

we encouraged experimentation we can begin to move between these extremes in meaningful and productive ways.

Political scientists are finally beginning to recognize that formal model does not mean rational choice (and what we mean by rational choice is highly variable as well), which is much to the discipline's good. But to dismiss or relegate laboratory experiments on formal models to a little discussed specialty because they are seen as mainly theory tests and thus not useful, ignores the reality that these controlled evaluations allow us to move along this continuum in productive and multidimensional ways not possible if we only use naturally occurring data. Moreover, the bias towards emphasizing external validity eliminates two principal advantages of experimental evaluations of formal models that are, I argue, virtually impossible using naturally occurring data - assumption evaluation and empirical research on counterfactuals (which we can only speculate on outside of the lab). If we are truly going to begin an agenda that focuses on the empirical implications of formal models, experimental research should take the primary role and political science would become a "real" science.

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Articles

The L^AT_EX Corner: L^AT_EX For the Rest of Us

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Have you ever tried to send a Word document to a colleague that uses a different version of Word? Or even worse, to one that uses Linux, or, God forbid, a Macintosh? If so, you will remember how things seem to change across every version of Word across every platform. Your page fifteen might be your colleague's page twelve and so forth. In a world with growing use of Linux (and other Unix-based operation systems), and with a resurgence of the Macintosh platform (which – perhaps not coincidentally – is now too a Unix-based operating system), the ability to share and collaborate on documents across platforms has become increasingly important. There are file formats, such as postscript and Adobe PDF that accomplish this goal for finished-product reasonably well. But for works-in-progress, these solutions are quite limited. One of the distinct advantages of using L^AT_EX as a text-processing system is its seamless ability to move from platform to platform with no changes. This is based in part to the platform-independent T_EX implementation by Donald Knuth, and a commitment among the L^AT_EX community to maintain cross-platform compatibility.

In the last issue of *The Political Methodologist* Chan H. Nam wrote a very nice introduction to L^AT_EX for the uninitiated. In that article he outlines how to get started with L^AT_EX, and details some implementations of L^AT_EX for the Windows operating system. Because of its cross-platform friendliness, his introduction applies equally well for those using Macintosh or Linux. In this article, I will point to some valuable resources for using L^AT_EX on my operating systems of choice – MacOS X (and it's younger sibling MacOS) and Linux. That is, this article serves as a summary for the enlightened who choose to avoid Microsoft Windows for their computing needs.

L^AT_EX on Linux and other Unices

As Linux (and other Unices) become a more and more cost-effective desktop system, more and more political scientists will begin using Linux not only for statistical computation, but also for day-to-day computing. Installing and configuring L^AT_EX on a Linux system by hand is a rather cumbersome process. But nearly all of the major Linux distributions include the `tetex` package (<http://www.tug.org/teTeX/>). This package provides all you need to turn your `.tex` source file into a DVI file (usually you just need to type `latex myfile.tex`). Another nice feature in this package is the ability to directly generate PDF files instead of DVI files; one does this by typing (you guessed it) `pdflatex myfile.tex`. The resulting PDF file can be read by the standard utilities.

Not only are L^AT_EX `.tex` source files platform independent, so too are DVI files. Indeed, you can preview a DVI created on any system on any other system, *and you will see precisely the same thing*. The Linux utility to preview DVI files is called `xdvi`, which is also contained in nearly all of the standard Linux releases. You can download `xdvi` from [http://www.math.berkeley.edu/~\\$sim\\$vojta/xdvi.html](http://www.math.berkeley.edu/~simvojta/xdvi.html). One can convert a DVI file to a postscript file using the handy `dvi2ps` utility, which is part of the `tetex` distribution.

I cannot conclude my discussion of L^AT_EX on Linux systems without mentioning text editors. Of course, you can use *any* text editor to type and edit your `.tex` source files, but there are some tools out there that make the job much easier. Many people swear by Emacs (<http://www.gnu.org/software/emacs/>), the “extensible, customizable, self-documenting real-time display editor.” Emacs is distributed under the GNU GPL, and is available for nearly every operating system (including Windows). There is a package called AucT_EX (<http://mirrors.sunsite.dk/auctex/www/auctex/>) that makes writing L^AT_EX code as easy as possible in Emacs. Others prefer a more visual approach. I can recommend the editor AlphaTK ([http://www.santafe.edu/~\\$sim\\$vince/Alphatk.html](http://www.santafe.edu/~simvince/Alphatk.html)) that runs in the X-Windows environment. It has a superb graphical interface that makes entering L^AT_EX easy, especially for “hard” things like tables, lists, and mathematics.

L^AT_EX on the Macintosh

From my perspective, one of the most exciting things in the world of computation is MacOS X. This new operating system has one thing in common with the old MacOS – an intuitive, efficient, and aesthetically pleasing graphical user interface. The nuts and bolts of MacOS X, however, are completely different. In fact, MacOS X is built upon an Open Source version of BSD Unix called Darwin. If you like the command line as much as I do, one

can now install the standard Unix tools for L^AT_EX on a Macintosh running MacOS X. You can run a X-Windows server on top of the Macintosh GUI, and use the same `xdvi` as you would on any other Unix machine.

But MacOS X offers much more to the user than the standard Unix command line tools. And L^AT_EX on MacOS X is no exception. One fantastic resource is Gary L. Gray’s website at Penn State that includes everything L^AT_EX-related as it pertains to Macintosh: <http://www.esm.psu.edu/mac-tex/>. There are also three integrated packages for MacOS X (and two for classic MacOS) that simplify using L^AT_EX. The first is a relatively new project called T_EXShop, which is only available for MacOS X. This program includes a text editor, and L^AT_EX compiler (it in fact uses the `tetex` distribution, although that is under the hood), and a document previewer based on `pdflatex`. T_EXShop is thus an entirely integrated environment, and is totally Open Source. I suspect it will be ported to other versions of Unix in due time. You can download this package from: [http://www.uoregon.edu/~\\$sim\\$koch/texshop/](http://www.uoregon.edu/~simkoch/texshop/).

There are two shareware L^AT_EX packages that are available for both classic MacOS and MacOS X. Unlike T_EXShop, these do not include integrated text editors (although they work well using Apple Events with the two text editors mentioned below). They do, however, compile `.tex` source files and display DVI files on the screen. They also have other useful features, including manipulating DVI files, creating postscript and PDF files from DVI files, and the like. The first is called OzT_EX, which is available from <http://www.trevorrow.com/oztex/>. I have used OzT_EX for nearly ten years, and find it to be a wonderful product, particularly for the meager price. Another option is CMacT_EX, available from <http://www.kiffe.com/cmactex.html>.

Perhaps the best reason to use L^AT_EX on the Macintosh is the number of excellent text editors. Of course you can use Emacs or another Unix-based text editor in MacOS X (and, there are available ports for classic MacOS). But my time is spent using Alpha and BBEdit, which for my money are the two best text editors available on any platform. For pure L^AT_EX use I prefer alpha, which is available at [http://magnet.fsu.edu/~\\$sim\\$hall/docscripting/alpha/](http://magnet.fsu.edu/~simhall/docscripting/alpha/). Alpha is a shareware program, and unfortunately is not yet available for MacOS X. Alpha is based on the tcl scripting language, and has a wonderful palette of tools one can use to write L^AT_EX code. And, it integrates seamlessly with OzT_EX and CMacT_EX (a simple keystroke is all that is required to compile a document). BBEdit is a great multi-purpose text editor, particularly useful for HTML (<http://www.barebones.com/>). It too has some nice built-in L^AT_EX functions that make it as easy as possible.

In short, \LaTeX is not only an extremely useful and powerful text processing system. It is an extremely useful and powerful *cross-platform* text processing system. For “the rest of us” – the 5% who do not use Microsoft Windows – \LaTeX is a promising and viable text processing solution.

Review of Ron C. Mittelhammer, George G. Judge, and Douglas Miller’s *Econometric Foundations*

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Econometric Foundations. by Ron C. Mittelhammer, George G. Judge, and Douglas J. Miller. (Cambridge University Press, New York, 2000; 756 pp; \$64.95. ISBN 0-521-62394-4.)

Give a man a fish and he will eat for a day. Teach him how to fish and you will feed him for a lifetime. Teach him the philosophy behind fishing and he will learn not only to fish, but to hunt and to farm as well. The lesson here is clearly that as with anything in life, establishing a firm foundation is the key to enduring success. Other options, in comparison, are clearly fleeting victories. In this philosophical sense, *Econometric Foundations* by Mittelhammer, Judge, and Miller (MJM), is a refreshing and much welcomed departure from the vast collection of econometrics texts. Whereas the goal of many econometric texts is to provide one with a set of tools, the goal of MJM is to help the student understand the tools, by giving the student a firm foundation in statistical theory.

Their mode for achieving this goal is simple. They begin with the most basic of models. Then, with each passing chapter, MJM tinker with the specification and generalize the reasoning behind the model. The clear overall logic of the book is an innovation that students and analysts will find extremely helpful. The book is separated into ten parts. It begins with a philosophical section on information processing and recovery. The second chapter jumps into regression models. The third section transitions into extremum estimators and nonlinear and nonnormal regression models. Section 4 examines how to avoid the parametric likelihood formulation. Section 5 looks at generalized regression models. In Section

6, they make a foray into simultaneous equation probability models and general moment-based estimation and inference. Section 7 discusses the all-important question of model recovery (variable selection and conditioning and the problem of noise covariance matrix specification). Section 8 treats the topic of limited dependent variable models. Section 9 makes something of a break and moves to Bayesian estimation and inference (though with a regression focus). The book ends with an epilogue that visits many of the issues of computer simulation and resampling methods that arise in the text. Throughout, MJM focus on establishing a firm base, developing a conceptual and empirical understanding of basic econometric models and procedures that provide the roots or foundations for variations found in specialized books and journal articles.

To boot, MJM is a valuable learning resource on multiple dimensions. The textbook is the tried-and-true medium, with nice pedagogical devices such as an “Idea Checklist—Knowledge Guidelines” and often “Computer Exercises” at the end of the various chapters. In addition, they provide a CD-ROM that includes examples from the book (written in GAUSS). The examples are especially helpful for learning because they are set up to be used interactively. For those who do not feel up to the statistical sophistication level that MJM assumes, the CD-ROM also has a primer on probability theory, classical estimation and inference, and ill-posed problems. Finally, a copy of GAUSS Light from Aptech Software is included, along with a short introduction to GAUSS and the complete GAUSS mailing list from 1995–1999. If all that were not enough, the book also has a web site (<http://www.econometricfoundations.com>) where one can download additional materials. For instance, instructors may download a solution manual, free of charge. Students will find example guides (in PDF format) that have additional background details for examples in the book. In addition, updates are made available for various aspects of the book, including a special discount offer to upgrade from GAUSS Light to the full version of GAUSS.

MJM is an especially attractive text for social scientists because it focuses on the type of data that social scientists usually encounter (incomplete, noisy, partial, etc.). They focus on practical, real-world data analysis rather than assuming that one lives in the purely theoretical data world. For political scientists, the book is most welcome for several reasons. First, it develops information processing and recovery from a viewpoint that is particularly amenable to the types of problems that we usually encounter. Second, it focuses on semi-parametric data based formulations, an especially useful but under-trodden path for us. Lastly, the electronic chapter on ill-posed inverse problems has direct application to many