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Previous Education:

M.Sc. in Economics, University College, London, UK, 2000 (received with distinction)

B.A. in Economics, King's College, Cambridge, UK, 1999

Graduate Studies:

New York University; 2003 to Present

Thesis Title: Essays in Economic Behavior

Job Market Papers: Status Quo Bias in Large and Small Choice Sets

Measuring Beliefs and Rewards: A Neuroeconomic Approach (with Andrew Caplin,
Paul Glimcher and Robb Rutledge)

Expected Completion Date: June 2009

Thesis Committee:

Professor Andrew Caplin - Principal Advisor

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Teaching and Research Fields:

Primary Fields: Microeconomic Theory, Behavioral Economics, Experimental Economics

Secondary Fields: Neuroscience and Economics, Macroeconomic Applications of Behavioral Models

Teaching Experience:

Spring 2005: Mathematics for Economists – Assistant to Professor Charles Wilson

Fall 2004: Introduction to Economic Analysis – Assistant to Professor Alberto Bisin

Research Experience and Other Employment:

June 2005 – August 2007: Research Assistant, Center for Experimental Social Science, NYU

October 2000 – July 2003: Economist, International Economic Analysis Division, Bank of England, UK

June 1997 – August 1997: Intern, Money Market Derivatives Desk, Deutsche Bank, UK

Professional Activities:

Conference and Seminar Presentations: International Network for Economic Method (2008), International Economic Science Association (2008), USC Conference on Neuroeconomics, Innovation and Law (2008), Annual Meeting of the Allied Social Science Association (2008), North American Summer Meeting of the Econometric Society (2007), University of Amsterdam (2007), London Business School (2007), New York University (2006)

Refereeing: American Economic Review, Quarterly Journal of Economics, Games and Economic Behavior, BE Journal of Macroeconomics

Honors, Awards and Scholarships:

2007 - 2008: Dean's Dissertation Fellowship, New York University

2006: Selected to attend Meeting of the Winners of the Bank of Sweden Prize in Economics in Memory of Alfred Nobel, Lindau, Germany

2005: Selected to attend Budapest Workshop on Behavioral Economics, Central European University

2005: Selected to attend Summer School on Economics and Psychology, IDEI, Toulouse

2004: Distinction in 1st Year Macroeconomics Core Exam, New York University

Peer Reviewed Publications:

“Axiomatic Methods, Dopamine and Reward Prediction Error” (with Andrew Caplin), *Current Opinion in Neurobiology*, August 2008, 18(2): 197-202

“Dopamine, Reward Prediction Error, and Economics” (with Andrew Caplin), *Quarterly Journal of Economics*, May 2008 123(2): 663-701

“Trading off Speed and Accuracy in Rapid, Goal-Directed Movements” (with Shih-Wei Woo and Laurence Maloney), *Journal of Vision*, July 2007, 7(5): 1-12

Other Publications:

“Experimental Decision Theory” (with Andrew Caplin), forthcoming in *The Method of Modern Experimental Economics*, Guillaume Frechette and Andrew Schotter, eds

“Economic Insights from ‘Neuroeconomic’ Data” (with Andrew Caplin), *American Economic Review Papers and Proceedings*, May 2008, 98(2): 169-174

“Axiomatic Neuroeconomics” (with Andrew Caplin), Chapter in *Neuroeconomics: Decision Making and the Brain*, Paul Glimcher, Colin Camerer, Ernst Fehr and Russell Poldrack, eds, 2008

“The Neuroeconomic Theory of Learning” (with Andrew Caplin), *American Economic Review Papers and Proceedings*, May 2007, 97(2): 148-152

“Why has World Trade Grown Faster than World GDP?” (with Maria Sebastia-Barriel), *Bank of England Quarterly Bulletin*, Autumn 2004: 310-320

Additional References:*Research:*

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Teaching:

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Job Market Papers:

“Status Quo Bias in Large and Small Choice Sets”

This paper introduces models of status quo bias based on the concept of decision avoidance, by which a decision maker may select the status quo in order to avoid a difficult decision. These models capture the experimental finding that the status quo is more frequently chosen in larger choice sets. This phenomenon violates the predictions of current preference-based models of status quo bias that assume a decision maker with a fixed status quo will make consistent choices. Using laboratory experiments, I show that subjects in large choice sets do exhibit behavior in line with decision avoidance, while in small choice sets, preference-based models offer a better explanation of behavior. These findings raise questions for advocated policies of "benign paternalism."

“Measuring Beliefs and Rewards: A Neuroeconomic Approach” (*with Andrew Caplin, Paul Glimcher and Robb Rutledge*)

The neurotransmitter dopamine is central to the emerging discipline of neuroeconomics; it is hypothesized to encode the difference between expected and realized rewards and thereby to mediate belief formation and choice. We develop the first formal test of this theory of dopaminergic function, based on a recent axiomatization by Caplin and Dean. These tests are satisfied by neural activity in the nucleus accumbens, an area rich in dopamine receptors. Intriguingly, we find evidence for separate positive and negative reward prediction error signals, a novel empirical result suggesting that behavioral asymmetries in response to losses and gains may be encoded by activity in the nucleus accumbens. Our findings provide researchers with new methods for studying beliefs, learning, and choice.

Submitted Research Papers:

“How Consistent are your Choice Data?” (*with Daniel Martin*)

This paper describes a fast and exact method for computing the Houtman-Maks (HM) Index - the largest subset of a choice data set consistent with acyclicity. This measure provides a metric for determining how close a set of choice data are to ‘rationality’, in the sense that they can be modeled as having been derived from the maximization of a complete preference relation. One reason that this measure has not been widely used is that it is extremely computationally intensive. We show that the problem of finding the maximal acyclic subset is isomorphic to a well-studied problem within computer science: the Minimum Set Covering Problem (MSCP). While the MSCP is NP-hard in the strong sense, there are a wide variety of algorithms built to solve this problem quickly and exactly for reasonably-sized data sets. This paper describes some of these algorithms and presents simulation results to demonstrate that our algorithm can be used to calculate the HM Index in under a second for cases that have previously been found insoluble.

Research Papers in Progress:

“Information Search and the Choice Process” (*with Andrew Caplin*)

Standard choice theory cannot explain behavioral phenomena such as framing effects and status quo bias. An important open question is when such behaviors result from changing preferences as opposed to incomplete information. We develop clean theoretical procedures for separating these causes by extending standard choice data to include data on the evolution of choice with time. Using such “choice process” data, we axiomatically characterize standard forms of search behavior such as that based on achievement of reservation utility, which is the optimal stopping rule for a decision maker with fixed disutility of search. In doing so, we expand the concept of revealed preference to the incomplete information environment. Unlike standard search theory, our axiomatic approach treats the cost of search, the order of search, and reservation utilities as outputs of the model rather than as inputs. Preliminary testing of our models is underway, and promises to increase understanding of the many choices that are anomalous from the view point of fully informed rational decision making.

“Over-Inference and Excess Sensitivity of Consumption”

The Permanent Income Hypothesis (PIH) states that, for a rational consumer, consumption should only change in response to ‘news’, or unpredictable changes in the environment. However, several studies using panel data on consumption and income find that household level changes in consumption are negatively correlated with lagged income. This paper shows that such data can be explained if consumers consistently overestimate the permanence of shocks to their income. Evidence for such a bias in decision making is provided by Offerman and Sonnemans, who show that experimental subjects overestimate the correlation between sequential outcomes in a coin flipping experiment. Unlike previous explanations for excess sensitivity, bias in expectations formation can explain the finding of Japelli and Pistaferri that consumption of Italian households is sensitive to lagged *actual* income, but not income *expectations*. The paper concludes with an experiment which recreates consumption and savings decisions, and tests the hypothesis that the biases found by Offerman and Sonnemans also occur in this setting.