



Voting: In Your Genes?

Behavior geneticists say almost every human behavior that can be reliably measured—from TV-watching to optimism—is significantly influenced by genes. Now they're extending their reach into the voting booth.

Numerous studies over the past 2 decades, the first led by psychologist Nicholas Martin at the Queensland Institute for Medical Research in Australia, have indicated that genes have a significant influence over whether you're "liberal" or "conservative" on various political and social issues. Some heritability estimates have been as high as 50%. That's roughly the heritability found for many personality traits such as "extraversion" or "agreeableness," and it implies that, in a given population, about half of the variation in a particular trait is attributable to genetic differences.

Now James Fowler, a political scientist at the University of California, San Diego, and grad student Christopher Dawes say they've produced fresh evidence that DNA also has a hand in the intensity of someone's partisan attachment and even in whether someone bothers to vote.

As they reported here, they did that by crunching data from twin registries and the

government's long-running National Longitudinal Study of Adolescent Health (NLSAH). In one study, the researchers matched data on voting by 396 Los Angeles-area twins, including identical (who share 100% of their genes) and fraternal (who average 50% genetic overlap) twins, obtained from Los Angeles voter-turnout records. All twins were same-sex pairs to avoid confounding results with sex differences. The researchers corrected for environmental factors such as whether more of the identical than fraternal twins were living together, which might inflate their degree of similarity. The researchers concluded that the correlation for voting was much higher between pairs of identical (.71) than fraternal (.50) twins. From this they estimated the heritability of voting behavior—that is, whether people eligible to vote actually do so—at 53%, suggesting that at least half the individual variation can be traced to genetic influences. They found an even higher heritability—72%—when they replicated the study with data on 806 twins from NLSAH, they reported in the May issue of the *American Political Science Review*.

How strong do you lean? Twin studies suggest that the intensity of a person's partisan attachment, and even whether that person votes, may be influenced by genes.

The San Diego researchers also argued for a biological twist to how strongly someone identifies with a given party. The group, led by grad student Jaime Settle, gave questionnaires to 353 pairs of same-sex twins in Twinsburg, Ohio, where twins from all over the world hold a summer gathering every year. The twins were asked to rank their partisan attachment on a seven-point scale. From that, the researchers report in an as-yet-unpublished paper, they calculated a heritability of 46% for party loyalty, independent of affiliation. Whereas "partisan direction" seems mainly influenced by social and demographic factors, the researchers conclude, "partisan intensity" is not.

Several groups are now trying to correlate personality data with DNA markers from studies such as NLSAH, which contains DNA as well as behavioral data from many subjects, in hope of identifying specific genes that feed into underlying traits, such as "desire for cooperation," that Fowler, for one, believes have been selected for throughout human evolution. Studies so far have focused on the same genes that are of interest in psychiatric genetics—in particular those involved with neurotransmitters such as dopamine and serotonin that are known to be important in regulating higher brain activities.

The heritability studies are "intriguing," says David Goldman, chief of the neurogenetics lab at the National Institute on Alcohol Abuse and Alcoholism in Bethesda, Maryland. But he is skeptical about attempts to translate findings from twin and family studies into molecular hypotheses. "In any questionnaire you'll find heritability," he says, "but you don't know what's being inherited." So "it's premature at best to attack a complex phenotype like political leanings at the molecular level."

Martin, who pioneered twin studies on such behaviors, applauds social scientists for plunging into biological and evolutionary issues. At least some "are starting to acknowledge that humans are genetically unique individuals and not just cloned pawns" of their environment. And that suggests that prophets and pundits, however prescient, are probably never going to get much better at predictions than they are now.