How do religious ideologies spread?
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The chiefs Waikato and Hongi Hika with missionary Thomas Kendall, Oil on canvas by James Barry, 1820. Credit: National Library of New Zealand Te Puna M?tauranga o Aotearoa, Alexander Turnbull Library, Wellington (Ref:G-618)

Over the last 2000 years Christianity has grown from a tiny religious sect to the largest family of religions in the world. How did Christianity become so successful? Did Christianity spread through grass-roots movements or political elites? And what can the spread of Christianity tell us about how widespread social change happens?

A paper published today in *Nature Human Behaviour* uses new computational cross-cultural methods to help answer these questions. The research tested how political hierarchies, social inequality, and population size affected the spread of Christianity in 70 Austronesian societies.

Austronesian societies shared a common ancestral language and are located across Southeast Asia, East Africa and the South Pacific. Historically, they ranged from very small egalitarian family-based communities to large politically complex societies such as Hawaii. Conversion typically happened in the 18th and 19th centuries, and while some societies took less than a year to convert, others took up to 205 years. The range of social structures and conversion histories makes Austronesian societies ideal for theories about how cultural change happens.

The results of the study show that cultures with political leadership structures were often the fastest to convert to Christianity. This supports a "top-down" process of conversion whereby chiefs and elite leaders, themselves converted by missionaries, were highly influential in spreading Christian doctrine among their people.

In contrast, social inequality was not related to conversion times. This challenges one of the most widely-cited reasons for Christianity's popularity, that it spread from the "bottom-up" by empowering lower classes and promising to improve the lives of the less privileged in the afterlife.

The research also found that Christianity spread most quickly among small populations. This helps clarify the importance of population size in processes of cultural change.

"While people often think of big societies as sources of innovation, our findings show that bigger societies can also be slow to pick up on new ideas," says lead author Dr. Joseph Watts who undertook the research at the University of Auckland's School of Psychology and at the Max Planck Institute for the Science of Human History in Jena, Germany. "In a small population, it becomes more likely that beliefs will be transmitted relatively quickly, particularly if they are being driven by leaders and other powerful figures."

Dr. Watts says the findings provide significant insight into large-scale human behaviour and the process of cultural change, a fascinating aspect of human life. "If you look at our contemporary world, some things spread incredibly quickly while others take a very long time so here we provide evidence of why that might be."
University of Auckland Professor Quentin Atkinson, a researcher in this study, says that finding new answers about how beliefs have spread in the past gives us insight into how they might spread in the future. "This research can help us understand how both the size and the structure of populations influence the diffusion and adoption of new institutions, ideologies or technologies."

The study was undertaken in collaboration with researchers at the University of Auckland in New Zealand and the Max Planck Institute for the Science of Human History in Germany. The research team also includes doctoral candidate Oliver Sheehan, Professor Joseph Bulbulia, and Professor Russell Gray.


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