

## The neuroeconomics of self-control

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### Abstract

Self-control is a fundamental concept that has been utilized to understand phenomena in criminology and mental health. It is commonly believed that humans have an innate tendency towards irrational and unethical behaviors, and that we draw on a finite reserve of mental energy to resist temptations. However, recent findings in neuroscience challenge these traditional assumptions. Our research indicates that spontaneous lying may not necessarily require more effort or willpower than spontaneous truth-telling. Moreover, the areas of the brain associated with self-control are deeply integrated with the brain's valuation systems. Diverse forms of self-control might activate different neural pathways, rather than relying on a single brain region. Furthermore, when under stress, self-control is more accurately described by the variability in transitions between network states at the neural level. We also show that behavioral nudges that are designed to alter valuation—rather than to bolster self-control—have proven effective in encouraging vaccination uptake during the COVID-19 pandemic. Taken together, we suggest that insights from neuroscience can enrich and refine theories in the social sciences, particularly those concerning self-control.

### Biography

Dr. Yu received his PhD from the University of Cambridge, M.S. from Peking University, and B.S. from Nankai University. He holds the position of associate professor at the School of Business and is the associate director of the Life Science Imaging Center at Hong Kong Baptist University. He has published more than 170 research papers in peer-reviewed journals, including Psychological Bulletin, Psychological Science, and PNAS, with over 6600 citations. He now serves as the associate editor of Neurobiology of Stress (IF=7.2). His research areas span Neuroeconomics, Social neuroscience, Computational Psychiatry, Aging, and Child Development. His lab mainly uses brain imaging methods (fMRI/EEG/fNIRS) combined with experimental tasks to study the neuropsychological mechanisms of economic and social decision-making.

***ALL ARE WELCOME***