# LETTERS

- A. P. Patterson, L. A. Tabak, A. S. Fauci, F. S. Collins, S. Howard, *Science* 339, 1036 (2013).
- A Framework for Guiding U.S. Department of Health and Human Services Funding Decisions about Research Proposals with the Potential for Generating Highly Pathogenic Avian Influenza H5N1 Viruses that are Transmissible among Mammals by Respiratory Droplets (https://www. phe.gov/s3/dualuse/Documents/funding-hpai-h5n1.pdf).
- CDC, Interim Risk Assessment and Biosafety Level Recommendations for Working with Influenza A(H7N9) Viruses (www.cdc.gov/flu/avianflu/h7n9/risk-assessment.htm).

Published online 7 August 2013; 10.1126/science.1244158

# The Systematic Place of Morals in Markets

IN THEIR RESEARCH ARTICLE "MORALS AND markets" (10 May, p. 707), A. Falk and N. Szech gave participants a choice between saving the life of a mouse and receiving money. The value of the mouse's life was higher when participants sold it directly to the experimenter than when they bargained over the price with other participants.

For the particular comparison they draw between selling a mouse's life directly and bargaining for it, the findings mark a substantial advance in experimental economics and experimental moral philosophy. We do not believe, however, that the general claim that "markets erode moral values" (p. 710) can be justified by this observation. The real-world examples of "immoral markets" chosen by the authors-slave trade and the sale of indulgences-are extreme cases. It is easy to find counterexamples in which markets lead to moral improvements. For example, as Falk and Szech acknowledge, replacing potentially arbitrarily acting private or state authorities with markets can benefit all affected parties (1, 2) and is a direct moral improvement. More important, free markets can sometimes even create incentives for their participants to morally improve, such as by yielding lower returns to vendors who discriminate against certain groups of customers (3, 4).

The moral consequences of real markets, we think, are mostly determined by the regulatory framework in which those markets are embedded (5, 6). Falk and Szech's conclusions reach too far in that they claim to discuss "the market" without taking into account that different markets, while using the same mechanism of supply and demand, are subject to quite distinct rules.

Finally, Falk and Szech's design, inge-

nious as it is, is unable to answer the crucial question: Which institutional alternative to markets would cause less moral erosion? Therefore, their critique of the market mechanism does not lead to any constructive policy recommendation.

## CHRISTOPH LUETGE<sup>1\*</sup> AND HANNES RUSCH<sup>1,2</sup>

<sup>1</sup>TU München, D-80333 Munich, Germany. <sup>2</sup>JLU Giessen, Behavioral and Institutional Economics, D-35394 Giessen, Germany.

\*Corresponding author: luetge@tum.de

#### References

- 1. W. L. Megginson, J. M. Netter, J. Econ. Lit. 39, 321 (2001).
- 2. R. A. Posner, J. Pol. Econ. 83, 807 (1974).
- 3. G. Becker, *The Economics of Discrimination* (Univ. of Chicago Press, Chicago, IL, 1971).
- O. Ashenfelter, T. Hannan, *Quart. J. Econ.* **101**, 149 (1986).
  S. Storm, C. W. M. Naastepad, *Industrial Relations* **48**, 629 (2009).
- 6. M. Olson, *The Logic of Collective Action* (Harvard Univ. Press, Cambridge, MA, 1965).

### Response

IN OUR RESEARCH ARTICLE, WE RAN A SERIES of controlled laboratory experiments and report a causal effect of market institutions on moral transgression. Our findings contribute to the literature on the malleability of morality in general and the effects of institutions on moral transgression in particular.

As we argue in our Research Article, we do not aim at questioning market economies per se. Markets often improve social welfare for market participants in efficiently allocating goods (1). Competition in markets may also pressure firms to reduce discrimination against certain groups of workers or customers (2). Our research interest, however, was not to study effects of markets on active market participants but on third parties i.e., those who are not directly involved in market trading, and who potentially suffer from trade. Our study shows that market interaction reduces how people value harm and damage done to third parties.

To study how markets affect moral outcomes, we implemented bilateral and multilateral markets, using the double auction institution. This is a well-established and widely used market set-up in economics, which displays the positive properties of allocation mentioned above (3). We deliberately abstained from imposing additional regulatory details, to allow for more general conclusions. As is standard in economics, these markets are real, with real participants and real incentives. Thus, we are convinced

## **CORRECTIONS AND CLARIFICATIONS**

**News Focus:** "Insistence on gathering real data confirms low radiation exposures" by D. Normile (10 May, p. 678). The article and the caption for the image on p. 679 incorrectly describe the location of solar-powered radiation monitors and radiation monitors that plug into wall sockets as being Minamisoma. These programs are actually in Soma City. The HTML and PDF versions online have been corrected.

that the chosen market institution is well suited for the research questions at hand.

We agree that our findings raise the pressing question of how to design policies that mitigate the problem of moral erosion in markets. This, however, requires a thorough understanding of the relevant underlying mechanisms, as we discuss in our Research Article. First, markets generate information about selling and buying behavior and thus provide systematic social information about prevailing norms. Second, because trading involves at least two parties, market interactions allow traders to share guilt associated with immoral outcomes. Third, in markets with many buyers and sellers, the notion of being pivotal is diffused: Traders may apply a "replacement logic" (4), telling themselves that if they do not trade, some other trader may. These mechanisms potentially play a crucial role not only in markets but also in many nonmarket contexts. For example, in group decision-making, sharing of guilt and diffusion of pivotality may contribute to moral transgression. In recent work, we used the same mouse paradigm and found causal evidence that the diffusion of pivotality in groups erodes moral behavior compared with individual decision-making (5).

We hope that our study laid ground for thinking about moral consequences of market interaction and that it will stimulate research on relevant mechanisms.

#### ARMIN FALK<sup>1</sup>\* AND NORA SZECH<sup>2</sup>\*

<sup>1</sup>Center for Economics and Neuroscience, University of Bonn, 53127 Bonn, Germany. <sup>2</sup>Department of Economics, University of Bamberg, 96047 Bamberg, Germany.

\*Corresponding author. E-mail: armin.falk@uni-bonn.de (A.F.); nora.szech@uni-bamberg.de (N.S.)

#### References

- 1. K. Arrow, An Extension of the Basic Theorems of Welfare Economics (Univ. of California Press, Berkeley, CA, 1951).
- G. Becker, *The Economics of Discrimination* (Univ. of Chicago Press, Chicago, IL, 1971).
- 3. C. R. Plott, V. L. Smith, Eds., *Handbook of Experimental Economics Results* (Elsevier, Amsterdam, 2008), vol. 1.
- J. Sobel, Markets and Other-Regarding Preferences (Discussion Paper, Economics Department, Univ. of California, San Diego, CA, 2010).
- A. Falk, N. Szech, Organizations, Diffused Pivotality, and Immoral Outcomes (Discussion Paper, Centre for Economic Policy Research, London, 2013).

# **Letters to the Editor**

Letters (~300 words) discuss material published in *Science* in the past 3 months or matters of general interest. Letters are not acknowledged upon receipt. Whether published in full or in part, Letters are subject to editing for clarity and space. Letters submitted, published, or posted elsewhere, in print or online, will be disqualified. To submit a Letter, go to www.submit2science.org.

16 AUGUST 2013 VOL 341 SCIENCE www.sciencemag.org Published by AAAS