

# Francis J. DiTraglia

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St John's College  
Cambridge, CB2 1TP  
United Kingdom

## Education

### University of Cambridge

Ph.D., Economics  
Thesis: Essays in Model Selection

Cambridge, UK

2009 – Present  
Expected Completion Date: June, 2012

### University of California, San Diego

M.A., Economics

La Jolla, CA, USA

2007 – 2009

### University of St Andrews

M.Sc., Statistics, with Distinction

St Andrews, UK

2006–2007

### College of William and Mary

B.A., Economics and Mathematics,  
with Highest Honors in Economics,  
*summa cum laude*

Williamsburg, VA, USA

2002 – 2006

## References

Prof. Richard J. Smith  
(Primary Advisor)  
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(Secondary Advisor)  
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## Fields

Econometrics, Experimental Economics, Empirical Finance

## Publications

“Measuring Altruism in a Public Goods Experiment: A Comparison of U.S. and Czech Subjects,” (with Lisa Anderson and Jeffrey Gerlach), *Experimental Economics*, 2011, 14 (3), pp. 426–437.

This paper compares contributions to an experimental public good across the United States and Czech Republic, using a design that allows us to distinguish between altruism and decision error. Czech subjects contribute significantly more than American subjects, and further analysis reveals that this result cannot be attributed to the confounding effects of gender or decision error. Instead, preferences for altruism appear to differ across groups: Czechs are more altruistic than Americans and men are more altruistic than women.

“Yes, Wall Street, There is a January Effect: Evidence from Laboratory Auctions,” (with Lisa Anderson and Jeffrey Gerlach), *Journal of Behavioral Finance*, 2007, 8 (1), pp. 1–8.

There is a large literature using financial market data on the causes of a January effect, which produces higher stock prices in January than in other months of the year. We present the first experimental study of this phenomenon in the context of two well-known auction experiments. After controlling for variables that could influence subject bids, such as differences in private values, cumulative earnings, and learning effects, the prices in the January markets were systematically higher than those in December, a difference that is economically large and statistically significant. The results provide support for the conjecture that psychological factors may contribute to the well-documented January effect in empirical stock market data.

## Job Market Paper

“Using Invalid Instruments on Purpose: Focused Moment Selection and Averaging for GMM.”

In finite samples, the use of an invalid but highly relevant instrument can substantially improve inference. Building on this idea, I propose a moment selection criterion for GMM in which over-identifying restrictions are chosen based on the mean-squared error of the estimators they produce rather than their validity: the focused moment selection criterion (FMSC). I then show how the asymptotic framework used to derive the FMSC can be employed to address the problem of inference post-moment selection. Treating post-selection estimators as a special case of moment-averaging, in which estimators based on different moment sets are given data-dependent weights, I propose a simulation-based procedure to construct valid confidence intervals. In a Monte Carlo experiment for 2SLS estimation, the FMSC performs well relative to alternatives from the literature, and the simulation-based procedure achieves its stated minimum coverage. I conclude with an empirical example examining the effect of instrument selection on the estimated relationship between malaria transmission and economic development.

## Research Papers

“Portfolio Selection: An Extreme Value Approach” (with Jeffrey Gerlach), Revise and Resubmit *Journal of Banking and Finance*

We show that lower tail dependence ( $\chi$ ), a measure of the probability that a portfolio will suffer large losses given that the market does, contains important information for risk-averse investors. We then estimate  $\chi$  for a sample of DJIA stocks and show that it differs systematically from other risk measures including variance, semi-variance, skewness, kurtosis, beta, and coskewness. In out-of-sample tests, portfolios constructed to have low values of  $\chi$  outperform the market index, the mean return of the stocks in our sample, and portfolios with high values of  $\chi$ . Our results indicate that  $\chi$  is conceptually important for risk-averse investors and provides useful information for portfolio selection.

## Research in Progress

“Avoiding Instrument Selection with Bayesian Nonparametrics”

This paper suggests a Bayesian solution to the many instruments problem for linear IV models identified by conditional moment restrictions. Rather than attempting to select the most important functions of the underlying instruments for use in estimation, we include them all. Placing a Gaussian Process prior on the conditional mean function of the endogenous regressor yields a computationally tractable, data-driven shrinkage estimator. Although the prior is

infinite-dimensional, the model is conditionally conjugate: we show that draws from the posterior of the parameters of interest can be obtained from a straightforward Gibbs Sampler. By placing a hierarchical prior on the parameters of the Gaussian Process, we further exploit conditional conjugacy to combine prior uncertainty about the smoothness of the conditional mean function with relevant information contained in the data themselves. This provides an important advantage over frequentist approaches in which smoothing parameters, even if chosen on the basis of the data, are ultimately treated as fixed.

## Teaching Experience

**Cambridge University** Cambridge, UK  
Supervisor of Studies 2010 – Present

Supervisions are the primary form of undergraduate instruction at Cambridge. Supervisors work with students in small groups to prepare them for examinations.

Responsibilities: Assigning and grading problem sets and practice papers, typically weekly, holding supervisions for 3-4 groups of students.

Economics Part IIA, Paper 3 (Econometrics Project)	Spring 2012
Economics Part I, Paper 3 (Statistics Project)	Spring 2012
Economics Part IIA, Paper 6 (Mathematics for Economists)	Spring 2011
Economics Part I, Paper 3 (Statistics Project)	Spring 2010

**University of California, San Diego** La Jolla, CA, USA  
Teaching Assistant 2007 – 2009

Responsibilities: Leading weekly discussion sections and review sessions for 50–100 students, holding weekly office hours, and grading homework and exams.

Econometrics C, Grayson Calhoun	Spring 2009
Intermediate Macroeconomics A, Genevieve Peters	Winter 2009
Econometrics C, Brendan Beare	Fall 2008
Intermediate Macroeconomics B, Genevieve Peters	Fall 2008
Intermediate Macroeconomics B, Kangoh Lee	Summer 2008
Introductory Microeconomics, Skip Foster	Spring 2008
Introductory Macroeconomics, Valerie Ramey	Winter 2008
Intermediate Microeconomics B, James Rauch	Fall 2007

**University of St Andrews** St Andrews, UK  
Tutorial Instructor Spring, 2007

Responsibilities: Leading weekly problem sessions for two groups of ten students, administering and grading weekly quizzes.

Statistics in Practice, Sophie Smout	Spring 2007
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**College of William and Mary** Williamsburg, VA, USA  
Teaching Assistant 2003 – 2006

Responsibilities: Holding weekly office hours and occasional exam review sessions, grading tests and examinations.

Principles of Microeconomics, Jeffrey Gerlach	Spring 2003 – Fall 2004
Econometrics, Carlise Moody	Spring 2005 – Spring 2006

<b>Other Experience</b>	Freelance Economic Editor Environmental Defense Fund	June – September, 2009 New York, NY, USA
	Economic Research Intern Manufacturer’s Alliance/MAPI	May – August, 2006 Arlington, VA, USA
<b>Awards</b>	Cambridge International Scholarship, 2009–2012	
	Humane Studies Fellowship, 2009–2012	
	Economics Department Fellowship, UCSD, 2007	
	PSI Prize (Best Performance in Statistics MSc), St Andrews, 2007	
	Rotary Ambassadorial Scholarship, St Andrews, 2006–2007	
	Lord Botetourt Medal (the College’s Highest Honor), William and Mary, 2006	
	Cissy Patterson Prize in Mathematics, William and Mary, 2006	
Class of 1940 Scholarship, William and Mary, 2004–2006		
<b>Presentations</b>	Royal Economic Society PhD Meeting Queen Mary, University of London	21 January, 2011 London, UK
	“Using Invalid Instruments on Purpose: Focused Moment Selection and Averaging for GMM”	
	Econometrics Seminar Cambridge Faculty of Economics	16 November, 2011 Cambridge, UK
	“Using Invalid Instruments on Purpose: Focused Moment Selection and Averaging for GMM”	
	Econometric Society European Meeting University of Oslo	28 August, 2011 Oslo, Norway
	“Using Invalid Instruments on Purpose: Focused Moment Selection for GMM”	
	Econometrics Workshop Cambridge Faculty of Economics	10 May, 2011 Cambridge, UK
	“Portfolio Selection: An Extreme Value Approach”	
	Econometrics Workshop Oxford-Man Institute	21 September, 2010 Oxford, UK
	“Focused Model Selection in Moment Condition Models”	
Econometrics Workshop Cambridge Faculty of Economics	16, November 2009 Cambridge, UK	
“Model Selection in Economics: New Directions”		
Humane Studies Research Colloquium Institute for Humane Studies	25-27 September, 2009 Arlington, VA	
“Weathering the Financial Crisis with Extreme Value Theory”		
<b>Conference Participation</b>	Conference in Honor of Hashem Pesaran Trinity College	1–2 July, 2011 Cambridge, UK
	Conference in Honor of Joel Horowitz cemmap/Northwestern	23–24 June, 2011 London, UK

cemmap Masterclass Tutor: Victor Chernozukov “High Dimensional Econometric Modeling”	14–15 April, 2011 London, UK
“All Models are Wrong...” University of Groningen	14–16 March, 2011 The Netherlands
cemmap Masterclass Tutor: Yuichi Kitamura “Nonparametric Likelihood: Methods and Applications in Econometrics”	25–26 November, 2010 London, UK
The Scottish Enlightenment Institute for Humane Studies	5–7 November, 2010 Arlington VA, USA
London-Oxbridge Time Series Workshop Trinity College	9 October, 2009 Cambridge, UK