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Cultural Evolutionary Behavioral Science in Public Policy

By Robin Schimmelpfennig & Michael Muthukrishna
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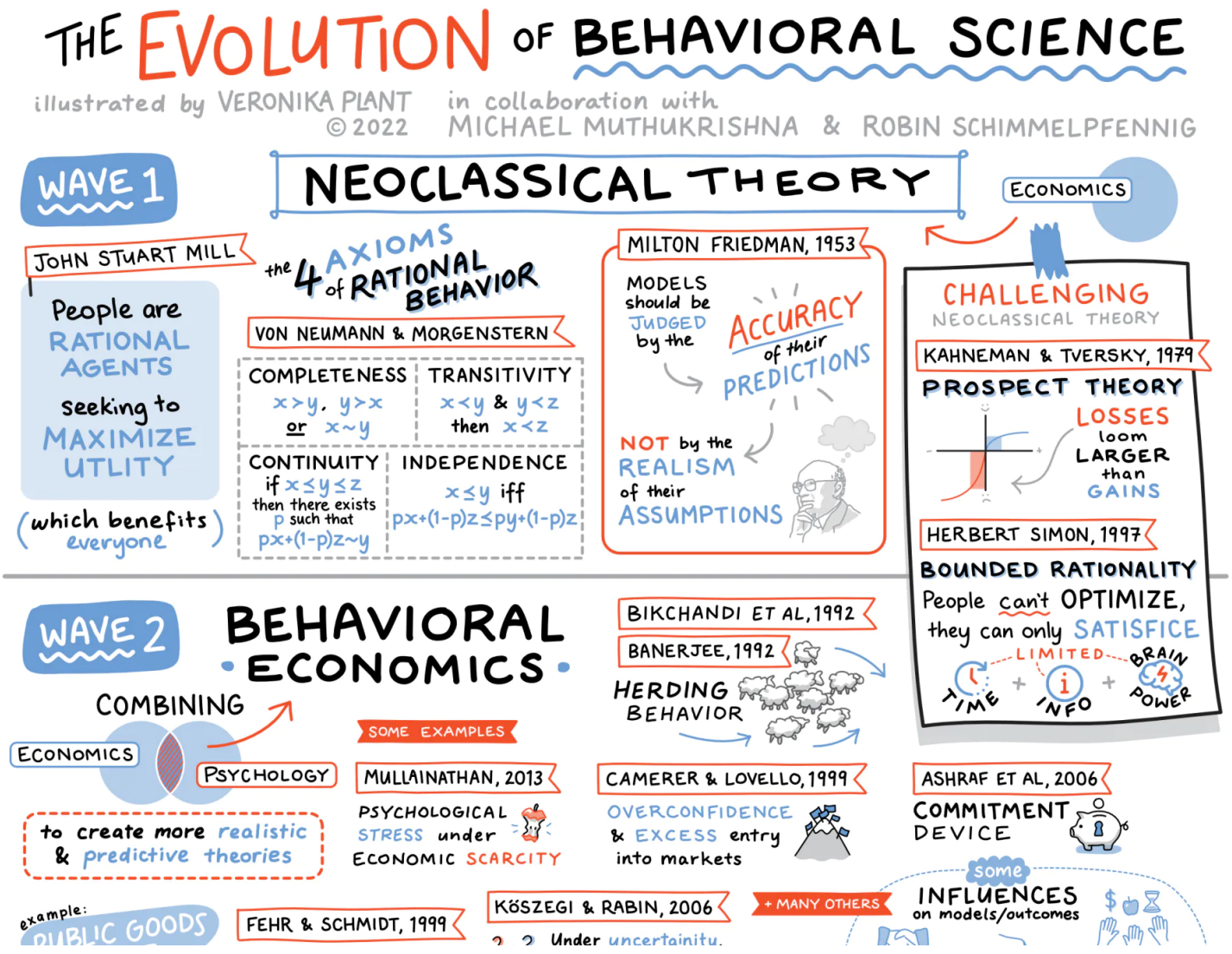
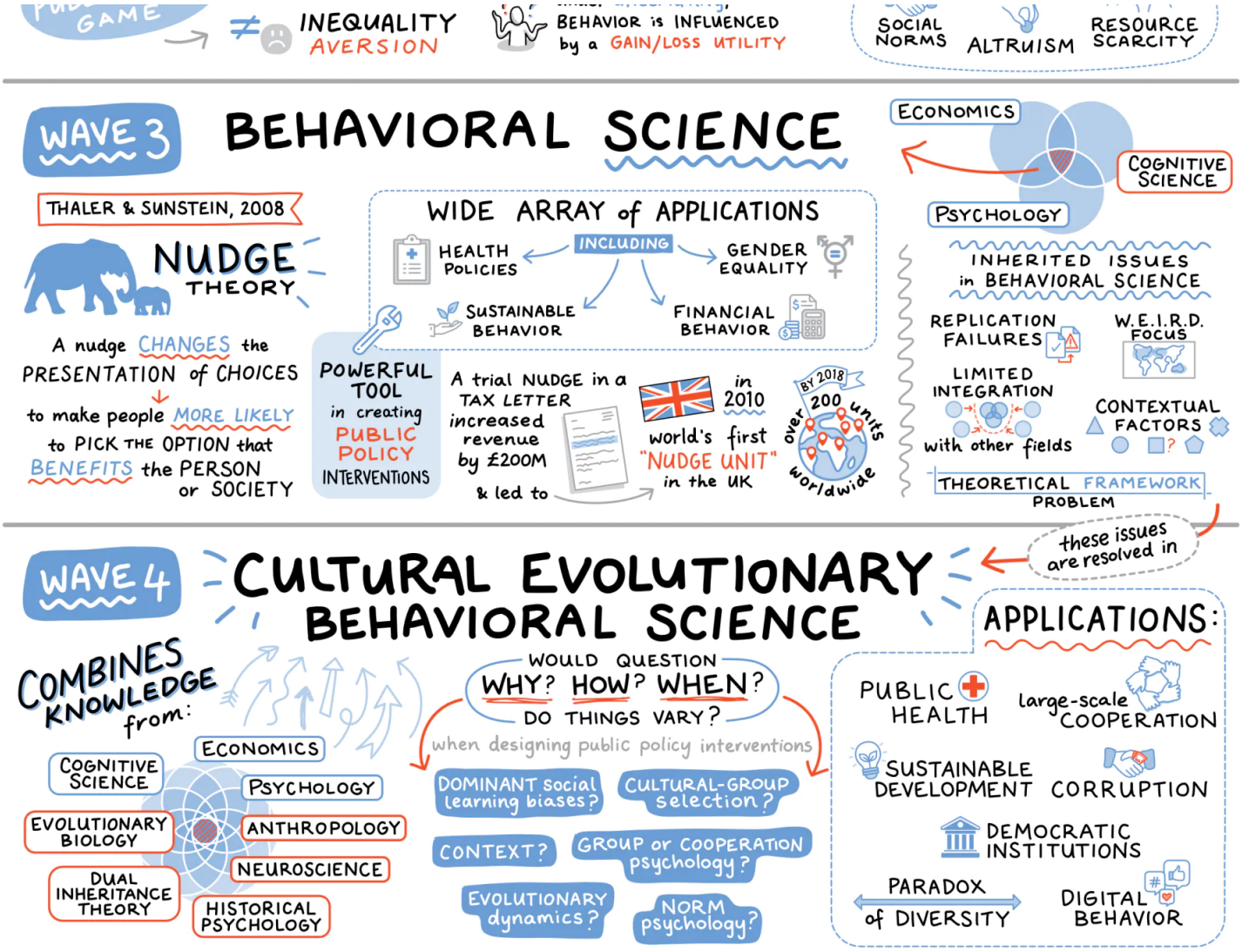
Using dual inheritance theory and cultural evolution as a framework to address contextual gaps in public policy interventions.





The Evolution of Behavioral Science Illustration by Veronika Plant

This post is the 11th in a series from the 11 Awardees of the Templeton World Charity Foundation's Grand Challenges for Human Flourishing. The Foundation is investing US $60 million to grow the field of human flourishing to encompass scientific research, practice, and policy. Check back as we launch further requests for proposals under this important rubric.

Interventions are to the social sciences what inventions are to the physical sciences — an application of science as technology. Behavioral science has recently emerged as a powerful toolkit for developing public policy interventions for changing behavior. But the translation from principles to practice is often moderated by contextual factors — such as culture — that thwart attempts to generalize past successes. Cultural evolution is a natural next step for behavioral science, a fourth wave that offers a framework for addressing this contextual gap. It offers ways to theoretically, empirically, and practically incorporate not just cognitive biases, social norms, and preferences, but the origins, variation, and dynamics of these. In turn, behavioral science offers a crucial test for cultural evolution. If theories, lab, and field experiments don't work in the real world, they don't work at all.

Our psychology and behavior are shaped by millions of years of genetic evolution, thousands of years of cultural evolution, and a short lifetime of experience. Dual inheritance theory describes how genes, culture, and individual learning interact to shape our behavior, explaining how we evolved as a cultural species, how culture itself evolves, and how culture-gene coevolution has shaped our psychology and physiology. Much of our behavior is shaped by culture — the values, beliefs, behaviors, norms, skills, know-how, and technologies each of us possesses. Dual inheritance theory and cultural evolution, therefore, offer a framework for understanding and changing behavior.

Cultural evolution and the challenges facing behavioral science

Apart from addressing the contextual gap, cultural evolution can also address some of the challenges behavioral science has inherited from cognitive psychology, social psychology, and to some degree economics. These include:

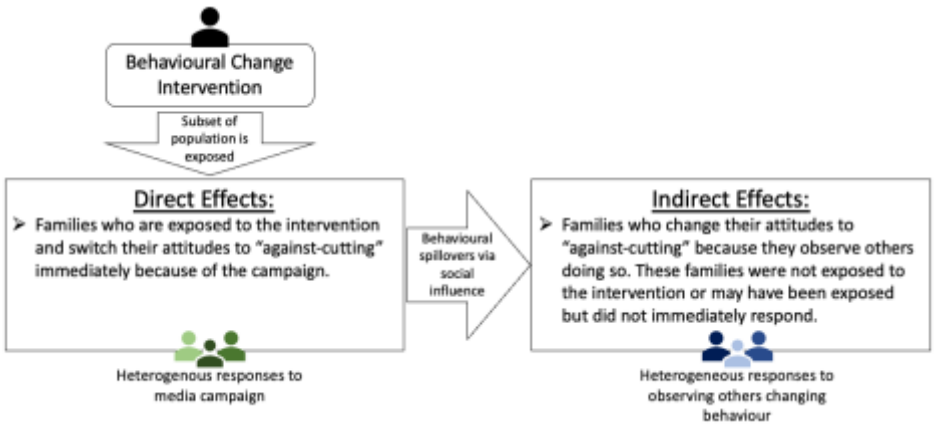
- **Replication Crisis:** Methodological malpractice and statistical shenanigans have contributed to the replication crisis and may be resolved by open science methods such as replications and transparency in research, but a larger issue is the lack of a formal theoretical framework.
- **Theoretical Framework Problem:** The number of identified heuristics and cognitive biases is enormous. No doubt, several related biases masquerade under separate research programs. For example, the self-enhancement bias, positivity bias, optimism bias, and overconfidence are at best strongly correlated and at worst linguistic noise describing the same concept. Cultural evolution is akin to a periodic table in chemistry. It's the closest we've come to a unified theory of human behavior that can help us make sense of the extent and context of these biases as some combination of genetic influences shared with other species, cultural influences through norms, and our lifetime of experience.
- **WEIRD problem:** Most research participants in social science come from Western, educated, industrialized, rich, and democratic (WEIRD) societies. But most humans are not WEIRD. Thus, behavioral science doesn't have a principled way of knowing whether a given tool will generalize cross-culturally.
- **Contextual factors:** Context matters. But how and why? We rarely have strong predictions for how different internal, environmental, or social cues are, even if we could reliably measure these. Some paths forward from a cultural evolutionary perspective include understanding how we integrate different social learning cues (e.g. what do we do if a prestigious person does one thing and the majority do another) and recognizing that culture is not just cross-national, but overlapping and embedded distributions of cultural traits within societies.
- **Integration with other fields:** Cultural evolution has increasingly integrated with other biological sciences, social sciences, and the humanities offering a pathway for behavioral science to derive insights beyond those found in economics, psychology, and cognitive science.

Applications

Applied cultural evolutionary behavioral science is in its infancy. Empirical work is rare and applied theoretical work is rarer still. But work in domains such as public health, corruption, successful democratic institutions, and sustainable development reveal its promise.

For example, public health initiatives are sometimes at odds with local culture and traditions. Policy to improve public health may thus be subject to a backlash and non-compliance by at least some parts of the population. Female genital cutting (FGC) is one such example. Efferson, Vogt, and Fehr developed a cultural evolutionary model informed by their previous empirical research, revealing how selective targeting can endogenously change behavior through behavioral spillovers. Perhaps counterintuitively, the results show that in a scenario where many in the population are resistant to the policy, policymakers can maximize the total effect of their policy by targeting not those most likely to change, but those most resistant to the policy, leaving the comparably "easy" cases for the endogenous spillovers via social learning. Where the attitudes cannot be estimated, for example, because of concerns around social desirability of the response data (people not wanting to admit non-normative beliefs), policymakers may instead opt to target a random sample, such as through "edutainment" rather than the most compliant, which may otherwise lead to polarization.

Figure 1: The direct and indirect effect of an intervention. (Adapted from Schimmelpfennig et al.)



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Historical path dependencies

Relatedly, formal institutions can be thought of as hardened culture — written down to allow for easier coordination and application. But no institution can anticipate all possible behaviors. Successful institutions rest on cultural norms. But unlike the explicit institutions, these norms are largely invisible to those who have implicitly internalized them since they were children. Therefore, foreign policymakers exporting successful WEIRD institutions, such as liberal democracies, have often unknowingly ignored the invisible cultural pillars that support institutions.

Giuliano and Nunn analyses reveal that where democratic institutions have been successfully transplanted are places where proto-democratic institutions (and presumably the requisite norms) already existed. As a contrasting example, the recent high-profile failure to implement liberal democratic institutions in Afghanistan can be at least partially blamed on differences in norms around rule of law and impartial rules applied impartially to all people. Afghanistan is high on strong kin-based cooperation; people rely on their kin for survival through support and favors, even marrying among their extended family (the rate of cousin marriage in Afghanistan is 46%). Kin-based obligations undermine the kind of impartial institutions that liberal democracies are familiar with. Moreover, the exogenous laws borrowed from other cultures may be rejected by parts of the population with strong prior beliefs grounded in Islamic sharia law. A Pew survey suggests that 99% of Afghans favor making Sharia the official law of the land, 81% of Afghans favor corporal punishment (like lashings) for theft, 85% favor stoning as the punishment for adultery, 79% favor a death penalty for leaving Islam. These numbers may reflect the timing of the survey, representativeness of the respondents, and response biases, but the broader message is that measuring these norms is critical to predicting whether an institution or policy will succeed. Assumptions about what people want based on WEIRD life experience can not be assumed to be human universals. We cannot assume that there is a universal desire for freedom of speech, freedom in behavior, impartial rules, rule of law, secular society, and so on. And without appropriate cultural pillars, institutions such as democracy collapse.

Invisible cultural pillars and efficiently evolving institutions

Measuring norms is a first step, but policymakers may also wish to change norms. The challenge is when norms are self-sustaining equilibria. For example, trust binds people into a society. The extent to which we trust each other is the extent to which we are a society. The borders of whom we trust and how much are the borders of our society. If we trust that everyone is subject to the rule of law regardless of who they are, or whom they know, or their station in life, and if we trust that governments represent common interests, then we can bypass the need to directly trust all the diverse groups that we live alongside. But when that government trust fails, we're forced to fall back on our individual in-groups — our extended family, our friends, our ethnic and religious communities — the local groups for whom trust comes more naturally. And shifting away from these toward impartial institutions becomes a chicken and egg problem: the institutions fail because of mismatched norms, but the norms exist because of failed institutions.

Cultural evolutionary behavioral science sometimes suggests specific ways of solving a policy challenge, but other times it offers ways to design a space where good solutions can autonomously evolve rather than trying to design the solution itself. A current assumption of economics is that of a great planner (or policymaker); an intelligent designer, compared to evolution's blind watchmaker. But rather than designing efficient institutions, we can instead design efficiently evolving institutions.

This article is based on the forthcoming book chapter "*Cultural Evolutionary Behavioural Science in Public Policy*" in the *Oxford Handbook for Cultural Evolution*.

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