FRONTIERS IN ECONOMIC ANALYSIS WITH GENETIC DATA

MARCH 10-11, 2023
CHICAGO, ILLINOIS

Organized by Jason Fletcher, Mikkel Aagaard Houmark, Nicholas Papageorge, Lauren Schmitz, and Kevin Thom

WELCOME

Dear Conference Participants,

Welcome to Frontiers in Economic Analysis with Genetic Data, a conference series organized by BRIDGE (BRInging Data on Genetics to Economics) and sponsored by the Center for the Economics of Human Development (CEHD) at the University of Chicago, the Center for Demography of Health and Aging (CDHA) at the University of Wisconsin–Madison, and the National Institute on Aging as the funder of the Research Network on the Determinants of Life Course Capabilities and Outcomes. Genetic data are becoming commonly available in many social science datasets. These data open new avenues for economists to explore long-standing questions related to intergenerational linkages, factors that shape health and human capital outcomes, and heterogeneous responses to policy change, among others. Our organization has several objectives. First, we hope to introduce genetic data and methods from statistical genetics to economists not already familiar with these topics. Second, by highlighting cutting-edge applications, we want to explore the potential for genetic data to enable progress in the study of core questions in applied economics. Finally, by putting statistical geneticists and genoeconomists in conversation with a broad range of economists, we seek to understand how the tools of economics can be used to better understand and interpret molecular genetic findings.

The members of BRIDGE hope to create a community of scholars active in this area. We are working to make this Frontiers conference an annual event. We thank you for participating and helping to build this community with us!

Thank you,

BRIDGE Organizers: Jason Fletcher, Mikkel Houmark, Nicholas Papageorge, Lauren Schmitz, and Kevin Thom

SCHEDULE

FRIDAY MARCH 10

11:30–12:30PM Lunch
Rubenstein Forum First Floor Dining Room

12:30–12:40PM Introductory Comments
Kevin Thom, University of Wisconsin–Milwaukee

12:40–1:00PM Introduction to Molecular Genetics and Polygenic Prediction
James Lee, University of Minnesota

APPLICATIONS SESSION 1: GENETIC CORRELATIONS IN THE FAMILY

1:00–1:50PM Genetic Nurture in Educational Attainment
John Cawley, Cornell University
Discussant: Bhash Mazumder, Federal Reserve Bank of Chicago

1:50–2:40PM Trading Social Status for Genetics in Marriage Markets: Evidence from UK Biobank
Pierre-Andre Chiappori, Columbia University
Discussant: Aloysius Siow, University of Toronto

2:40–3:00PM Coffee

APPLICATIONS SESSION 2: GENETIC ENDOWMENTS AND HUMAN CAPITAL ACCUMULATION

3:00–3:50PM Genetic Endowments, Educational Outcomes, and the Mediating Influence of School Quality
Paul Hufe, University of Bristol
Discussant: Chao Fu, University of Wisconsin–Madison

3:50–4:40PM Nature-Nurture Interplay in Educational Attainment
Dilnoza Muslimova, Erasmus University
Discussant: Francesco Agostinelli, University of Pennsylvania

6:00PM Conference Dinner
Truth Be Told, 1227 E. 60th St.

SATURDAY MARCH 11

8:30–9:00AM Breakfast
Rubenstein Forum Room 504

FEATURED PANEL: ECONOMETRICS OF POLYGENIC PREDICTION

9:00–10:00AM James Lee, University of Minnesota
Qiongshi Lu, University of Wisconsin–Madison

10:00–10:15AM Coffee

10:15–12:15PM   John Rust, Georgetown University
Ben Williams, George Washington University
Matt Wiswall, University of Wisconsin–Madison

12:15–1:00PM   **Lunch**
Rubenstein Forum First Floor Dining Room

STUDENT / POSTDOC SHORT TALKS

1:00–2:00PM   Kadeem Noray, Harvard University
Shubhashrita Basu, University of Wisconsin–Madison
Yeongmi Jeong, University of Georgia
Jiacheng Miao, University of Wisconsin–Madison

2:00–2:15PM   **Coffee**

APPLICATIONS SESSION 3: GENETIC ENDOWMENTS AND HEALTH OUTCOMES OVER THE LIFE-CYCLE

2:15–3:05PM   **Genome-wide summary measures of genetic risk reveal treatment effect heterogeneity in a randomized control trial of smoking cessation**
Lauren Schmitz, University of Wisconsin–Madison
Discussant: Hannes Schwandt, Northwestern University

3:05–3:55PM   **Moral Hazard Heterogeneity: Genes and Insurance Influence Smoking after a Health Shock**
Pietro Biroli, University of Bologna
Discussant: Dan Sacks, University of Wisconsin–Madison

3:55–4:45PM   **Genetic Endowments, Alzheimer's Disease, and Economic Outcomes**
Nick Papageorge, Johns Hopkins University
Discussant: Rong Hai, University of Miami

Francesco Agostinelli
University of Pennsylvania

Francesco Agostinelli is an Assistant Professor at the Economics Department at University of Pennsylvania. He is also a research associate at the Population Studies Center at the University of Pennsylvania, and a member of the Human Capital and Economic Opportunity Global Working Group (HCEO), University of Chicago.

His research interests lie in the areas of applied microeconomics, labor economics, applied econometrics, child development, public economics and education.

Shubhashrita Basu
University of Wisconsin–Madison

Shubhashrita Basu is a Post-doctoral Research Associate at the Center for Demography of Health and Aging at the University of Wisconsin–Madison. She is an applied microeconomist working in the fields of health and labor economics. Most of her current work revolves around investigating how individuals respond to experiences and exposures through family linkages and other environments that impact their life-course outcomes. Some of her work involves exploring these topics using tools of social science genomics.

Basu received a Ph.D. in economics from the Department of Economics, Clemson University in 2021.

Pietro Biroli
University of Bologna

Pietro Biroli is an assistant professor of economics (RTDb) at the University of Bologna. He obtained his Ph.D. in economics from the University of Chicago, and was UBS Foundation Assistant Professor of Applied Economics at the University of Zurich. He is a research affiliate at the Jacobs Center for Productive Youth Development at UZH, IZA, fRDB, HCEO, CHILD, CAGE, CEPR, and CESifo. His research focuses on the early origins and life cycle evolution of health and human capital. He explores the importance of genetics, family investment, and early childhood interventions in explaining health and economic inequality. With his work, he aims to understand the mechanisms through which effective policy interventions and optimal choices of investment can help mitigate innate inequalities and promote health and human capital development.

More broadly, he is interested in Health Economics, Applied Econometrics, and Social Science Genetics.

John Cawley
Cornell University

John Cawley is a Professor in the Brooks School of Public Policy, and the Department of Economics, at Cornell University, where he is Director of the Cornell in Washington program. John is also a Research Associate of the National Bureau of Economic Research (NBER) and an Honorary Professor at the University of Galway, Ireland.

John's primary field of research is the economics of risky health behaviors, with a focus on the economics of obesity. He studies the economic causes of obesity, the economic consequences of obesity, and economic approaches to obesity treatment and prevention.

John serves on the Board of Directors of the International Health Economics Association (IHEA) and chairs the American Economic Association's Committee on the Job Market. He previously served as an Editor of the Journal of Health Economics and on the Board of Directors of the American Society of Health Economists (ASHEcon).

He received his Ph.D. in Economics from the University of Chicago.

Pierre-Andre Chiappori
Columbia University

Pierre-André Chiappori is the E. Rowan and Barbara Steinschneider Professor of Economics at Columbia University (New York). His areas of research include the economics of the family and the economics of risk and insurance. He has authored or co-authored several books and more than 150 articles published in international journals. He is a Fellow of the Econometric Society, the European Economic Association, the Society of Labor Economists, the Society for the Advancement of Economic Theory and the Institut Bachelier. He is an elected member of the French Académie des Sciences Morales et Politiques and of the American Academy of Arts and Sciences.

Jason Fletcher
University of Wisconsin–Madison

Jason Fletcher is Vilas Distinguished Achievement Professor at the La Follette School of Public Affairs and the Department of Population Health Sciences at the University of Wisconsin-Madison. He is also Director of the Center for Demography of Health and Aging. He focuses his research on examining social network effects on adolescent education and health outcomes, tracing life course consequences of early life insults, and combining genetics and social science research. He is a Research Associate with the National Bureau of Economic Research (NBER) and Institute for the Study of Labor (IZA) and member of the Human Capital and Economic Opportunity Group at the University of Chicago.

He earned a B.S. in economics and public administration from the University of Tennessee–Knoxville (Summa Cum Laude) and his M.S. and Ph.D. from the University of Wisconsin–Madison in Applied Economics.

Chao
Fu
University of
Wisconsin–Madison

Chao Fu is the Mary Claire Aschenbrener Phipps Distinguished Chair in Economics at the University of Wisconsin–Madison. Her broad research area is empirical microeconomics that combines economic theories and econometrics tools to study policy relevant questions. Her research covers a wide range of topics, including education, urban policing, worker training, post-disaster reallocation and health insurance systems. A common theme of her research has been evaluating policy impacts from an equilibrium perspective.

Fu received a B.A. in Economics from Xiamen University in 2002, an M.A. in Economics from the University of Western Ontario in 2005, and a Ph.D. in Economics from the University of Pennsylvania in 2010.

Rong
Hai
University of Miami

Rong Hai is an Assistant Professor in the Department of Economics at the University of Miami. She was previously a Postdoctoral Scholar at the Center for the Economics of Human Development and Becker Friedman Institute for Research in Economics at University of Chicago from 2013 to 2016. Her research interests are Public Economics, Labor Economics, Health Economics, and Household Finance.

Hai received a Ph.D. in Economics from the University of Pennsylvania in 2013.

James J. Heckman
The University of Chicago

James J. Heckman is the Henry Schultz Distinguished Service Professor of Economics at the University of Chicago, where he directs the Center for the Economics of Human Development, a research center dedicated to rigorous empirical research on the economic foundations of lifecycle inequality. He has devoted his professional life to understanding important social and economic issues, including how best to reduce inequality and promote opportunity for all. Current research at CEHD includes analyzing the impact of early childhood programs around the world by studying the immediate and long-term impacts of interventions (including the impacts in midlife on health and on other family members). His research also uses original data gathered in the U.S., China, and Germany to measure preferences and traits to help inform governments, schools, and teachers about how socioemotional skills can help students achieve their full potential. A new research project studies the determinants intergenerational mobility in the U.S. and Denmark to determine in what ways the "Scandinavian Fantasy" of social welfare may be a myth.

Heckman has a B.A. in Mathematics from Colorado College and an M.A. and Ph.D. in Economics from Princeton University. He has been at the University of Chicago since 1973.

Mikkel Aagaard Houmark
Aarhus University

Mikkel Aagaard Houmark is a Ph.D. Candidate at the Department of Economics and Business Economics at Aarhus University. His research is concerned with understanding the determinants of social inequality – in particular, how differences in skills, personality, and well-being develop during childhood because of the joint influence of genetics, the home environment, and public investments.

Paul
Hufe
University of Bristol

Paul Hufe is an economist working at the intersection of public, labor, and normative economics.

His research agenda is driven by two main objectives. First, he aims to strengthen the methodological toolkit to quantify the extent of inequality of opportunity in current societies. Second, he studies which circumstantial life factors cause the unequal distribution of life chances.

Yeongmi
Jeong
University of Georgia

Yeongmi Jeong is a Ph.D. candidate in the Department of Economics at the University of Georgia. She is an applied microeconomist with particular interest in health economics and genoeconomics. Her dissertation studies the relationship between genetic markers and health and economic outcomes.

Yeongmi will join the Department of Sociology at Purdue University as a Post-Doctoral Research Associate from Fall 2023.

James Lee
University of Minnesota

James Lee is an associate professor in the Department of Psychology at the University of Minnesota, affiliated with the Personality, Individual Differences, and Behavior Genetics area In 2012, he earned a Ph.D. from the Department of Psychology at Harvard University. The papers collected in his dissertation cover causal inference, genome-wide association studies, and cognitive-experimental approaches to the study of individual differences. He was a postdoctoral researcher in the Mathematical Biology Section of NIDDK/NIH from 2011 to 2013, where he worked on problems in population and statistical genetics.

Qiongshi Lu
University of Wisconsin–Madison

Qiongshi Lu is an Assistant Professor in the Department of Biostatistics and Medical Informatics at University of Wisconsin-Madison. His research focuses on developing statistical methods for human genetics research. Areas of expertise in Qiongshi's group include genome-wide association studies, post-GWAS variant prioritization, genetic correlation estimation, gene-environment interaction, and genetic risk prediction.

Bhash Mazumder
Federal Reserve Bank of Chicago

Bhashkar "Bhash" Mazumder is a senior economist and economic advisor in the economic research department at the Federal Reserve Bank of Chicago. As a member of the microeconomic team, Mazumder conducts research in labor economics, education and health. His research has been focused in three areas: intergenerational economic mobility; the long-term effects of poor health early in life; and black-white gaps in human capital development.

Mazumder received a B.A. in political science from New York University, an M.A. in economics from New York University and a Ph.D. in economics from the University of California at Berkeley.

Jiacheng Miao
University of Wisconsin–Madison

Jiacheng Miao is a third-year Ph.D. student in Biomedical Data Science at the University of Wisconsin-Madison. His research focuses on developing computational tools and statistical methods to address scientific questions in genetics and precision medicine. In particular, he has developed statistical methods to quantify and estimate gene-environment interactions. He has also developed computational tools to improve genetic risk prediction in ancestrally diverse populations. He is the recipient of the distinguished student paper award from American Statistical Association Section on Statistical Genomics and Genetics in 2022.

He earned his B.S. in Statistics from Nanjing University in 2019 and M.S. in Statistics from University of Wisconsin-Madison in 2020.

Dilnoza Muslimova
Erasmus University Rotterdam

Dilnoza Muslimova's research focuses on the gene-environment interactions in human capital formation and methodological issues arising when using polygenic scores in practice. She joined Niels Rietveld's team in 2022 as a Postdoctoral Researcher at Erasmus University Rotterdam to work on a 4-year project on "Genes, Policy and Social Inequalities" funded by European Research Council. During 2018-2022, she pursued her Ph.D. in Economics under the supervision and mentorship of Hans van Kippersluis, Stephanie von Hinke and Fleur Meddens

Kadeem Noray
Harvard University

Kadeem Noray is a Ph.D. Candidate at Harvard University, a graduate scholar in the Multidisciplinary Program in Inequality & Social Policy, and was a Becker Scholar in Price Theory at the Becker Friedman Institute at University of Chicago. He is also currently a consulting researcher at Schmidt Futures.

Noray is interested in understanding talent markets: the institutions that facilitate and provide people with human capital and career opportunities. He is also interested in labor economics and public economics more broadly. For his previous and ongoing work see his research page and his google scholar page.

He earned his M.S. in Applied Economics from Montana State University in 2017 and his B.S. in Mathematics, Economics, and Physics at Hillsdale College in 2015.

Nicholas Papageorge
Johns Hopkins University

Nicholas W. Papageorge is the Broadus Mitchell Associate Professor of Economics at Johns Hopkins University. His research focus is on human capital, broadly construed to include education, physical and mental health, socio-emotional skills and genetic endowments. He mainly uses large observational data sets to examine how people invest in their human capital. He also studies variation in the returns to different forms of human capital, for example, by employment sector, racial groups and socioeconomic status.

John Rust
Georgetown University

John Rust is the Distinguished University Professor of Economics at Georgetown University. He was previously professor of economics at the University of Maryland from 2001 to 2012, Yale University from 1996 to 2001, and the University of Wisconsin from 1983 to 1995. Rust received his Ph.D. in Economics from MIT in 1983, specializing in applied econometrics. He is best known for his research on the development of computationally tractable methods for empirically modelling dynamic decision making under uncertainty, including the "nested fixed point" (NFXP) algorithm. In a series of publications Rust demonstrated that the method of dynamic programming can be used to predict and improve human decision making in a variety of contexts. He was awarded the Ragnar Frisch Medal by the Econometric Society in 1992 for his empirical application of the method in his 1987 Econometrica paper, "Optimal Replacement of GMC Bus Engines: An Empirical Model of Harold Zurcher."

Rust is a Fellow of the Econometric Society, and the co-founder of the firm Technoluddites, Inc. that provides web-based software for the benefit of academia He is also co-founder of the non-profit charitable organization, EconJob Market.org (EJM) designed to facilitate the efficient operation of the job market for economists.

Dan
Sacks
University of
Wisconsin–Madison

Dan Sacks is an associate professor of Risk and Insurance at the Wisconsin School of Business. He studies health economics, public finance, and industrial organization. His work has examined the dynamics of addictive behaviors such as opioid use and smoking, the intended and unintended consequences of social insurance programs, and the causes and consequences of vaccination.

Hannes
Schwandt
Northwestern University

Hannes Schwandt is an Associate Professor at Northwestern University's School of Education and Social Policy (SESP) and at the Department of Economics (courtesy appointment). He is also an Associate Director at the Buehler Center for Health Policy and Economics at the Northwestern University Feinberg School of Medicine.

Before joining Northwestern, he spent one year as Visiting Assistant Professor at Stanford University, three years as Jacobs Assistant Professor at University of Zurich, and three years as a post-doc at Princeton's Center for Health and Wellbeing. He received a Ph.D. in Economics from Universitat Pompeu Fabra in 2012, a M.Sc. in Economics from Universitat Pompeu Fabra in 2007 and a B.Sc. in Economics from University of Munich (LMU) in 2006.

Hannes' research interests are in the fields of Health Economics, Labor Economics, and Applied Microeconometrics.

Lauren Schmitz
University of Wisconsin–Madison

Lauren Schmitz is an Assistant Professor at the La Follette School of Public Affairs, University of Wisconsin–Madison. Her research utilizes social, genomic, and epigenomic data from population-based longitudinal studies to examine how social and biological processes interact to shape disparities in health and socioeconomic outcomes. Her research has been supported by the National Institute on Aging (K99/R00 recipient), the National Science Foundation, the Social Security Administration, the Russell Sage Foundation, the National Bureau for Economic Research, and the March of Dimes. She holds a Ph.D. in Economics from the New School for Social Research and an M.S. in Human Genetics from the University of Michigan.

Aloysius Siow
University of Toronto

Aloysius Siow is a Professor of Economics in the Department of Economics, University of Toronto, Canada. He obtained his Ph.D. in economics from the University of Chicago in 1981. His research focuses on the economics of the family. He has studied dowries, marriage matching, intra-household allocations, fertility, consumption and savings behaviour. His empirical studies include work on family behaviour in contemporary North America, rural China, Medieval Italy and historical Quebec. His research has been published in top ranked academic journals. He has widely lectured in North America, Europe and Asia. He was elected President of the Canadian Economics Association in 2008.

Kevin Thom
University of Wisconsin–Milwaukee

Kevin Thom is an Associate Professor of Economics at the University of Wisconsin-Milwaukee. He is an applied microeconomist with interests in labor, health, and household financial decision-making. Kevin's recent work explores how molecular genetic data can be used to better understand the heterogeneity that drives health behaviors, human capital accumulation, and household financial outcomes. He received his Ph.D. in Economics from Johns Hopkins University in 2009 and previously held a faculty position at New York University.

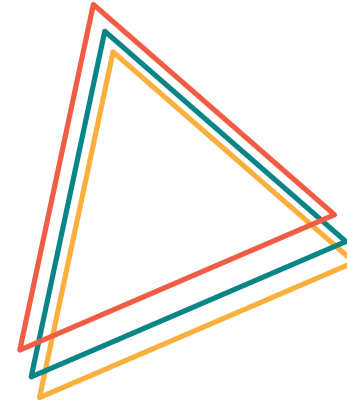## Ben Williams
George Washington University

Ben Williams is an Assistant Professor of Economics. He received his Ph.D. in Economics from the University of Chicago in 2012 and joined the Department of Economics at the George Washington University in August 2012. Ben's primary expertise is in econometric theory. He is interested in issues of identification and estimation in models with latent variables and the use of such models to understand causal effects. He also has interests in applied research in labor economics and industrial organization.

Matt Wiswall

University of Wisconsin—Madison

Matthew Wiswall is the David Edwin and Lucille Hartmann Davies Chair at the University of Wisconsin-Madison and a Faculty Research Associate of the National Bureau of Economic Research. Professor Wiswall is an applied microeconomist who conducts research on child development, education, and applied econometric methodologies. His research has been funded by the US National Science Foundation and the US Department of Education, and published in academic journals including the Journal of Political Economy, Review of Economic Studies, and Quarterly Journal of Economics. He is an Associate Editor for Econometrica and Quantitative Economics. He is an affiliate of the Institute for Research on Poverty, Center for Demography and Ecology, and Center for Financial Security.

Professor Wiswall received his Ph.D. in economics from the University of California-Los Angeles in 2005, and previously held faculty positions at New York University and Arizona State University.

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learn more at: **cdha.wisc.edu**

CENTER FOR THE ECONOMICS OF HUMAN DEVELOPMENT
The University of Chicago

The Center for the Economics of Human Development was founded in 2014 by Nobel Laureate James J. Heckman at the University of Chicago to foster a comprehensive research program that identifies and explores the circumstances under which people develop the skills necessary to thrive in the current economy and achieve their fullest potential. The Center's research portfolio is composed of an array of diverse, interrelated projects and initiatives which promote a thorough empirical understanding of human flourishing. The Center's researchers and staff equip policymakers and practitioners with the information necessary to promote equality of opportunity for even the most disadvantaged and vulnerable.

learn more at: **cehd.uchicago.edu**

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