Journal of Economic Behavior & Organization 90S (2013) S152–S162

Contents lists available at SciVerse ScienceDirect

Journal of Economic Behavior & Organization

journal homepage: www.elsevier.com/locate/jebo

Integrating the human sciences to evolve effective policies

Anthony Biglan*, Christine Cody

Oregon Research Institute, 1776 Millrace Drive, Eugene, OR 97403-2536, United States

ARTICLE INFO

Available online 17 December 2012

JEL classification:
D63
D64
H23
I14
J18
Z13

Keywords:
Antisocial behavior
Evolution
Policy
Poverty
Prevention
Prosociality

ABSTRACT

This paper describes an evolutionary perspective on human development and wellbeing and contrasts it with the model of self-interest that is prominent in economics. The two approaches have considerably different implications for how human wellbeing might be improved. Research in psychology, prevention science, and neuroscience is converging on an evolutionary account of the importance of two contrasting suites of social behavior—prosociality vs. antisocial behaviors (crime, drug abuse, risky sexual behavior) and related problems such as depression. Prosociality of individuals and groups evolves in environments that minimize toxic biological and social conditions, promote and richly reinforce prosocial behavior and attitudes, limit opportunities for antisocial behavior, and nurture the pursuit of prosocial values. Conversely, antisocial behavior and related problems emerge in environments that are high in threat and conflict. Over the past 30 years, randomized trials have shown numerous family, school, and community interventions to prevent most problem behaviors and promote prosociality. Research has also shown that poverty and economic inequality are major risk factors for the development of problem behaviors. The paper describes policies that can reduce poverty and benefit youth development. Although it is clear that the canonical economic model of rational self-interest has made a significant contribution to the science of economics, the evidence reviewed here shows that it must be reconciled with an evolutionary perspective on human development and wellbeing if society is going to evolve public policies that advance the health and wellbeing of the entire population.

1. Introduction: an evolutionary science of human behavior

This special issue examines how economics and policymaking could make a greater contribution to human wellbeing if they were integrated with other human sciences within an evolutionary framework. Gowdy et al. (2013) argue that "Evolutionary principles and evidence can be used to compare the model of human nature governed by self-interest in canonical economics with the more complex, socially embedded model of human nature. . . (p. xx)."

This paper provides such a comparison. Over the past 30 years, diverse areas of the human sciences have converged on an understanding of the basic conditions that lead to the selection of prosocial behavior and those that lead to antisocial behavior and related problems. Developmental psychology has shown the benefit for the individual and the group of nurturing prosocial behavior and the harm resulting from allowing antisocial behavior and related psychological and behavioral problems to develop. Evidence from behavioral analyses of human interactions has delineated how these two types of behavior are selected by behavioral consequences. Neuroscience and genetics are demonstrating the biological substrata of these selection processes and provide plausible accounts of how both types of behavior were selected by their

* Corresponding author. Tel.: +1 541 484 2123; fax: +1 541 484 1108.
E-mail addresses: tony@ori.org (A. Biglan), christinecody@ori.org (C. Cody).

0167-2681/$ – see front matter © 2012 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jebo.2012.12.018

contribution to survival. Prevention science has identified numerous interventions that can prevent problem development and nurture prosocial behavior by ensuring that young people's environments minimize conditions that select antisocial behavior and, instead, nurture the selection of prosocial behavior. And public health is providing a framework for translating the accumulated knowledge into benefits for entire populations.

These advances in our understanding of the biological and behavioral processes of selection bring human evolution to a point where we can realistically envision the intentional evolution of cultural practices that ensure the wellbeing of most people (Biglan, in preparation). Guided by the principle of selection by consequences, we can specify the types of behavior that are beneficial to human wellbeing, the environments that select those behaviors, and the interventions that make their selection more likely. The canonical focus of economics on self-interest is not wholly irrelevant to this cultural evolution. But it must be reconciled with this emerging evolutionary account in order to contribute to the selection of the most beneficial public policies.

2. Selection of prosocial and antisocial behavior by their consequences

Evolution occurs at the behavioral as well as the genetic and epigenetic levels (Jablonka and Lamb, 2005). Evidence accumulated over the past 40 years by developmental and behavioral psychologists has delineated the selection of two contrasting suites of behavior with distinct selecting consequences and diametrically opposed effects on human well-being. This body of evidence stands in contrast to assumptions about the nature of human behavior that underpin the rational actor theory of economics and it leads to different conclusions about the policies needed to improve human wellbeing.

People—and those around them—benefit from a cluster of behaviors and attitudes best characterized as *prosociality*. Prosociality includes an orientation toward self-development and self-regulation, and toward helping others and the community (Kasser et al., 1995; Wilson and O'Brien, 2008). People high in these traits have fewer psychological and behavioral problems (Caprara et al., 2000; Kasser and Ryan, 1993; Sheldon and Kasser, 1998; Wilson and Csikszentmihalyi, 2008). They show greater empathy toward others (Eisenberg et al., 1991), do better in school (Caprara et al., 2000), have more and better friends (Clark and Ladd, 2000), and contribute to their community (Wilson and O'Brien, 2008). Groups with a high proportion of prosocial individuals benefit in many ways (Henrich, 2004; Kasser, 2004; Sober and Wilson, 1998; Wilson et al., under review). Indeed, Kasser (2011) found that countries with a higher proportion of people who endorse prosocial values scored higher on measures of children's wellbeing, provided better maternal leave benefits, advertised less to children, and emitted less $C0^2$.

In contrast, a large proportion of the suffering of individuals and those around them involves psychological and behavioral problems, including especially antisocial behavior, depression, substance abuse, risky sexual behavior, and academic failure. Until recently, researchers and policymakers treated these problems as though they were unrelated. However, it is now clear they are highly inter-related. For example, 87% of 19-year-olds involved in violence have at least one other problem involving substance use or risky sexual behavior (Biglan et al., 2004). These problems develop primarily during childhood and adolescence, but once established they continue to harm people, often throughout their lives. They contribute to marital discord and divorce, abuse of others, crime, physical illness, and poverty (Biglan et al., 2004). They are also major risk factors for cardiovascular disease and cancer, thus playing a large role in the burden of healthcare costs (Anderson and Smith, 2003).

Patterson and colleagues (Patterson et al., 1992) have shown the conditions that select antisocial behavior and related problems. They directly observed the moment-to-moment interactions of parents and children. Young children's choose aggressive behavior after seeing its benefit in getting other family members to "back off." A parent tells a child to go to bed and the child whines. If the parent stops insisting that the child go to bed, it reinforces the child's whining. High-conflict families shape the aggressive repertoires of family members through hundreds of episodes in which escalating aggression causes other family members to desist from teasing, criticizing, or demanding. The same types of contingencies are involved in the development of marital discord (Patterson et al., 1976); couples' negative behavior toward one and other is selected by its intermittent success in getting their partners to stop aversive behavior. Thus, despite the long-term adverse consequences of these behaviors in modern society, they persist because of their short-term advantage in reducing the aversive behavior of others.

The fact that these problem behaviors are associated with numerous harmful outcomes might imply they have no long-term adaptive function. However, genetic, epigenetic, behavioral and neuroscientific analyses are converging to suggest that, in a stressful and threatening environment, these behaviors have survival value. Aggressive children are quick to respond to threat with counter-aggression and are prone to read others' behavior as threatening (Dodge, 2006). These children are more likely to form deviant peer groups in adolescence and the formation of these groups has been shown to contribute to early childbearing (Dishion et al., in preparation). Thus, although this constellation of behaviors is counterproductive in modern society, it is highly plausible that in the evolutionary history of humans, those who were prone to be aggressive, form bonds with other aggressive individuals, and have children early would be more likely to survive and to pass on their genes (Ellis et al., 2009, in press).

A similar convergence of behavioral and biological evidence is emerging in the study of depression (Allen and Badcock, 2006). Depression is more likely in stressful conditions (Hagen, 2011). Similar to the analysis of aggressive behavior, depressed behavior is more likely in families where such behavior gets other people to stop being aggressive toward the