The Genetic Architecture of Political Activity

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Abstract

A large body of evidence has accumulated from twin and adoption studies suggesting that genetic factors explain a substantial fraction of the variation in political attitudes and behaviors. However, critics of this work point out that no credible genetic associations have yet been established and question the twins-based estimates. In this study, we show that a simple principle - that genetic effects on complex traits are very small - can help reconcile these findings. We use a recently developed technique - GREML - to estimate the fraction of variation in an index of political behavior that is explained by the combined effects of all common genetic variants. Our estimates suggest that common genetic variants explain 23% of the variance in political activity, roughly two-thirds of the estimates based on twin studies. Second, we show that no single genetic marker is significantly associated with political activity. Third, we show that a score constructed from the measured genetic markers explains about 1.2% of the total variation in political activity. Our results suggest that genetic influences on political phenotypes are highly diffuse, with the heritable variation explained by many genes with small effects. Our findings also suggest that earlier published genetic associations studies with political traits are potentially underpowered meaning that reported associations are likely to be false positives. We discuss implications of our findings for the proposed uses of genetic data in political science.