonlinear economic dynamic models easily” as well as some programs for analyzing dynamic stochastic general equilibrium models.

There is a free program called DYNARE which is a very useful tool that can make it much easier to solve for the equilibrium in a DSGE model or to estimate such a model.

CANOVA: 2,5,6,11

ADDACOOPER


Marco Del Negro, Frank Schorfheide (2010) “Bayesian Macroeconometrics” Prepared for Handbook of Bayesian Econometrics


Del Negro, Marco & Schorfheide, Frank, 2008. "Forming priors for DSGE models (and how it affects the
assessment of nominal rigidities)," *Journal of Monetary Economics*, vol. 55(7), pages 1191-1208


17. **Learning, Beliefs and Macroeconomics**


Learning and Expectations in Macroeconomics, George Evans and Seppo Honkapohja, Princeton Univ. Press, 2001


18. Large-Scale Macro Models

Klein L., A. Welfe and W. Welfe, Principles of Macroeconometric Modeling, North-Holland, 1999


19. Macroeconomic Forecasting


Jushan Bai, Serena Ng (2002) “Determining the Number of Factors in Approximate Factor Models” Econometrica

Ben S. Bernanke & Jean Boivin “Monetary policy in a data-rich environment” JME 2003, 525-546


Stock J.H. & M.W. Watson “Forecasting Inflation” JME


Kenneth D. West, “Encompassing tests when no model is encompassing”, JECMTS, Volume 105, Issue
Valentina Corradi, Norman R. Swanson and Claudia Olivetti, “Predictive ability with cointegrated variables”, JECMTS, Volume 105, Issue 1, (November 2001) Pages 315-358


Michael Dueker “Forecasting qualitative variables with vector autoregressions: A Qual VAR model of US recessions”, JBES, Vol. 23, 2005


20. Oil Prices and the Macroeconomy


22. Nonlinear Time Series Modeling


