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GENOME-WIDE ASSOCIATION STUDIES IN ECONOMICS AND ENTREPRENEURSHIP RESEARCH: PROMISES AND LIMITATIONS (SUMMARY)

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≈ SUMMARY ≈

**GENOME-WIDE ASSOCIATION STUDIES IN ECONOMICS AND
ENTREPRENEURSHIP RESEARCH: PROMISES AND LIMITATIONS**

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Principal Topic

The recently developed genome-wide association study (GWAS) design enables to identify genes specifically associated with economic outcomes. This is a promising new approach for economics research that we aim to apply to the choice for entrepreneurship. The present article is inspired by our ongoing work, describing the GWAS design and how it can be applied to study economic outcomes. To the best of our knowledge, this is the earliest attempt to apply GWAS to an economic outcome of a relatively general, and hence complex, nature and will reveal potentials and limitations of GWAS for economics research. We describe the GWAS design and illustrate the statistical multiple testing problem that arises in this context. Finally, the interpretation of findings from GWAS on economic outcomes is not straightforward and some guidelines are provided in this regard.

Method

To demonstrate multiple testing issues and the need for large sample sizes, we performed several simulation studies that mimic the situation of a GWAS on entrepreneurship. Following current best practice in genetics research, we discuss how strict confidence levels in combination with large sample sizes are required to identify genes that are truly associated with entrepreneurship or other economic outcomes. For a GWAS on entrepreneurship, we expect that a sample size of at least 30,000 observations is required.

Results and Implications

Our conclusion is that GWAS is a promising approach to investigate the genetic causes of economic outcomes. Genetics can help us understand the root of individual differences, for example with respect to preferences and productivity values. Also, genetics can help discover new dimensions of individuality that influence economic behavior; those not yet part of established theory. We find this prospect exciting and promising enough to justify this time-consuming and risky endeavor using this approach.

Fernando Rivadeneira, Frank J.A. van Rooij, André G. Uitterlinden (all Erasmus Medical Center), and Cornelius A. Rietveld (Erasmus University Rotterdam) are also involved in this research.

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