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NEW REPORT: The value of incorporating genetic data in the design of public policy

A timely new IZA World of Labor report publishing today finds that significant benefits to the understanding of socio-economic outcomes and the design of both social and education policy may be gained by effectively and safely utilizing genetic data.

In 2003, scientists working collaboratively from around the world completed the sequencing of the human genome. Since that feat, medical research has increasingly focused on disease mechanisms at the cell and molecular levels, helping to generate significant interest in the development of "personalized medicine." Research has even begun to shed light on how molecular genetics influences many commonly studied individual socio-economic outcomes, such as educational attainment and fertility.

In this new report the economists Weili Ding and Steven F. Lehrer of Queen's University, Canada, and NYU Shanghai, China argue that molecular genetic data offers the potential to design new, effective policy approaches to improving societal outcomes. According to the authors heritability plays a role in nearly every socio-economic and health outcome. For example, studies on heredity suggest that genetic factors could explain up to 65–80% of the variation in height and 20–40% of the variation in educational attainment. This feature has long been ignored by social scientists and policymakers.

The speed at which molecular genetic data can be effectively integrated within policy design is directly tied to improvements in understanding how genetic markers operate. For example, huge advantages may be gained if genetic screening can reliably predict complex learning disorders. Armed with knowledge of whether their child or employee is at an elevated risk for a given poor outcome, parents and employers will be able to make different investments, years prior to receiving a formal diagnosis. These investments may affect how the underlying genes are expressed and therefore reduce the risk for future poor outcomes.

The authors stress that studies that use genetic markers as an instrumental variable are not suggesting that heredity is destiny. To illustrate this point, consider the rapid spread of obesity around the globe in the last 50 years. Researchers in the biological sciences have conducted searches for genetic variants that play a role in obesity, and have developed a rich evidence base for genetic and epigenetic mechanisms involved in the susceptibility and development of obesity. However, genetic changes remain largely stable across many generations of a population, so this is unlikely to explain the drastic rise in obesity over the last 50 years.

The authors conclude: "*Like many other new sources of 'big data' or artificial intelligence, there is the potential for misuse. Possible sources of abuse include not just the potential promotion of eugenics-style initiatives, but also discrimination by insurers or employers. However, given the significant potential benefits of incorporating these data with appropriate safeguards, it is hoped that policymakers can become more confident that the question to ask will shift from 'Whether we should use data on molecular genetic factors?' to 'How can we maximize the benefits while minimizing the harm?'*"

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Notes for editors:

IZA World of Labor (http://wol.iza.org) is a global, freely available online resource that provides policy makers, academics, journalists, and researchers, with clear, concise and evidence-based knowledge on labor economics issues worldwide.

The site offers relevant and succinct information on topics including diversity, migration, minimum wage, youth unemployment, employment protection, development, education, gender balance, labor mobility and flexibility among others.

Established in 1998, the Institute of Labor Economics (www.iza.org) is an independent economic research institute focused on the analysis of global labor markets. Based in Bonn, it operates an international network of about 1,500 economists and researchers spanning more than 45 countries.