Rustam Ibragimov

Imperial College Business School
Tanaka Building
South Kensington Campus
London SW7 2AZ

Phone: +44 (0)20 7594 9344
Fax: +44 (0)20 7594 9210
Email: irustam@imperial.ac.uk
Webpages: http://www3.imperial.ac.uk/people/i.rustam

Current Position:

Professor of Finance and Econometrics, Imperial College Business School, September 2012 - Present

Research Interests:

Econometrics, Finance, Insurance, Risk Management, Economic Theory, Statistics and Probability

Education:

Ph.D., Economics, Yale University, 2005; Dissertation: "New Majorization Theory in Economics and Martingale Convergence Results in Econometrics"

M. Phil., Economics, Yale University, 2003

M. A., Economics, Central Michigan University, 2000

Ph.D. (Kandidat Nauk), Mathematics, Institute of Mathematics of Uzbek Academy of Sciences, 1997, Dissertation: "Estimates for Moments of Symmetric Statistics"

M.S., Mathematics, Tashkent State University, Tashkent, 1996, Graduated with Distinction

Fellowships, Honors and Awards:

Russian Science Foundation grant 16-18-10432 "Modern methods of robust inference in finance and economics, with applications to the study of crises and their propagation in financial and economic markets" (with Innopolis University, Kazan, Russia), 2016-2018;

Multa Scripsit Award, *Econometric Theory*, 2009;

US NSF grant SES-0820124 "Correlation and heterogeneity robust inference using conservativeness of test statistics", 2008-2012;

Global Development Network Southeast Europe and Commonwealth of Independent States (GDN-SEE and CIS) Research Competition Grant, "Measuring inequality in CIS countries: Theory and Empirical Studies", 2009-2010 (with M. Ibragimov and R. Khamidov);

Harvard Academy Junior Faculty Development Grant, 2007-2009;

Warburg Research Funds, Harvard University, 2007-2009;

Clark/Cooke Fund, Harvard University, 2007-2009;

University of California at Berkeley-National University of Singapore Risk Management Institute Research Grant (with J. Walden), 2007-2008;

Clark/Cooke Fund, Harvard University, 2005;

Annual Cowles Prize, Yale University, 2004;

C.A. Anderson Fellowship, Yale University, 2003-2004;

Dissertation Fellowship, Yale University, 2003-2004;

Cowles Foundation Summer Prize, Yale University, 2000-2004;

University Fellowship, Yale University, 2000-2005;

E. Muskie Fellow in Applied Econometrics and Mathematical Economics, 1998-2000.

Previous Positions:

Associate Professor, Department of Economics, Harvard University, July 2009 -August 2012;

Assistant Professor, Department of Economics, Harvard University, July 2005 - July 2009.

Publications:

Books:

"Heavy-tailed distributions and robustness in economics and finance" (with M. Ibragimov and J. Walden), Lecture Notes in Statistics **214**, Springer, 2015, http://www.springer.com/us/book/9783319168760

"Heavy Tails and Copulas: Topics in Dependence Modelling in Economics and Finance" (with A. Prokhorov), World Scientific, 2017, http://www.worldscientific.com/worldscibooks/10.1142/9644

"Inequalities and Extremal Problems in Probability and Statistics: Selected Topics" (with I. Pinelis, V. de la Peña, A. Osękowski and I. Shevtsova), Elsevier, 2017, https://www.elsevier.com/books/inequalities-and-extremal-problems-in-probability-and-statistics/pinelis/978-0-12-809818-9

Overview Articles:

"Heavy-tailed densities". *The New Palgrave Dictionary of Economics Online*. Eds. S. N. Durlauf and L. E. Blume. Palgrave Macmillan, 2009.

"Measurement of economic progress" (with M. Ibragimov). *International Encyclopedia of Statistical Science*, 1st Edition (M. Lovric, Ed.), Springer, 2011.

Finance, Insurance & Risk Management:

"Equilibrium with Monoline and Multiline Structures" (with Dwight Jaffee and Johan Walden), *Review of Finance* 2017; https://doi.org/10.1093/rof/rfw073

"Heavy tails and copulas: Limits of diversification revisited" (with A. Prokhorov). *Economics Letters* **149** (2016), 102-107.
"Bounds for path-dependent options" (with Donald Brown and Johan Walden), *Annals of Finance* **11** (2015), 433-451.
"Diversification disasters" (with D. Jaffee and J. Walden). *Journal of Financial Economics* **99** (2011), 333-348.
"Nondiversification traps in markets for catastrophic risk" (with D. Jaffee and J. Walden). *Review of Financial Studies* **22** (2009), 959-993.
"Emerging markets and heavy tails" (with M. Ibragimov and P. Kattuman). *Journal of Banking and Finance* **37**, 2546-2559.
"Pricing and capital allocation for multiline insurance firms" (with D. Jaffee and J. Walden). *Journal of Risk and Insurance* **77** (2010), 551-578.
"Portfolio diversification and value at risk under thick-tailedness". *Quantitative Finance* **9** (2009), 565-580.
"The limits of diversification when losses may be large" (with J. Walden). *Journal of Banking and Finance* **31** (2007), 2551-2569.
"Portfolio diversification under local, moderate and global deviations from power laws" (with J. Walden). *Insurance*: *Mathematics and Economics* **42** (2008), 594-599.
"Value at risk under dependence and heavy-tailedness: Models with common shocks" (with J. Walden). *Annals of Finance* **7** (2011), 285-318.
"Option bounds" (with V. H. de la Peña and S. Jordan). *Journal of Applied Probability* **41A** (2004), 145-156.

Econometrics:

"Copulas and Long Memory" (with G. Lentzas). Forthcoming in *Probability Surveys*.
"Inference with Few Heterogeneous Clusters" (with U. K. Müller). *Review of Economics and Statistics* **98** (2016), 83-96.
"*t*-statistic based correlation and heterogeneity robust inference" (with U. K. Müller). *Journal of Business and Economic Statistics* **28** (2010), 453-468.
"*RANK*–1/2: A simple way to improve the OLS estimation of tail exponents" (with X. Gabaix). *Journal of Business and Economic Statistics* **29** (2011), 24-39.
"Efficiency of linear estimators under heavy-tailedness: Convolutions of α-symmetric distributions". *Econometric Theory* 23 (2007), 501-517 (the main results are also reviewed in Marshall, A. W., Olkin, I. and Arnold, B. C., "*Inequalities: Theory of Majorization and Its Applications*", 2nd Edition, Springer, New York, 2011, Ch. 12).
"On the robustness of location estimators in models of firm growth under heavy-tailedness". *Journal of Econometrics* **181** (2014), 25-33.
"Copula-based dependence characterizations for higher-order Markov processes". *Econometric Theory* **25** (2009), 819-846.
"Regression asymptotics using martingale convergence methods" (with P. C. B. Phillips). *Econometric Theory* **28** (2008), 1-60.
"Copula estimation" (with Barbara Choros and Elena Permiakova). *Workshop on Copula Theory and Its Applications. Lecture Notes in Statistics* - Proceedings. Springer, 2010 (F. Durante, W. Haerdle, P. Jaworski, and T. Rychlik, eds.), 77-92.
"Characterizations of joint distributions, copulas, information, dependence and decoupling, with applications to time series" (with V. H. de la Peña and S. Sharakhmetov). *2nd Erich L. Lehmann Symposium - Optimality,* IMS Lecture Notes -- Monograph Series 49 (J. Rojo, Ed.), 183-209, 2006.

Emerging Markets and Transition Economies:

"Heavy tails and upper-tail inequality: The case of Russia" (with Marat Ibragimov), *Empirical Economics* 2017; https://doi.org/10.1007/s00181-017-1239-0
"Unemployment and output dynamics in CIS countries: Okun's law revisited" (with Marat Ibragimov), *Applied Economics* **49** (2017), 3453-3479.
"Heavy tails and asymmetry of returns in the Russian stock market" (with Andrey Ankudinov and Oleg Lebedev), *Emerging Markets Review* **32** (2017), 200-219.
"Sanctions and the Russian stock market" (with Andrey Ankudinov and Oleg Lebedev), *Research in International Business and Finance* **40** (2017), 150-162.
"The "Cubic Law of Stock Returns" in Emerging Markets" (with Z. Gu). Forthcoming in the *Journal of Empirical Finance.*

"Modeling and forecasting income tax revenue: The case of Uzbekistan" (with M. Ibragimov and N. Sirajiddinov). In: *Income distribution: Inequalities, impacts and incentives* (I. H. Wadell, Ed.), Nova Science Publishers, Hauppage, NY, 2009 (Reprinted in *Economic Forecasting*; A. T. Molnar, Ed.; Nova Science Publishers, 2011).

"Labor market equilibrium and income tax rates: The case of Uzbekistan" (with V. Anoshkina, Z. Davidova and M. Ibragimov). *Tax Policy and Practice* (Moscow, Russia), Issue 1, 2009.

"A method for estimation of the volume of unofficial wage payments" (with M. Ibragimov and J. Karimov). *Bulletin of Tashkent University of Information Technologies (TUIT)*, 2010, Issue 2.

"Uzbekistan population forecast" (with M. Ibragimov and J. Karimov), *Bulletin of Tashkent University of Information Technologies (TUIT)*, 2010, Issue 2.

Economic Theory:

"Income inequality and price elasticity of market demand: the case of crossing Lorenz curves" (with Marat Ibragimov, Paul Kattuman and Jun Ma). *Economic Theory* 2017; https://doi.org/10.1007/s00199-017-1037-0

"Optimal bundling strategies under heavy-tailed valuations" (with J. Walden). *Management Science* **56** (2010), 1963-1976.

"Market demand elasticity and income inequality" (with M. Ibragimov). *Economic Theory* **32** (2007), 579-587.

Statistics& Probability:

"On extremal distributions and sharp L_p-bounds for sums of multilinear forms" (with V. H. de la Peña and S. Sharakhmetov). *Annals of Probability* **31** (2003), 630-675.

"A characterization of joint distribution of two-valued random variables and its applications" (with S. Sharakhmetov). *Journal of Multivariate Analysis* **83** (2002), 389-408.

"On sharp Burkholder-Rosenthal-type inequalities for infinite-degree *U*-statistics" (with V. H. de la Peña and S. Sharakhmetov). *Annales de l'Institute H. Poincare-Probabilites et Statistiques* **38** (2002), 973-990.

"Optimal constants in the Rosenthal inequality for random variables with zero odd moments" (with M. Ibragimov). *Statistics and Probability Letters* **78** (2008), 186-189.

"Bounds on moments of symmetric statistics" (with S. Sharakhmetov). *Studia Scientiarum Mathematicarum Hungarica* **39** (2002), 251-275. Date of Submission: July 1996.

"The exact constant in the Rosenthal inequality for random variables with mean zero" (with S. Sharakhmetov). *Theory of Probability and Its Applications* **46** (2002), 127-131.

"On extremal problems and best constants in moment inequalities" (with S. Sharakhmetov). *Sankhya Ser. A* **64** (2002), 42-56.

"Exact estimates for moments of random bilinear forms" (with S. Sharakhmetov and A. Cecen). *Journal of Theoretical Probability* **14** (2001), 21-37.

"The best constant in the Rosenthal inequality for nonnegative random variables" (with S. Sharakhmetov). *Statistics and Probability Letters* **55** (2001), 367-376.

"Analogues of Khintchine, Marcinkiewicz-Zygmund and Rosenthal inequalities for symmetric statistics" (with S. Sharakhmetov). *Scandinavian Journal of Statistics* **26** (1999), 621-633.

"On an exact constant for the Rosenthal inequality" (with S. Sharakhmetov). *Theory of Probability and Its Applications* **42** (1997), 294-302.

Applied Probability& Math:

"Thou shalt not diversify: Why two of every sort?". *Journal of Applied Probability* **44** (2007), 58-70.

"Heavy-tailedness and threshold sex determination". *Statistics and Probability Letters* **48** (2008), 2804-2810.

"A tale of two tails: Peakedness properties in inheritance models of evolutionary theory". *Journal of Evolutionary Economics* **18** (2008), 597-613.

"On functions not preserving majorization pre-ordering and their applications". *Uzbek Mathematical Journal* (2010), No. 1, 64-71.

Dissertations:

"*New majorization theory in economics and martingale convergence results in econometrics*", 2005, Ph.D. Dissertation, Yale University.

"*Estimates for moments of symmetric statistics*", 1997, Candidate of Sciences (Kandidat Nauk) Dissertation, Institute of Mathematics of Uzbek Academy of Sciences, Tashkent, Uzbekistan.

Research Papers:

"Robust Inference Under Heavy-Tailedness and Nonlinear Dependence: Market Efficiency, Volatility Clustering, Stock Return Predictability and Beyond".

"Heavy-Tailedness, Robust Inference and Machine Learning: On Efficiency and Predictability of Bitcoin and Cryptocurrency Markets".

"Sign Tests for Dependent Observations" (with D. Brown).

Professional Activities

Associate Editor, *Econometric Theory* and *Journal of Banking and Finance*

Editorial Counsel, *Quantile* - International econometric journal in Russian language

Refereeing: *American Economic Review, Annals of Probability, Annals of Statistics, Economic Journal, Econometric Theory, Econometrica, Finance Research Letters, Journal of Applied Econometrics, Journal of Banking and Finance, Journal of Econometrics, Journal of Economic Behavior and Organization, Journal of Economic Growth, Journal of Finance, Journal of Financial Econometrics, Journal of Financial Intermediation, Journal of the American Statistical Association, Journal of Multivariate Analysis, Journal of Statistical Planning and Inference, Risk Management and Insurance Review, Quantitative Finance, Quarterly Journal of Economics, Review of Economics and Statistics, Statistics and Probability Letters*, among others

Reviewer for *Mathematical Reviews* and *MathSciNet* (American Mathematical Society)

Proposal reviews: *Division for Social Sciences of the Netherlands Organisation for Scientific Research (NWO, the Dutch research council), Book proposal reviews for Springer*; *Economics Education and Research Consortium Research Competition, the US National Science Foundation, the National Natural Science Foundation of China and the Research Grants Council of Hong Kong Joint Research Scheme; Georgian National Science Foundation, Romanian National Research Council*

Organizer: Session of invited talks on *Robustness, Contagion, Dependence, Extremes and Heavy Tails*, 11th International Conference on Computational and Financial Econometrics (CFE 2017), London, UK, December 2017;

Organizer: Session of invited talks on *Majorization Theory in Statistics, Probability, Econometrics, Economics and Engineering*, European Meeting of Statisticians, Helsinki, Finland, July 2017;

Organizer: Session of invited talks on *Theory of Majorization, Stochastic Inequalities and Their Applications*, 17th *Conference of the Applied Stochastic Models and Data Analysis* (ASMDA-2017), London Mathematical Society, London, UK, June 2017;

Co-organizer (with A. Prokhorov): Session of invited talks on *Theory of Majorization in Econometrics, Statistics, Economics and Engineering*, 10*th* International Conference on *Computational and Financial Econometrics* (CFE 2016), Seville, Spain, December 2016;

Co-organizer (with A. Prokhorov): Session on the *Analysis of Extremes and Dependence*, 9th International Conference on Computational and Financial Econometrics (CFE 2015, London, UK, December 2015);

Co-organizer (with Artem Prokhorov): Session on the *Analysis of Extremes and Dependence, 8th International Conference on Computational and Financial Econometrics* (CFE 2014, Pisa, Italy, December 2014);

Program Committee: International Conference "*Modern Econometric Tools and Applications*", Higher School of Economics and New Economic School (Nizhny Novgorod, Russia, 2014-2017);

Co-Chair (with Stanislav Anatolyev), International Seminar "*Achievements and Perspectives of Econometric Research in Russia*", Kazan (Volga Region) Federal University (Kazan, Russia, July 2013).