

Patrick Turley

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Education

- 9/2010 – 5/2016 Ph.D., Economics, Harvard University
Thesis: *Essays in Economics and Education*
- 9/2003 – 4/2010 BA, Economics and Mathematics, Brigham Young University
Valedictorian and University Honors
Thesis: *Partially Adaptive Estimation of Truncated Regression Models: A Comparison with Several Semiparametric Estimators*

Professional Positions

- 5/2024– Associate Professor (Research) of Economics
Department of Economics, University of Southern California
Center for Economics and Social Research, University of Southern California
- 1/2021–5/2024 Assistant Professor (Research) of Economics
Department of Economics, University of Southern California
Center for Economics and Social Research, University of Southern California
- 11/2019–1/2021 Instructor
Analytic and Translational Genetics Unit, Massachusetts General Hospital
Broad Institute and Harvard and MIT
- 9/2016–11/2019 Research Fellow
Analytic and Translational Genetics Unit, Massachusetts General Hospital
Broad Institute and Harvard and MIT

Awards, Honors, and Fellowships

- 6/2019 UK Biobank Early Career Researcher of the Year
- 9/2015 – 5/2016 Roger L. Martin Cornerstone Graduate Student Fellowship
- 9/2010 – 5/2013 National Science Foundation Graduate Research Fellowship

Publications

- “Family-based genome-wide association study designs for increased power and robustness” [5th author of 7] with Junmin Guan, Tammy Tan, et al. (2025). *Nature Genetics*, **57**, 1044–1052.
- “Pan-UK Biobank genome-wide association analyses enhance discovery and resolution of ancestry-enriched effects” [8th author of 29] with Konrad J. Karczewski, Rahul Gupta, et al. (2025). *Nature genetics*, **57**, 2408–2417.
- “Response to Widen et al.” [4th author of 10] with Theresa A. Grebe, George Khushf, et al. (2024). *Genetics in medicine*, **26**(8),101156.

- “Leveraging functional genomic annotations and genome coverage to improve polygenic prediction of complex traits within and between ancestries” [5th author of 15] with Zhili Zheng, Shouye Liu, et al. (2024) *Nature Genetics*, **56**, 767–777.
- “Clinical utility of polygenic risk scores for embryo selection: a points to consider statement of the American College of Medical Genetics and Genomics (ACMG)” [4th author of 10] with Theresa A. Grebe, George Khushf, et al. (2024). *Genetics in medicine*, **26** (4), 101052.
- “Distinct and shared genetic architectures of gestational diabetes mellitus and type 2 diabetes.” [10th author of 23] with Amanda Elliott, Raymond K. Walters, et al. (2024). *Nature Genetics*, 1-6.
- “New polygenic risk score for Alzheimer’s disease impacts states and functions in iPSC-derived microglia.” [5th author of 6] with Martine Therrien, Trevor Atkeson, et al. (2023). *Alzheimer’s & Dementia*, **19**, e072650.
- “Polygenic prediction across populations is influenced by ancestry, genetic architecture, and methodology” [11th author of 13] with Ying Wang, Masahiro Kanai, et al. *Cell Genomics*, 2023, **3**(10).
- “Distributional Effects of Education on Health” [joint authorship] with Silvia H. Barcellos and Leandro Carvalho. *Journal of Human Resources*, 2023, **58**(4), 1273-1306.
- “Wrestling with public input on an ethical analysis of scientific research” [fifth author of 7] with Daphne Oluwaseun Martschenko, Shawneequa L. Callier, et al. *Hastings Center Report*, 2023, **53**(S1), S50-S65.
- “Wrestling with social and behavioral genomics: Risks, potential benefits, and ethical responsibility” [second to last author] with Michelle N. Meyer, Paul S. Appelbaum, et al. *Hastings Center Report*, 2023, **53**(S1), S2-S49.
- “Public views on polygenic screening of embryos” [last author] with Michelle N. Meyer, Tammy Tan, Daniel J. Benjamin, and David Laibson. *Science*, 2023, **379**(6632), 541-543.
- “Whole-genome sequencing reveals host factors underlying critical COVID-19” [minor contributor] with Athanasios Kousathanas, Erola Pairo-Castineira, et al. *Nature*, 2022, **607**, 97-103.
- “Mendelian imputation of parental genotypes improves estimates of direct genetic effects” [10th author out of 11] with Alexander I. Young, Seyed Moeen Nehzati et al. *Nature Genetics*, 2022, **54**, 897-905.
- “Within-sibship genome-wide association analyses decrease bias in estimates of direct genetic effects” [94th author out of 100] with Lawrence J. Howe, Michel Nivard, et al. *Nature Genetics*, 2022, **54**, 581-592.
- “Polygenic prediction of educational attainment within and between families from genome-wide association analyses in 3 million individuals” [starred last author] with Aysu Okbay, Yeda We, et al. 2022, *Nature Genetics*, **54**, 437-449.
- “A first update on mapping the human genetic architecture of COVID-19” [minor contributor] with the COVID-19 Host Genetics Initiative. 2022, *Nature*, **608**, E1-E10.
- “Problems with Using Polygenic Scores to Select Embryos” [starred 1st author] with Michelle Meyers, David Cesarini, et al. *New England Journal of Medicine*, 2021, **385**(1), 78-86.
- “Resource profile and user guide of the Polygenic Index Repository” [starred last author] with Joel Becker, Casper A.P. Burik, et al. *Nature Human Behavior*, 2021, **5**, 1744-1758.
- “Genomic analysis of diet composition finds novel loci and associations with health and lifestyle” [8th author out of 46] with S. Fleur W. Meddens, Ronald de Vlamming, et al. *Molecular Psychiatry*, 2020, **26**, 1-14.
- “Genomic relationships, novel loci, and pleiotropic mechanisms across eight psychiatric disorders” [94th author out of 150] with Phil H. Lee, Verner Anttila, et al. *Cell*, 2019, **179**(7), 1469-1482.

- “GWAS of risk tolerance and risky behaviors in over one million individuals identify hundreds of loci and reveal shared genetic influences” [88th author out of 97] with Richard K Linner, Pietro Biroli, et al. *Nature Genetics*, 2019, **51**(1), 245-257.
- “Identification of common genetic risk variants for autism spectrum disorder” [65th author of 76] With Jakob Grove, Stephan Ripke, et al. *Nature Genetics*, 2019, **51**(3), 431-444.
- “Discovery of the first genome-wide significant risk loci for attention-deficit/hyperactivity disorder” [41st author of 71] with Ditte Demontis, Raymond K Walters, et al. *Nature Genetics*, 2019, **51**(1), 63-75.
- “Education can Reduce Health Differences Related to Genetic Risk of Obesity: Evidence from a British Reform” [joint authorship] with Silvia H. Barcellos and Leandro Carvalho. *Proceedings of the National Academy of Science*, 2018, **115**(42), E9765-E9772.
- “Imprint of assortative mating on the human genome” [8th author of 14] with Loic Yengo, Matthew R Robinson, et al. *Nature Human Behavior*, 2018, **2**, 948-954.
- “Gene Discovery and Polygenic Prediction from a 1.1-million-person GWAS of Educational Attainment” [starred last author] with James J. Lee, Robbee Wedow et al. *Nature Genetics*, 2018, **50**, 1112-1121.
- “Analysis of shared heritability in common disorders of the brain” [16th author of 150] with Verner Anttila, Brendan Bulik-Sullivan, et al. *Science*, 2018, **360**(6395).
- “Multi-trait analysis of genome-wide association summary statistics using MTAG” [first author] with Raymond Walters, Omeed Maghziyan, et al. *Nature Genetics*, 2018, **50**(2), 229-237.
- “Was that SMART: Institutional Financial Incentives and Field of Study” [joint authorship] with Jeff Denning. *Journal of Human Resources*, 2017, **52**(1), 152-186.
- “Genome-wide association study identifies 74 loci associated with educational attainment” [starred first author] with Aysu Okbay, Jonathan Beauchamp, et al. *Nature*, 2016, **533**, 539-542.
- “Genetic variants associated with subjective well-being, depressive symptoms, and neuroticism identified through genome-wide analyses” [starred 1st author] with Aysu Okbay, Bart M.L. Baselmans, et al. *Nature Genetics*, 2016, **48**, 624-633.
- “Common Genetic Variants Associated with Cognitive Performance Identified Using the Proxy-phenotype Method” with Cornelius Rietveld, Tonu Esko, et al. *Proceedings of the National Academy of Science*, 2014, **111**(38), 13790-13794.
- “Skewness and Kurtosis Properties of Income Distribution Models” with James McDonald and Jeff Sorensen. *Review of Income and Wealth*, 2013, **59**(2), 360-374.
- “Distributional Characteristics: Just a Few More Moments” with James McDonald. *The American Statistician*, 2011, **65**(2), 96-103.

Working Papers

- “Do Children’s Genetic Differences Change Their Parents’ Economic Outcomes? Insights from Norway” [3rd author of 8] with Joakim C. Ebeltoft, Rosa Cheesman, et al. (2025) *SocArXiv*. https://osf.io/preprints/socarxiv/c29ya_v1
- “Genetic basis of partner choice” [14th author of 17] with Qinwen Zheng, Sjoerd van Alten, et al. (2025). *bioRxiv*. <https://www.biorxiv.org/content/10.1101/2025.02.03.636375v1>
- “Education and Dementia Risk” [joint authorship] with Silvia H. Barcellos, Leandro Carvalho, et al. (2025). *NBER WP*, 33430. <https://www.nber.org/papers/w33430>
- “Dissecting the Predictive Accuracy of Polygenic Indexes for Behavioral Phenotypes Across Genetic Ancestries” [4th author of 5] with Robel Alemu, Alexander S. Young, et al. (2025). *bioRxiv*. <https://www.biorxiv.org/content/10.1101/2025.09.11.675704v2>
- “An updated polygenic index repository: expanded phenotypes, new cohorts, and improved causal inference” [48th author of 50] with Robel Alemu, Anastasia Terskaya, et al. (2025). *bioRxiv*. <https://www.biorxiv.org/content/10.1101/2025.05.14.653986v2>

- “Social-Science Genomics: Progress, Challenges, and Future Directions” [joint authorship] with Daniel J. Benjamin, David Cesarini, and Alex S. Young. (2024) *NBER WP*, 32404.
<https://www.nber.org/papers/w32404>
- “Family-GWAS reveals effects of environment and mating on genetic associations.” [4th from last author] with Tammy Tan, Hariharan Jayashankar, et al. (2024). *medRxiv*.
<https://www.medrxiv.org/content/10.1101/2024.10.01.24314703v1>
- “A general approach to adjusting genetic studies for assortative mating” [last author] with Marta Bilghese, Regina Manansala, et al. *bioRxiv*. 2023.
<https://www.biorxiv.org/content/10.1101/2023.09.01.555983v1>
- “The Effect of Education on the Relationship between Genetics, Early-Life Disadvantages, and Later-Life SES” [joint authorship] with Silvia H. Barcellos and Leandro Carvalho. *NBER WP*, 28750.
<https://www.nber.org/papers/w28750>
- “Multi-Ancestry Meta-Analysis Yields Novel Genetic Discoveries and Ancestry-specific Associations” [first author] with Alicia Martin, Grant Goldman, et al. *bioRxiv*. 2021.
<https://www.biorxiv.org/content/10.1101/2021.04.23.441003v1>

Research Grants

Principal Investigator

- 5/2023 – 4/2028 National Institute on Aging/National Institutes of Health (PI: Turley)
 R01, R01AG0815181
 “Studying the Genetics of Aging, Behavioral, and Social Phenotypes in Diverse Populations”
 Total Award: \$3,654,543
- 7/2019 – 6/2024 National Institute on Aging/National Institutes of Health (PI: Turley)
 K99/R00, 1K99AG062787
 “Genome-wide Analysis of Late-onset Alzheimer’s Disease Using Intergenerational, Multi-trait, and Cross-ancestry Data”
 Total Award: \$996,369
- 4/2020 – 3/2022 National Institute on Aging/National Institutes of Health (PI: Turley)
 R21, R21AG067585
 “Estimating Assortative Mating, its History, and its Future Effect on Genetic Variance for Health, Behavioral, and Ancestry Phenotypes Using Cross-sectional Data”
 Total Award: \$465,875

Co-Investigator

- 10/2023 – 9/2028 National Institute on Aging/National Institutes of Health (PI: Galama)
 R01, R01AG079554
 “Genotyping the Understanding America Study to generate novel opportunities for research on cognitive functioning and dementia”
 Total Award: \$12,300,000
- 7/2023 – 6/2028 National Institute on Aging/National Institutes of Health (PI: Young)
 R01, R01AG083379
 “Mendelian imputation for family-based GWAS and association-by-proxy in diverse ancestries”
 Total Award: \$3,920,343

- 9/2022 – 5/2027 National Institute on Aging/National Institutes of Health (PI: Barcellos)
R01, R01AG078522
“Genetic Differences in the Causal Effect of Education Quantity and Quality on
Cognitive Functioning and Dementia Diagnosis Later in Life”
Total Award: \$3,909,620
- 1/2019 – 12/2025 Good Ventures Foundation (PI: Benjamin)
010623-00001
“Social Science Genetic Association Consortium”
Total Award: \$6,750,000

Professional Activities

- 2021 – present Director
Behavioral and Health Genomics Center, CESR, USC
- 2019 – present Steering Committee, Methods Working Group Chair
Social Science Genetic Association Consortium
- 2019 – 2023 Group Member, Sounding Board Committee
*Wrestling with Social/Behavioral Genomics: Risks, Potential Benefits, and
Ethical Responsibilities Working Group*
- 2021 Organizing Committee
Equity in Biomedicine Seminar Series, Broad Institute
- 2019 – 2020 PRS Working Group
C-FoS Alzheimer’s Disease Consortium

Referee: Quarterly Journal of Economics, American Economic Review, Biometrika, Nature Genetics, Nature Human Behavior, Nature Neuroscience, Nature Communications, Economic Journal, AEJ-Policy, PNAS, eLife, Science Advances, Psychological Science, Bioinformatics, American Journal of Human Genetics, European Journal of Human Genetics, Scientific Reports, Genetics, Genetic Epidemiology, PLOS Genetics, Communications Biology, Demography, Economics of Education Review, Review of Income and Wealth, American Journal of Health Economics, Trends in Genetics

Book Reviewer: Princeton Press

Grant reviewer: National Science Foundation, Russell Sage Foundation, Nuffield Foundation, Templeton Foundation

Discussant: NBER Summer Institute, American Economic Association Annual Meetings, Population Association of America Annual Meeting, Behavioral Genetics Association Annual Meeting

Dissertation Committee Member:

Dylan Steinecke, Department of Bioinformatics, UCLA, Expected 2026

Bart Baselmans, Department of Biological Psychology, Vrije Universiteit Amsterdam, December 2018

Teaching Experience

- 9/2021 Psychology 438: Behavioral Genetics, University of Southern California
Guest Lecture (course taught by Prof. Laura Baker)
- 6/2016 – 8/2021 Summer Institute in Social Science Genomics, Russell Sage Foundation
Visiting Faculty/Organizer

- 8/2019 Genoeconomics, Department of Economics, Aarhus University
Visiting Faculty (with Daniel Benjamin)
- 10/2017 Integrating Genetics and the Social Sciences, UC Boulder
Invited Lecturer, Statistical Genetics Workshop
- 9/2012 – 12/2012 Microeconomic Theory, Harvard University
Teaching fellow for Professor Edward Glaeser
- 1/2008 – 4/2008 Honors Economic Principles and Problems, BYU
Teaching assistant for Professor Larry Wimmer

Workshop Organizer

- Social-science Genomics Journal Club/Seminar Series [Co-organizer]
2021 – present, Center for Economic and Social Research, University of Southern California.
- Russell Sage Foundation Summer Institute in Social-Science Genomics [Co-organizer]
June 2019, Santa Barbara, CA
August 2021, Stowe, VT
- Program in Quantitative Genetics Working Group [Co-organizer]
2018-2019, Harvard School of Public Health.

Conference Presentations, Posters, and Invited Talks

- 2025 Integrating Genetics and the Social Sciences Meeting, Stanford University, CA
Behavior Genetics Association Conference, Atlanta, GA
- 2024 Social Science Genomics Seminar, Princeton University, Virtual talk
- 2023 Association for Molecular Pathology Conference, Invited Talk, Salt Lake City, UT
Interdisciplinary Center for Econ Studies Seminar, George Mason University, Fairfax, VA
ASHG Annual Meeting, Invited Session Speaker, Washington DC
Integrating Genetics and the Social Sciences Meeting, Boulder, CO
UCLA Bioinformatics and Human Genetics Seminar, Los Angeles, CA
USC Biostatistics Seminar, Los Angeles, CA
John Hopkins Biostatistics Seminar, Virtual Meeting
American College of Medical Genetics Meeting, Invited Talk, Salt Lake City, UT
- 2022 NBER Summer Institute, Economics of Education Meeting, Cambridge, MA
American College of Medical Genetics Meeting, Invited Talk, Nashville, TN
OCD Working Group Meeting, Psychiatric Genetics Consortium
- 2021 Frontiers in Economic Analysis with Genetic Data, Madison, WI
Integrating Genetics and the Social Sciences Meeting, Virtual Meeting
BioTech Atelier, Keynote Presentation, Virtual Meeting
European Society of Human Genetics, Invited Speaker, Virtual Meeting
Mendelian Randomization Conference, Virtual Meeting
Within-Families Working Group Seminar, Bristol, UK
Behavior Genetics Association Conference, Virtual Meeting
Integrating Biological and Social Science into Health and Aging Research, Invited Talk,
Virtual Meeting
Center for Economic and Social Research, USC, Research Seminar Series, Virtual Meeting
- 2020 Genomics for Health Conference, Arbeitsgemeinschaft für Gen-Diagnostik, Virtual Meeting
American Society of Human Genetics Meeting, Virtual Meeting
Geisinger Health Systems, Research Seminar Series, Danville, PA
- 2019 American Society of Human Genetics Meeting, Houston, TX
Harvard Medical School, Department of Health Care Policy Seminar Series

- Behavior Genetics Association Meeting, Karolinska Institutet, Stockholm, Sweden
- 2018 Behavior Genetics Association Meeting, The Broad Institute
Population Association of America Meeting, Denver, CO
NBER Summer Institute (Health), Cambridge, MA
Depression Working Group Meeting, Psychiatric Genetics Consortium
Medical and Population Genetics Research Seminar, The Broad Institute
- 2017 Boston College, Center for Retirement Research Seminar Series
Polygenic Prediction and its Application in Social Science Conference, USC
- 2016 Conference on Genetics and Social Science, University of Southern California
NBER Summer Institute (Health), Cambridge, MA
University of Southern California, CESR Seminar Series
- 2015 Integrating Genetics and the Social Sciences, University of Colorado Boulder
Stanford Institute for Theoretical Economics, Stanford University
Stanley Center, Broad Institute at Harvard and MIT
- 2014 Integrating Genetics and the Social Sciences, University of Colorado Boulder

Languages

English (native), French (fluent)