

# ***LAB NOTES***

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## **In This Issue**

Director's Corner.....	1
Projects, Plans, and Services.....	2
The Help Desk.....	2
Upcoming PRISM Events.....	3
Statistics Corner.....	4
Staff Contact Information.....	6



“Introducing the Help Desk” p.2

## **Director's Corner**

by Marcus Kurtz

We are in the midst of major changes in the Lab, in terms of personnel, network, and labs. Thanks much for bearing with us as these changes are made; I am confident the result will be better computer support for the department at less expense.

Starting with personnel, as most of you know, Bill Miller was out for much of winter quarter with health issues. Thankfully, he is now recovered and has returned to work. At the same time, James Norman resigned and has gone to Vegas to seek his fortune in the Information Technology field out there. We are currently in the process of hiring to come back up to full strength. Thankfully David Sweasey, Jeff Martinson, Zach Mears, Jim DeLaet, and our undergraduate work-study students Yared DeBebe and Matt Thompson have stepped in to help out during the periods when we were understaffed.

As to the network, somehow we have always had unusual computer networks, starting with a

Nestar network before network standards were developed, then Banyan which also went under, and now Novell which only has two other installations on the entire OSU campus. With Bill Miller and David Sweasey leading us, we decided several months ago to switch to Windows Server, and David got that going for our new basement lab in 0125 Derby with considerable success. We have bought a new server and will be getting it ready for the new 2nd floor network. Hopefully we will be able to wait for summer for the transition, but the plan is to have it ready to plug in earlier if we hit an emergency with Novell this spring.

Turning to our labs, I am pleased to say that this is the second year in a row that we have won a large amount of new annual rate money for undergraduate computing based on the undergraduate technology fee. Last year's award led to our wonderful new facility in 0125 Derby; this year's will result in remodeling 0150 Derby for smaller classes that benefit from computers and multimedia. We also won funds for equipment for a multimedia preparation lab, so we can put together a facility with a scanner, dvd, video capture, web development tools, etc for you to use in preparing materials for classes.

We are also trying to buy equipment smarter than in the past -- less expensive equipment

that works better. The new computers in 0125 Derby are one example of this approach. Similarly, we will be saving \$5,000 in maintenance fees on Novell by switching networks to one that provides more features and is easier to maintain.

An important part of our quality improvement effort is trying to move all of our computers to the Windows XP operating system. It is much more stable than earlier versions of Windows and permits automatic updating for virus checks, critical updates for Microsoft, and so on. This should result in our computers operating better, with less investment of staff time fixing problems on individual machines. Last year's round of faculty computers were bought with XP, and we will try to put XP on the remaining computers soon. (We will keep trying to support faculty who use WordPerfect 5.1 in DOS mode on older computers with vintage operating systems, but the days of this support will eventually have to draw to an end.) Most graduate student offices now have an XP machine, and when staff is back up to its normal level we hope to replace the remaining older computers in grad student offices with XP machines from 0150 Derby.

PRISM brought in excellent speakers in winter quarter (cosponsoring talks by Renee Smith of Harris Interactive and by Bill Greene of Stata) and has Kristian Gleditsch coming in spring quarter. Also it conducted training sessions in winter on LaTeX (no jokes this time), and will be conducting follow-up sessions in spring on R.

On equipment loans: we now have a dvd/vcr that can be borrowed for use in experiments and we should have another projector that can be borrowed for class use (but not for all quarter). Additionally, a projector will be mounted in the Spencer Room, so it will no longer be necessary to arrange for a projector to be brought there for talks.

Finally, please beware of viruses, spyware, and other malicious attacks on your computers.

Three faculty computers were taken over so seriously during winter quarter that they had to be rebuilt. One of these somehow did not have an administrative account and password, which allowed an outside hacker to take it over and use it to distribute current Hollywood films until the Computer Center noticed the unusual activity and shut it off the Internet. If your computer seems to be operating less efficiently than it used to, please have our staff check whether it has been hit by one of these problems.

## Projects, Plans, and Services

### *Introducing the Help Desk*



The PRL is moving to an electronic ticketing system for service and maintenance requests. We call it the “Help Desk.” This change allows us to more efficiently track and respond to requests and better anticipate future needs. Lastly, as “customers” the Help Desk offers the ability to monitor the progress of your request within our system.

In the following, we relate some of the basics of the Help Desk. As it turns out, much of the system is also intuitive, so we encourage you to play with it, or to contact a live staff member if you have other questions.

**Where is it?** The Help Desk is at [http://inet.sbs.ohio-state.edu/help\\_desk.htm](http://inet.sbs.ohio-state.edu/help_desk.htm). Links from the PRL page and the INet will also connect you. [Hint: save the Help Desk as a favorite and you’ll never search for it!]

**How do I Register and Login?** Before using the Help Desk for the first time, you’ll need to register. Click “User Login”, then “Register.” Enter an easily remembered user name and

password, then your full name and email address. To login click the “Login” button and enter your user name and password.

***How do I Make a Request?*** Click the “Log a Ticket” button. Your name and email will appear automatically, as will a default priority level of 3 (Hint: change this if your need is more or less urgent.) Next, select your computer usage category (e.g., faculty, staff) and describe the subject and any particulars of your computer problem. Finally, click submit.

***How do I Track My Request?*** You will receive an initial email, as well as follow-up emails as your problem is resolved. If at any other time you wish to track your request’s progress toward resolution, you can login to the Help Desk and click on “View My Tickets.”

***What if I Can’t Get to Help Desk!?*** If you find you cannot access the Help Desk, please call the PRL or stop by in person. We will check to see if the access problem can be resolved and in any event gladly submit a help desk ticket on your behalf.

## Winter Quarter PRISM Events

All of us at PRISM hope everybody had an enjoyable break and also hope you will find some of the upcoming PRISM events of interest.



**Methods Lunches:** We are mixing up the nature of Methods lunch this quarter by offering some pizza lunches instead of the usual trip to the Wexner Cafe. We have two pizza events planned this quarter.

### ***Conditional Frailty Models and the Onset of Civil War***

Time & Date: Noon; Tuesday, May 10  
Presenters: Jan Box-Steffensmeier

Our own Jan Box-Steffensmeier will be presenting a paper of hers coauthored with Suzanna DeBoef and Kevin Sweeney. The paper examines the occurrence of civil wars using a conditional frailty event history model to capture sources of heterogeneity and the nesting of countries within regions, both of which make countries more or less susceptible to war. The talk has something to offer for everyone as it applies a developing method within event history analysis within a very interesting substantive area. All are encouraged to attend.

### ***Methods at OSU Political Science***

Time & Date: Noon; Thursday, May 26  
Presenters: Many

This is a session for those interested in what taking methods can do for you and what the methods program at OSU is like. The session will feature a discussion panel of faculty and graduate students covering many questions and topics that may be of interest to you. The topics to be discussed include: the role and use of methodological training for political science research; the nature of the methods program here at Ohio State; and available opportunities and resources provided by the PRL and PRISM. Any first year students trying to figure out the types of classes they want to take in the future are strongly encouraged to attend.

**Brownbag Series:** PRISM plans on continuing to hold informational brownbag presentations on methods topics. These range from presentations on specific statistical techniques to presentations on statistical software or other computer programs often used in political research.

### ***Introduction to R***

Date to be determined  
Derby Hall 0125 (Basement Computer Lab)  
Presenters: Dave Darmofal and Corwin Smidt

The statistical program R is gaining prominence as the program of choice for a

number of methodologists. *Introduction to R* will introduce individuals to the free version of the S-plus program. The presentation will first discuss the general capabilities of R, its positives and negatives, and will then cover the basics like how to enter in data, how to run simple models, as well as basic graphing techniques with worked examples.

As was mentioned in last quarter's Lab Notes, there are some handy online resources for R. First of all, one can download R (it's free) at <http://www.r-project.org/>. Additional program information, downloads, and a listing of on-line guides can be found at the Comprehensive R Archive: <http://cran.r-project.org/>. For those who are more drop-down menu orientated, John Fox has a program called "Rcmdr" which implements a Graphical User Interface (GUI) shell to R. One can download it, along with other helpful resources, at: <http://socserv.mcmaster.ca/jfox/>.

**Speaker Series:** We have a speaker of interest coming this quarter as we rap up a great year of speakers.

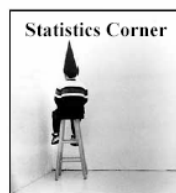
**Kristian Gleditsch:** PRISM in collaboration with the Mershon Center is proud to announce Kristian Gleditsch from the University of California, San Diego will be giving a talk on Tuesday, April 26 at the Mershon Center. Kristian Skrede Gleditsch is Assistant Professor of Political Science at the University of California, San Diego, and a research associate of the Centre for the Study of Civil War at the International Peace Research Institute, Oslo (PRIO). His research interests include conflict and cooperation, democratization, and spatial dimensions of social and political processes. He is the author of All International Politics is Local: The Diffusion of Conflict, Integration, and Democratization (University of Michigan Press, 2002).

**Office Hours:** Faculty or graduate students having questions about methods, either in general or in specific applications, are

encouraged to contact one of the PRISM methods fellows or visit them during office hours.

David Darmofal's (darmofal.3@osu.edu) office is 2049N and he has office hours Tuesday-Thursday 11-2 and Friday 11-2 and Corwin Smidt's (smidt.2@osu.edu) office is 2049Q and he has office hours Monday-Wednesday 9-12.

If you have any questions about any of these events, or if you have ideas for the future, please email Corwin Smidt or stop by his office to chat with him.



## *Dealing with Dummy Variables & Excluded Groups*

By Corwin Smidt

Dummy variables are used a lot in applied methodology. They allow comparisons among specific categories of nominal variables like gender, race, region, and many more. It is generally believed that they are called dummy variables because they represent simple comparisons, but this is hardly the case. Dummy variables often cause fits in interpretation especially when the baseline category, the excluded group used for comparison, is not intuitive. For instance, what does it mean to say Baptists are significantly less likely than Episcopalians to participate in politics? Some concepts have no natural metric of comparison, and the issue of how to select the excluded group often results.

An easily employable technique allows for simpler comparisons: estimate a constrained or restricted model, like restricted regression, where you constrain the conceptually linked

dummy variables so that their coefficients sum up to zero. In short, estimate the effect of the dummy variable relative to the mean instead of the excluded group. This technique is simple to execute too. It causes no loss of fit; it takes one command, and then you are ready.

Here is the basic idea: For dummifying a nominal variable, one usually needs to choose an excluded group, a category that is always set to zero. If this were not the case, then a combination of the dummy variables would sum to one for each observation and one would have perfect collinearity where the model is not identified. Excluding a group identifies the model by restricting a group's coefficients to be zero (although it technically is included within the constant) where other coefficients are then estimated based on that identification restriction.

A restricted model allows one to use a different normalization restriction. Instead of restricting one group's coefficient to zero, one restricts their sum. By making the combined effect of all the dummy variables equal zero, you essentially make the mean the excluded group. Why? By making the sum of a group of coefficients zero, you are also making the mean zero as well. As long as the dummy variable groups are mutually exclusive and every case belongs to only one group, coefficients for the dummy variables can then be interpreted relative to the expected mean conditional on the other independent variables.

Table 1 presents a comparison between a typical dummy variable model and an estimate based on restricting the coefficients such that their total effect equals zero. This is a simple regression of individuals' thermometer ratings of Bill Clinton in 2000, where higher numbers indicate more positive feeling towards Clinton. Along with one's party identification (higher values are Republicans), two categories of dummy variables are used, a set for one's religious tradition and another set for the region where one lives. First look at the regression estimates. The excluded groups here are

“other” religious individuals who live in the South. Not the usual choice, but what is? The point is that it is hard to pick one.

**Table 1: Clinton Thermometer Ratings (2000 NES; n = 1537)**

Variable	Regression	Constrained Regression
Party ID	-8.94** (0.29)	-8.94** (0.29)
White Evangelical	-2.66 (2.19)	-4.76** (1.49)
Mainline Protestant	-1.47 (2.24)	-3.57** (1.53)
Catholic	-0.27 (2.16)	-2.37 (1.43)
Black Protestant	8.68** (3.11)	6.58** (2.38)
Jewish	10.32* (6.19)	8.22 (5.11)
Secular	0.09 (2.38)	-2.01 (1.67)
Northeast	2.93 (1.79)	1.41 (1.18)
Midwest	0.42 (1.56)	-1.10 (1.03)
West	2.74* (1.65)	1.22 (1.09)
Other Religion		-2.10 (1.84)
South		-1.52 (0.97)
Constant	77.70** (2.15)	81.33** (1.23)
* - p = .10, ** - p = .05		
F(10,1526)	111.00	111.00
RMSE	22.789	22.789

Two variables are significant, not surprisingly Republicans like Clinton less and Black Protestants like Clinton more. Two other variables are marginally significant: Jews and Westerners like Clinton more.

These results seem okay, except for the fact that one might expect White Evangelicals to be more negative towards Clinton. The reason for

this result is that the religion and region effects are all interpreted relative to the excluded group. This often leads to the question of whether such a group offers a meaningful comparison.

To get a better idea of what's going on, let's examine the constrained regression results. I set two constraints for each set of categories. The coefficients of all the religious tradition variables sum up to zero, and the coefficients of all the region variables sum up to zero. First, notice how the Party ID estimates, the F-statistic, and the root mean squared error (RMSE) are all the same as before; nothing has changed.<sup>1</sup>

Now look at the estimates for the dummy variables. There are estimates for the previously excluded groups: South and Other. The inferences also change as a result. We now have significant estimates for White Evangelicals and Mainline Protestants while being Jewish and living in the West are no longer significant. Notice also that the standard errors are smaller for all the dummy variables since the previous estimates were compared to a small excluded group that led to inefficient estimates.

The main kick is the ease in interpretation. The coefficients are interpreted relative to the mean. So White Evangelicals and Mainline Protestants are significantly more negative towards Clinton than the average American. It's that simple! Within this application one is able to see many benefits of the restricted regression approach: more meaningful inferences, estimates for excluded groups, and smaller standard errors.

There are some issues with retrieving some overall fit statistics, like an R-squared, because programs usually assume the restriction you impose is something that reduces model fit. This is not the case with the dummy variable

technique used here, as shown with the F-statistic the models explain exactly the same amount of variance. In total, the restricted least squares approach is in many ways a more attractive and intuitive method of dealing with dummy variable models.

To learn more about this technique read Greene and Seaks (1991) and look into the constrained or restricted regression routine for your program of choice. Within Stata, it is the "cnsreg" command; within SPSS, look into the "nonlinear" option in the regression menu.

For Stata users, one can also view the log file of this worked example on my website at (<http://psweb.sbs.ohio-state.edu/grads/csmidt/papers.html>). For SPSS users, a great demo can be viewed at: [http://distdell4.ad.stat.tamu.edu/spss\\_1/constrained.html](http://distdell4.ad.stat.tamu.edu/spss_1/constrained.html).

Works Cited:

Greene and Seaks. 1991. "The Restricted Least Squares Estimator: A Pedagogical Note." *Review of Economics and Statistics* 73: pp. 563-567.

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## PRL Staff Information

*At least one staff member is on-call between 8:30 AM and 6:00 PM, Monday through Thursday (until 5:00 PM Fridays)*

Email us at [prl@polisci.sbs.ohio-state.edu](mailto:prl@polisci.sbs.ohio-state.edu)

To contact the HELP DESK, go to:  
<http://inet.sbs.ohio-state.edu/>  
and click on "HELP DESK."

Previous issues of Lab Notes and other valuable information can be found at the Lab's website:  
<http://psweb.sbs.ohio-state.edu/prl/index.htm>

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<sup>1</sup> The constant changes because it no longer includes the excluded groups.