

# While trust is inherited, distrust is not: study

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Research has shown that how trusting a person is may depend, at least in part, on his or her genes. However, distrust does not appear to be inherited in the same way, according to a new study led by the University of Arizona.

The research, published in *Proceedings of the National Academy of Sciences*, explores distrust as a separate and distinct quality from trust.

"This research supports the idea that distrust is not merely the opposite of trust," said Martin Reimann, assistant professor of marketing in the UA's Eller College of Management and lead author of the study.

"Both trust and distrust are strongly influenced by the individual's unique environment, but what's interesting is that trust seems to be significantly influenced by genetics, while distrust is not. Distrust appears to be primarily socialized," Reimann said.

Reimann and his colleagues - UA assistant professor of management and organizations Oliver Schilke and Stanford sociologist Karen S. Cook - studied sets of adult identical twins - who have identical genetic relatedness - and adult fraternal, or non-identical, twins - who have different genetic relatedness.

Based on the core principles of behavioral genetics, if genetics explain variations in distrust and trust behaviors, then identical twins should behave more similarly to each other than fraternal twins, since the genes of [identical twins](#) are shared, while the genes of fraternal twins are only imperfectly correlated, Reimann said.

Studying the two different types of twins allowed researchers to estimate the relative influence of three different factors on twins' trust and distrust trust behaviors: heritable factors - that is, genetic influences; shared environmental factors - that is, common experiences of growing up in the same family and interacting with the same immediate peers; and unshared environmental factors - or the siblings' unique experiences in life.

For the research, 324 identical and 210 fraternal twins participated in a

study task that asked them to decide how much money to send to another study participant - representing trust - and another task that asked them to decide how much money to take away from another participant - representing distrust.

The researchers found that the identical twin pairs behaved more similarly than the fraternal twin pairs in their trust behaviors but not their distrust behaviors, suggesting that genetics influence trust, but not distrust.

Overall, analyses estimated that trust is 30 percent heritable, while distrust is not at all heritable. Meanwhile, the estimated contribution of shared environment to distrust was 19 percent, while shared environment didn't contribute at all to trust.

Unshared environment - or the twins' independent experiences in life - had the biggest impact on both trust and distrust, with unshared experiences contributing 81 percent to distrust and 70 percent to trust. In other words, much of a person's propensity to trust or distrust is neither inherited nor commonly socialized. It is instead influenced by unique experiences in life.

"We all have a stock of past experiences that we draw on to help determine how we are going to behave in different situations, and future research should look at what particular types of life [experiences](#) could be the most influential on trust or distrust," Reimann said. "Disposition to trust, however, is not a product of experience alone; genetic influence is also significant. But we don't see the same genetic influence with [distrust](#)."

**More information:** Martin Reimann et al., "Trust is heritable, whereas distrust is not," *PNAS* (2017).

[www.pnas.org/cgi/doi/10.1073/pnas.1617132114](http://www.pnas.org/cgi/doi/10.1073/pnas.1617132114)

Provided by University of Arizona

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