

# Aditi Bhattacharyya

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## EDUCATION

Ph. D., Economics, University of California, Riverside (2004 - expected June 2009)

*Dissertation Title:* Essays on Estimation of Technical Efficiency and on Choice under Uncertainty

*Dissertation Committee:* Professor R. Robert Russell (Co-chair), Professor Aman Ullah (Co-chair),  
Professor Gloria Gonzáles-Rivera, Professor Jang-Ting Guo

M.A., Economics, Jawaharlal Nehru University, India, 2000 - 2002

B.Sc., Economics, University of Calcutta, India, 1997 - 2000

## AWARDS

Outstanding Teaching Assistant Award, UC Riverside, 2008

Graduate Student Association Conference Travel Grant, UC Riverside, 2007 and 2008

Conference Grants for Young Economists, Far Eastern and South Asian Meeting of the Econometric Society, 2008

Dean's Fellowship Award, UC Riverside, 2004 - 2009

## RESEARCH FIELDS

### Microeconomics, Applied Econometrics

Productivity and Efficiency Analysis, Choice under Uncertainty, Parametric and Non-parametric Econometrics

## TEACHING INTERESTS

*Primary:* Microeconomics, Econometrics

*Secondary:* Development Economics, Environmental Economics, Game Theory, Industrial Organization, Law and Economics, Macroeconomics, Political Economy, Public Economics

## COMPLETED WORKING PAPERS

“Adjustment of Inputs and Measurement of Technical Efficiency: A Dynamic Panel Data Analysis”, October 2008

“Median-based Rules for Decision Making under Complete Ignorance”, December 2008 (Submitted to *Economic Theory*)

## WORK IN PROGRESS

“Effect of Elections on Government Expenditure in Elementary, Secondary, and Higher Education Sectors in India: A Non-parametric Panel Data Analysis”, January 2008

“Hypothesis Testing for Non-additivity of a Random Function using Non-parametric Methods”, July 2008

“Norms and Revealed Preference Revisited” (with Prasanta K. Pattanaik), December 2008

## CONFERENCE AND SEMINAR PARTICIPATION

### *Presenter*

“Adjustment of Inputs and Measurement of Technical Efficiency: A Dynamic Panel Data Analysis”  
UC Riverside, Econometrics Colloquia, December 2008

78<sup>th</sup> Annual Meeting of the Southern Economic Association, Washington, DC, November 2008

Asia Pacific Productivity Conference, Taipei, July 2008  
North American Productivity Workshop V, New York, June 2008  
Jadavpur University, India, June 2008

**“Median-based Rules for Decision Making under Complete Ignorance”**

Far Eastern and South Asian Meeting of the Econometric Society, Singapore, July 2008  
University of Calcutta, India, June 2008  
UC Riverside, Economic Theory Colloquia, February 2008

Discussant

Conference on “Quality of Life: Conceptual Issues and Measurement”, UC Riverside, June 2006

Attendee

Conference on “Non-Welfaristic Welfare: Capability, Choice, and Rights”, UC Riverside, October 2007  
7<sup>th</sup> Southwest Theory Conference, UC Riverside, March 2005

**TEACHING EXPERIENCE (UC Riverside)**

Lecturer

Introduction to Microeconomics, Industrial Organization, Introduction to Environmental Economics,  
Statistics for Economics

Teaching Assistant (Graduate courses)

Microeconomic Theory I, Microeconomic Theory III, Macroeconomic Theory II

Teaching Assistant (Undergraduate courses)

Introduction to Microeconomics, Microeconomic Theory I, Microeconomic Theory II, Introduction to  
Macroeconomics, Macroeconomic Theory I, Environmental and Natural Resource Valuation

Reader

Law and Economics, Development Economics

**RESEARCH EXPERIENCE**

Research Assistant for National Science Foundation Project on “Measurement of the Standard of Living Based  
on the Theory of Functioning: Southern California as a Natural Laboratory”, UC Riverside, 2006

Research Assistant for Professor David Brasington, Louisiana State University, 2003 - 2004, for a project on  
housing costs in USA

Research Assistant for Professor Deepak Chawla, International Management Institute, India, 2003, for a  
project on perception study of cyber café users

**REFEREEING EXPERIENCE**

*Empirical Economics, Southern Economic Journal, The Aligarh Journal of Statistics*

**PROFESSIONAL MEMBERSHIP**

American Economic Association, Econometric Society, Western Economic Association

**COMPUTER SKILLS**

E-views, Gauss, Mathematica, Matlab, MS Office, SAS, Stata

**REFERENCES**

**Prof. Prasanta K. Pattanaik**

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## SUMMARIES OF COMPLETED PAPERS

### **Adjustment of Inputs and Measurement of Technical Efficiency: A Dynamic Panel Data Analysis** (Job Market Paper)

The conventional static stochastic production frontier approach to measuring technical efficiency of a production unit ignores the sluggish adjustment of inputs involved in the production process. In reality, an input takes some time to adjust within a production system and to contribute to output at its full capacity. This leads to a lagged process of catching up with the production frontier, and a technical efficiency measure that does not incorporate the effect of this dynamic mechanism may provide biased estimates. The purpose of this paper is to construct a dynamic stochastic production frontier incorporating the sluggish adjustment of inputs, to measure the speed of adjustment of output, and to compare the technical efficiency estimates from this dynamic model to those from a static model. Assuming that the adjustment speed of all inputs is similar for every production unit, a linear partial adjustment scheme for output characterizes the dynamic frontier. We first provide the estimation method for a time-invariant technical efficiency model in a dynamic panel data framework and compare the technical efficiency estimates from this model to the estimates from a static model. However, with lagged adjustment of inputs, it is more likely that the speed of adjustment of output and the technical efficiency of a producer change with time, and therefore, the paper also discusses methods to estimate these.

We apply our methods on a panel dataset spanning nine years of data on private manufacturing establishments in Egypt. The dynamic frontiers with time-invariant and time-varying technical efficiency are estimated using the system GMM (generalized method of moments) estimator and the GLS (generalized least squares) estimator with instrumental variables, respectively. The results show that – 1) the speed of adjustment of output is significantly lower than unity, 2) the static model overestimates technical efficiency on average, 3) the magnitude of this overestimation varies from 1.5 percentage points to 28.8 percentage points, depending upon the model under consideration, and 4) the dynamic model captures more variation in the time pattern of technical efficiency of a production unit. Further, the ranking of production units based on their technical efficiency measures changes when the lagged adjustment process of inputs is taken into account.

### **Median-based Rules for Decision Making under Complete Ignorance** (Submitted to *Economic Theory*)

This paper characterizes a class of rules for decision-making under the type of non-probabilistic uncertainty that was first discussed by Arrow and Hurwicz. In this framework, the agent knows the possible states of the world and the outcome of each of her actions for each state, but does not have any information about the probabilities with which each state occurs. The decision-making rules characterized in this paper focus on the outcome(s) which occupy the middle or median position(s), when all outcomes of an action under different states of the world are arranged according to the agent's preference ordering defined over the outcomes.

The existing literature in the Arrow-Hurwicz framework has mainly considered 'max'-based or 'min'-based rules and their variants that reflect rather extreme forms of optimism or pessimism on the part of an agent. In contrast, the results of this paper characterize a decision rule that reflects a more 'balanced' attitude of the agent. In light of the agent's usually limited capacity for processing information, it seems intuitively plausible to assume that an agent, when confronted with the problem of choice under uncertainty, may concentrate on some 'focal' outcomes for each action. It is, however, not clear why the agent will necessarily look only at the extreme outcomes, i.e., the best or worst outcomes, of each action. An alternative focal point for each action may be its median outcome(s). Though decision rules based on the median outcome(s) seem to have considerable intuitive plausibility, the structure of these rules in the Arrow-Hurwicz framework has not been explored so far. The purpose of this paper is to fill this gap in the literature by providing an axiomatic characterization of a class of median-based decision rules for choice under non-probabilistic uncertainty of the Arrow-Hurwicz type.