The RATSletter

Estima

RATS Version 8.2 Now Available

RATS version 8.2 offers significant improvements to the graphics and reporting capabilities, makes it easier to work with procedures, and adds new computational capabilities. You will also find new functions and several interface enhancements, particularly in the Macintosh version.

Procedure Support

With an ever-increasing number of sophisticated procedures available for RATS (see page 3), we've added several features to make using them easier. First, you can now define more than one procedure "search" directory using *File–Preferences*, making it easier to organize your procedures. Second, RATS can now keep your procedure library up-to-date by downloading updates directly from our web site.

Macintosh Version Now in "Cocoa"

Through version 8.1, MacRATS was written using Apple's older Carbon API. We've now rewritten the entire interface in the Cocoa API, allowing for many interface improvements and better integration with recent versions of OS X.

Output and Graphics

Continuing our focus on helping users turn results into accurate, publishable content, we've written a new **@RegToTex** procedure that generates a TeX equation from a regression in the common form:

$$y = 3.50 + 1.25x_1 - .13\ x_2$$
$$\quad (.17) \quad (.23) \quad (.02)$$

Improvements to the graphing capabilities include:

New HEIGHT and WIDTH options on all graphics instructions, allowing you to generate graphs with the desired size right off, rather than having to manually resize the graph window.

New SERIES and SYMBOL options on **GRAPH** for graphing VECTORs of SERIES. These provide a more convenient way to graph larger numbers of series, and to graph VECTORS[SERIES] defined by RATS instructions like **FORECAST**.

Finally, the new **GSAVE** instruction simplifies the process of saving graphs, replacing the older "**ENVIRONMENT GSAVE GFORMAT**" syntax. **GSAVE** can also strip headers or footers off of graphs when exporting the graph, so these won't duplicate a caption used in the document being constructed.

Improvements to GARCH, FIND, and SUMMARIZE

The **GARCH** instruction has several new MV options: triangular and diagonal BEKK, and Choleski factor

New Textbook Example Browser

Several years ago we began the project of writing RATS programs to implement examples from popular econometrics textbooks.

We now have programs demonstrating nearly all of the examples found in more than two dozen textbooks. Together, this suite of programs serves as an extremely rich resource of information for RATS users.

To date, the only problem has been identifying which example programs demonstrate the techniques or programming strategies you need.

The new Textbook Example Browser on our website should help you do just that. To get to the browser, go to www.estima.com and click on "Resources", then "Procedures/Examples", then "Textbook Example Browser". Or, just go directly to:

http://www.estima.com/cgi-bin/bookbrowser.cgi

The browser database includes all of our textbook example programs, and you can filter the list of programs by general topic, RATS feature/keyword, particular book, and general level of difficulty. We think this tool will be very useful for RATS users of all levels, and invite you to take a look.

Note that it complements the existing "Procedure and Example" browser, which allows you to filter through our database of procedures, primary RATS examples, and examples replicating results from more than sixty papers. That browser is available in the same section of the website, at:

http://www.estima.com/cgi-bin/procbrowser.cgi

ARCH/GARCH, Panel Web Courses

Registration is now open for our next web course, which will cover ARCH and GARCH models. The course will run from September 27th through November 15th, 2012, and will examine the practical and theoretical issues with estimating and using ARCH, GARCH, and stochastic volatility models.

We will cover the many variants of univariate and multivariate GARCH estimation, including specification of the variance and mean models, overcoming numerical issues, and diagnostic checking.

Then we will examine more advanced topics like jump and threshold GARCH models.

New Example Programs

The files below contain example programs and (in most cases) data files replicating results from significant econometrics papers or demonstrating other useful techniques. These are available on our website, and will be included with version 8.2 of RATS, in addition to the more than fifty paper replication programs that shipped with version 8.1.

arellano_bond_restud1991.zip
Replicates Arellano and Bond (1991), "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations", *Review of Economic Studies*. Demonstrates dynamic panel data models using GMM.

bai_lumsdaine_stock_restat1998.zip
Replicates Bai, Lumsdaine and Stock (1998), "Testing For and Dating Common Breaks in Multivariate Time Series", *Review of Economic Studies*. Calculates break statistics on a multivariate models with a common break across all equations.

baillie_bollerslev_jbes1989.zip
Replication file for Baillie and Bollerslev (1989), "The Message in Daily Exchange Rates: A Conditional Variance Tale", *Journal of Business and Economic Statistics*, which estimates univariate GARCH models with day-of-the-week effects.

bollerslev_mikkelson_joe1996.zip
Replicates Bollerslev and Mikkelson(1996), "Modeling and Pricing Long Memory in Stock Market Volatility", *Journal of Econometrics*. This estimates FIGARCH and FIEGARCH models (fractionally integrated GARCH and EGARCH).

egarchbootstrap.rpf
Example of bootstrapping an EGARCH model (for forecasting variance out-of-sample)

egarchsimulate.rpf
Example of simulation of an EGARCH model (for forecasting variance out-of-sample)

faust_carnegie1998.zip
Replication of Faust (1998), "The Robustness of Identified VAR Conclusions About Money", *Carnegie-Rochester Conference Series on Public Policy*. This examines the maximal extent that GDP can be explained by a monetary shock in a VAR.

garchmvbootstrap.rpf
Example of bootstrapping for MV GARCH models. This estimates quantiles on bootstrapped 10-day returns using two different MV GARCH models.

garchmvdccgibbs.rpf
Example of Gibbs sampling (using Independence Chain Metropolis) with DCC GARCH model

hafner_herwartz_jimf2006.zip
Replication file for Hafner and Herwartz (2006), "Volatility Impulse Responses for Multivariate GARCH Models: An Exchange Rate Illustration", *Journal of International Money and Finance*.

holtz-eakin_n_r_ecm1988.zip
Example of techniques for estimating a VAR with panel data (with "large N, small T" data set) from Holtz-Eakin, Newey, and Rosen (1988), "Estimating Vector Autoregressions with Panel Data," *Econometrica*.

koop_leon-gonzalez-strahan_er2010.zip
This is an example of the Gibbs sampling procedure for cointegrated models described in Koop, León-González and Strachan (2010), "Efficient Posterior Simulation for Cointegrated Models with Priors on the Cointegration Space", *Econometric Reviews*.

lebo_box_ajps2008.zip
Replication file for Lebo and Box-Steffensmeier (2008), "Dynamic Conditional Correlations in Political Science", *American Journal of Political Science*. Does multivariate GARCH models with DCC applied to political science data.

montenearsvar.rpf
Example of MCMC analysis of a combination of a near VAR for the lag coefficients and a structural VAR for the covariance matrix.

pedroni_jae2007.zip
Replication of Pedroni (2007), "Social Capital, Barriers to Production and Capital Shares: Implications for the Importance of Parameter Heterogeneity from a Nonstationary Panel Approach", *Journal of Applied Econometrics*. Uses the **PANCOINT** and **PANELFM** procedures for testing and estimation of cointegration models in heterogeneous panels.

skalin_terasvirta_jae1999.zip
Replication file for Skalin and Terasvirta (1999), "Another Look at Swedish Business Cycles, 1861-1988", *Journal of Applied Econometrics*. This fits ESTAR and LSTAR models to a number of long annual macro series from Sweden and does a causality test allowing for threshold effects.

panelcause.rpf
Example of panel causality test allowing for heterogeneity in the coefficients and variances.

observableindex.rpf
Estimates an observable index model from Sargent & Sims (1977), "Business cycle modeling without pretending to have too much a priori economic theory", Federal Reserve Bank of Minneapolis Working Papers, no. 55.

New Procedures

The following new procedures are included with version 8.2, and are available on our website.

BREITUNG

Implements panel unit root tests from Breitung (2000), "The Local Power of Some Unit Root Tests for Panel Data", from Baltagi, Fomby, Hill (eds), "Nonstationary Panels, Panel Cointegration, and Dynamic Panels", *Advances in Econometrics*.

CXLOGDENSITY

This is a generalization of `%LogDensity` to complex matrices for use in multivariate Whittle likelihood estimation. It computes the frequency-by-frequency log likelihood. Use `%CXLogDensityCV` for the concentrated Whittle log likelihood.

CXLOGDENSITYCV

This is a generalization of `%LogDensityCV` to complex matrices for use in multivariate Whittle likelihood estimation. This computes the concentrated log likelihood. Use `%CXLogDensity` for the frequency-by-frequency log likelihood.

ENDERSGRANGER

Procedure for the threshold unit root tests in Enders and Granger (1998), "Unit-Root Tests and Asymmetric Adjustment with an Example Using the Term Structure of Interest Rates", *Journal of Business and Economic Statistics*.

LEVINLIN

Implements tests from Levin, Lin, and Chu (2002), "Unit Root Tests in Panel Data: Asymptotic and Finite-sample Properties", *Journal of Econometrics*.

MVGARCHTOVECH

Extracts a VECH representation out of the most recent GARCH instruction for use in forecasting or volatility impulse response analysis.

POTEST
POTESTRESIDS

These compute a Phillips-Ouliaris(-Hansen) test for cointegration. `@POTESTRESIDS` is applied to the residuals from an already completed first-stage regression, while `@POTEST` does the regression first.

From Phillips and Ouliaris (1990), "Asymptotic Properties of Residual Based Tests for Cointegration," *Econometrica*, and Hansen (1992), "Efficient Estimation and Testing of Cointegrating Vectors in the Presence of Deterministic Trends", *Journal of Econometrics*.

REGTOTEX

Takes the most recent regression and produces a TeX equation showing the regression information in equation form.

WESTCHOTEST

Computes the modified Ljung-Box test, robust to heteroscedasticity, proposed in West and Cho (1995), "The Predictive Ability of Several Models of Exchange Rate Volatility," *Journal of Econometrics*.

Updated Procedures

The procedures `@PANCOINT`, `@PANELDOLS`, and `@PANELFRM`, which implement panel data techniques developed by Peter Pedroni, have all been substantially revised.

The following procedures have also been updated—in most cases they now share a standardized syntax: `@ABLAGS`, `@REGPCSE`, `@HADRI`, `@HTUNIT`, and `@IPSHIN`.

The following Markov switching model procedures have been updated to allow for time-varying transition probabilities: `@MSEMSETUPSTD`, `@MSREGRESSION`, `@MSSETUP`, `@MSSYSREGRESSION`, and `@MSVARSETUP`.

ARCH/GARCH, Panel Courses, *contd.*

Finally, we will look at the related topic of stochastic volatility models, covering both approximate state space estimation and Monte Carlo methods. Please see our website for details.

Panel Data Course Materials

The workbook, example programs, and procedures from our recent e-course on *Panel and Grouped Data* are now available for sale.

The package includes the 187-page PDF workbook, nineteen example programs, and more than a dozen new or revised procedures, plus programs replicating examples from several textbooks.

The course covers the techniques of panel data econometrics, with an emphasis on the "time-series" aspects, including Dynamic Panels, Unit Root Tests, Cointegration, and VAR's. We also demonstrate the use of Gibbs sampling for panel data, including linear and non-linear random effects, random coefficients models, and applied to VAR's.

We make use of several new features that were added with RATS versions 8 and 8.1, including improvements to the core instructions `PREGRESS`, `PANEL`, and `PFORM` to provide greater flexibility for dealing with both panel and general grouped data. For more information, contact your reseller or see:

www.estima.com/courses_completed.shtml

RATS Version 8.2, *contd.*

models. The new SIGNS option allows for asymmetric effects with different sign conventions.

SUMMARIZE has new options allowing you to apply the "delta" method to much broader functions of a set of estimated parameters. **FIND** has new options for doing a grid search in one or more dimensions.

Other Features

You'll find a new Wizard for doing Cointegration tests, including the Engle-Granger and Phillips-Ouliaris regression-based tests, the Johansen likelihood test, and the Gregory-Hansen test allowing for breaks. Also, the *Unit Root Tests* wizard now supports automatic lag-length selection methods.

Finally, there are two new "aggregate" data types: LIST and HASH. Both are vector-like, but LIST is designed to have an easily adjustable length, where expressions like "*list=list+item*" automatically increase the size of the list. HASH references elements using character strings rather than numbers, so you can more easily create (for instance) a HASH of EQUATIONS where each correspond by name to a series.

RATS Code Via RePEc

Links to RATS example programs and procedures have now been added to the RePEc archive of economics papers, books, and software components.

For example, you can now go to

ideas.repec.org

and search by author, article title, or topic keywords. Where available, you'll find links to related examples or procedures. Pages for specific journal articles will also list related RATS code in the "Other Versions of this Item" section of the listing.

An example is the following (for Enders and Siklos JBES 2001)

ideas.repec.org/a/bes/jnlbes/v19y2001i2p166-76.html

You can also often hit the direct RePEc page for the procedure itself using an external search engine. For instance, Googling "Enders Siklos RATS" will probably give you a first hit at

ideas.repec.org/c/boc/bocode/rts00064.html

which will then have a link back to the paper if it's on RePEc.

Prices and Ordering

Users with current update subscriptions will automatically receive version 8.2 on CD. Users with single-user licenses for version 8.0 or 8.1 who don't have update subscriptions can update to 8.2 for a small fee.

If you have version 7.3 or older, updates are offered at very reasonable prices, and include the software as well as the completely revised version 8 user's manuals. Please contact your reseller for a quote.

Note that you don't have to have the older software still installed in order to get an update. You *do* need to have the serial number. If you cannot find your serial number, contact your reseller before placing your order.

If you have the standard version of RATS, you also have the option of upgrading to the Professional version, which adds the X12 seasonal adjustment capability, the ability to access the online FRED database, and support for reading ODBC/SQL, FAME, and CRSP databases.

Update Subscriptions

Update subscriptions provide a convenient way to budget your software expenditures, and are the easiest way to ensure that you receive all updates to RATS as soon as they are released. We offer two forms of update subscriptions: Version and Annual.

Most (current) multi-user licenses are on annual subscriptions. These provide all updates for one year. The expiration date is shown on the CD envelope label. If you (think you) need to renew yours, please contact us for pricing.

Single-user licenses are generally handled using Version subscriptions, which provide all updates up to and including the next major release.

If you have version 8 or are updating to 8.2, a version update subscription would give you all updates up to and including version 9.0.

Contact your reseller for price quotes.