

Comment: Karla Hoff

Do Social Factors Determine “Who We Are”?

In a conference that asks where economics is headed, it is natural that the first invited speaker be Kenneth Arrow. As much as anyone else who was alive in 2016, he had advanced the field of economics. He was the first to prove Adam Smith’s conjecture that under some conditions, the market economy attains the ideal of Pareto efficiency (Arrow 1951), and his proof was a two-edged sword: It showed that a market equilibrium is Pareto efficient only under conditions so special that they would never be met in reality, even approximately (Greenwald and Stiglitz 1986). What sets Arrow apart from every economist before him is that he understood how unrealistic the conditions must be for market equilibrium to produce a Pareto efficient allocation. He also understood that the impersonal price system supplied a very incomplete description of reality.

Arrow consistently pushed the boundaries of neoclassical economics, in part by going back to earlier traditions that explored how a society as a whole functions. He studied peer influences on preferences (Arrow and Dasgupta 2009). He demonstrated that in a competitive economy, the rate of investment in learning would be too low, since learning benefits future investors who do not pay for it (Arrow 1962). Although he never left the framework of rational choice theory, he pushed the boundaries of the emerging field of behavioral economics, too. Leaders in that field, Richard Thaler and Sendhil Mullainathan (2008), had defined it as one that introduced psychologically more realistic assumptions about decision-making into economics. Arrow (2010, 12) commented: “[T]oday psychology is invading economics—the whole field of behavioral economics. I believe that sociology should play

more of a role in economics than it does. The way people behave in economics is partly influenced by how other people behave. It's easy to point out examples, but it's not so easy to construct a broad theory."

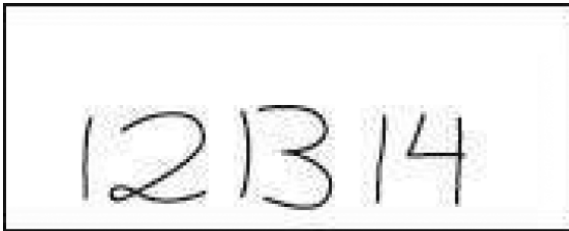
Behavioral economics has moved in the direction of sociology in the twenty-first century. The research in behavioral economics has two strands. The first focuses on the *quasi-rational actor*, who is rational when she thinks "slow" but who much of the time thinks "fast" using heuristic principles to reduce to simpler operations the complex task of making decisions (for example, Thaler 2000). The second strand, in which sociology, anthropology, and neuroscience play a role, is concerned with a *quasi-rational, enculturated actor*. The cognitive tools she uses to expand her ability to process information fast are endogenous, not universal. They differ across groups and over time. They are shaped by the socio-cultural environments that she and her ancestors have experienced or been exposed to (Nunn 2012; Hoff and Stiglitz 2016; Demeritt and Hoff 2018).

Each strand is easy to illustrate. Kahneman and Tversky, pioneers of the first strand, showed that the mechanisms of cognition (rather than merely the emotions) produce systematic errors of intuition. For example, when Kahneman (2011) shows us the box on the next page, we think the middle symbol is "B."

But when he shows us the next box, we think the middle symbol is "13." In neither case do we think the middle symbol is ambiguous. The example illustrates that "one does not just see, one *sees as*" (Bacharach 2003, 63).

Kahneman emphasizes that automatic, not deliberate, thinking is the "secret author of many of the choices and judgments you make" (Kahneman 2011, 13). Automatic thinking entails matching a stimulus to known patterns and making associations. It does not entail logic or careful reasoning. If an individual doesn't have useful patterns and concepts that are easily accessible, she won't make good choices and judgments.

Behavioral economics shows that when people are making choices based on automatic thinking, interventions can sometimes nudge them to make choices that leave them better off. "Nudges" have been devised to help people in poor countries save enough for medical expenses and health needs (Dupas and Robinson 2013), buy fertilizer (Duflo, Kremer, and Robinson 2011), treat unclean drinking water regularly with diluted chlorine (Kremer et al. 2011), and complete multiple-stage immunization programs to protect their children from disease (Banerjee et al. 2010).



The second strand of behavioral economics goes beyond nudges. It considers how to change the repertoire and the accessibility of cognitive tools—for example, cultural categories and narratives—that individuals use to process information. By expanding the repertoire or making some mental models more accessible, exposure to new social patterns (even in fiction) can induce long-run social change.

At the turn of the twentieth century, about one-fourth of the population in Brazil watched a soap opera at 9:15 each weeknight. Globo was the main producer of soap operas in Brazil. It crafted them with characters who had few or no children in order to reduce the number of characters in the stories. Small family size sharply contrasted with the prevailing patterns in Brazil.

Exposure to the soap operas lowered fertility rates in Brazil! Causal identification of the impact is possible because of the arguably random year that different municipalities obtained access to the Globo transmissions. The fertility rate in a municipality declined after the first year that it had access to transmissions of these soap operas (La Ferrara, Chong, and Duryea 2012). The decline was greatest for women who were within 4 years of the age of a leading female character in the soap operas, which is consistent with a role model effect. The effect was comparable to that of an increase

in average education of women by 2 years. Yet the effect was not driven by a change in assets or skills or prices, but only a change in the kinds of lives people imagined for themselves.

Changes in markets can also create new prototypes and thereby induce changes in preferences. A randomized controlled trial by Robert Jensen (2012) indicates that the proportion of young women in an Indian village who have business process outsourcing (BPO) jobs, such as at call centers, influences the average marriage patterns, education, fertility rates, and aspirations in the village. To conduct the experiment, Jensen hired eight call center recruiters and sent them to recruit women in 80 villages randomly chosen from a set of 160 villages about 100 kilometers from Delhi (too remote for profitable visits from recruiters). His experiment created a surge in demand in those 80 villages for women in BPO jobs. Before the experiment, no members of any household in these villages held a BPO job. As a result of the experiment, there were 11 job matches on average per village over 3 years. The proportion of young women with BPO jobs increased from 0 to 5.6 percent in the treatment villages. The surge in demand changed how women in the treatment villages defined their lives and how parents perceived and cared for their daughters, as table 1.1 shows.

The change in choice sets would have rationally changed expectations for women too. But it is plausible that by seeing young women play new roles, the lives that parents and young women imagined were possible for them had changed. The increase in the body mass index (BMI) of girls aged 5–15, shown in table 1.1, is evidence that daughters were better cared for in treatment than in control villages. It is evidence that a cultural shift had occurred. Like the study of the effect on fertility rates of Globo soap operas in Brazil, the randomized controlled trial using call center recruiters in India shows the kind of social influences that Arrow suggested behavioral economics should take into account.

Social influences can, of course, be bad or good. Just as social experience and exposure expanded individuals' sense of "who they were" in the previous two examples, they can also narrow this sense and make a society rigid. In a village in which most girls are uneducated, it is possible to sustain a stereotype of educated women as immoral and a threat to the social order, which sustains the social pattern of low education for girls.

Table 1.1

Social impacts of hiring female villagers in BPO jobs

	Control villages	Treatment villages
Women of age 15–21		
Percentage who married during the 3-year period of the experiment	0.71	0.66
Percentage who gave birth during the 3-year period of the experiment	0.43	0.37
Number of children that the individual desires	3.00	2.65
Girls of age 5–15		
z-score of body mass index for age	-1.25	-1.01

Source: Based on Jensen (2012).

In interviews throughout India, comments of women demonstrate the influence of prevailing education levels on attitudes toward educating girls. When asked why their daughters never went to school, some parents responded, “We don’t educate girls in our community.” In contrast, when parents in Kerala, a socially progressive state of South India, were asked why they send their children to school, “some of them don’t know what to say simply because they take it as self-evident that going to school is what children do” (PROBE Team 1999, 22, 24).

The fact that attitudes and choices about educating girls are widely shared within a village and vary across villages suggests the existence of multiple stable and Pareto-ranked equilibria. Hoff and Stiglitz (2016) formalizes this observation in a simple model. It assumes that in each of the many households in a village, there is a young girl whom the parents have to choose to educate, or not. How they think about the girl’s education depends on the village stereotype of an educated woman and on her expected market-determined lifetime earnings, W (call the former their “framed utility,” after Kahenman 2011, chapter 34). Consider two stereotypes of an educated woman, denoted A and P . Under stereotype A , a woman’s autonomy is held in esteem, and an educated daughter is a source of pride to her parents. Under stereotype P , an educated woman is a threat to the patriarchal social order and to her husband’s masculinity, which means that an educated daughter is difficult to marry off. Parents do not have fixed preferences over educating their daughter. Instead, their

preferences depend on the stereotype that is cued by the environment. Let $U(s)$ be the weighted sum,

$$U(s) = \omega(s)V^A + [1 - \omega(s)]V^P + W,$$

where s is the salience of the mental model A , V^A is the parents' intrinsic valuation of an educated daughter under mental model A , and similarly for V^P . Let s be the fraction of village households that educate their daughters. The weight $\omega(s)$ is increasing in s : If all households educate daughters, $\omega = 1$. If none do, $\omega = 0$. Figure 1.1A illustrates the function $U(s)$.

For simplicity, assume that having an uneducated daughter would give parents utility θ that is independent of the fraction of households in the village that educate their daughters. Across households, θ varies because some parents have greater need than others for a young child to tend to another family member, such as an infant or a sick grandmother. Figure 1.1B assumes a roughly normal distribution of θ above some fixed, low value.

The evolution of the fraction of educated girls closes the model. A long-run interior equilibrium is the fraction of daughters who are educated, s^* , at which the marginal parents are indifferent between educating their daughter or not doing so. In the neighborhood of any value of s^* at a stable equilibrium, parents for whom θ is less than $U(s^*)$ would be strictly better off educating their daughters, and parents for whom θ is more than $U(s^*)$ would be strictly worse off educating their daughters. See figure 1.1C, where the two graphs are superimposed. There are two stable equilibria (marked by circles) and one unstable equilibrium between them. In the bad equilibrium, the village has no educated girls: the patriarchal stereotype P is so salient that no parents want to educate their daughters. In the good equilibrium, stereotype A is so salient that most parents have the opposite preference: most prefer to educate their daughters.

The stereotypes in this model are a linchpin that *reflects* social patterns ("normal" girls do, or don't, get educated) and *affects* individual behavior (the parents' decisions to educate girls) in ways that sustain the stereotypes and the social pattern in a "cycle of mutual constitution" (Markus and Kitayama 2010). The social pattern in the village shapes how people think and the alternatives they can imagine. The social pattern is naturalized, even though other outcomes are possible, perhaps preferable, and prevail in other villages. *Behavioral development economics*, an emerging field in the twenty-first century, sheds light on how dysfunctional social institutions

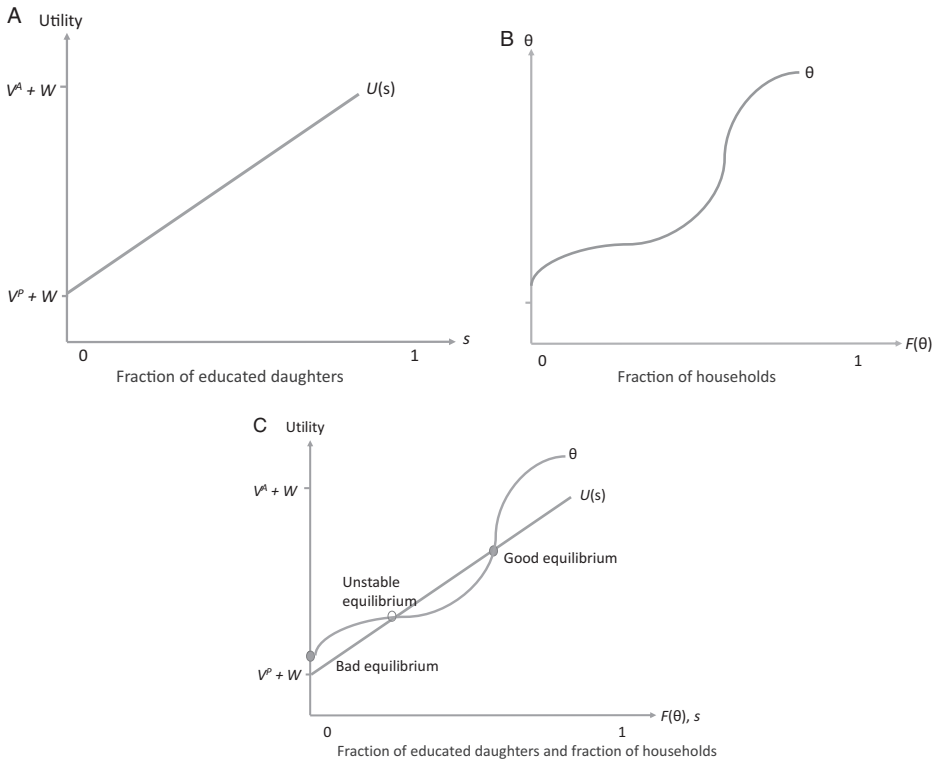


Figure 1.1

Role model effects on parents' decision to educate a daughter

Notes: (A) Parents' "framed utility" U from an educated daughter. The utility depends on the salience of a stereotype A , in which an educated girl is a source of pride to her parents, and a stereotype P , in which an educated girl is perceived to be a threat to the patriarchal social order. The salience of the stereotype A depends on the fraction of educated daughters in the village. W is the market-determined lifetime expected earnings of an educated girl.

(B) Cumulative distribution function of parents' utility from a daughter who is not educated.

(C) Multiple equilibria of the proportion of parents who choose to educate their daughters.

Source: Hoff and Stiglitz (2016).

(such as low education for girls) can persist and affect how people think and what they can imagine. In that sense, social patterns can determine “who we are.”

In a famous article on medical care and insurance, Arrow (1963) discusses the problem of asymmetric information. He argued that equilibria in insurance markets are very far from Pareto efficient. Buying insurance for the risk of a car accident will reduce the care that the insured party takes. If she knows she’s a bad driver but the insurance company does not, she is likely to fully insure. At the high price at which the insurance company breaks even on bad drivers, good drivers won’t be willing to fully insure. Sellers and buyers of insurance do not have the same information and, thus, are not really trading the same things (Rothschild and Stiglitz 1976 show that market equilibrium will thus not be Pareto efficient).

But whatever information decision makers have, neoclassical economics assumes that they process it objectively. Behavioral economics departs from that assumption and recognizes the systematic influence of cultural mental models for *subjectively processing* information. Perception is selective. Depending on the activated mental model, an individual sees different things. Recall the earlier figure that showed that depending on the frame, a person might be sure that a symbol was “B” or “13.” That is, “one does not just see, one *sees as*.” Culture works through the interaction of shared mental models and the information and context that activate those mental models to varying degrees (DiMaggio 1997, 264, 274).

	Neoclassical Economics		Behavioral Economics	
		Strand 1	Strand 2	
Concept of the actor	The rational actor	The quasi-rational actor	The quasi-rational, enculturated actor	
The drivers of behavior	Guided by incentives	Also guided by context in the moment of decision, e.g. <ul style="list-style-type: none"> ▶ Presentation. <ul style="list-style-type: none"> ■ Default options ■ Language ▶ Cues <ul style="list-style-type: none"> ■ Reminders ■ Mental accounting 	Also guided by experience and exposure, which shape: <ul style="list-style-type: none"> ▶ Mental models <ul style="list-style-type: none"> ■ Categories ■ Concepts ■ Identities ■ Narratives ▶ What primes certain behaviors 	

Figure 1.2

Neoclassical economics and the two strands of behavioral economics

Source: Based on Hoff and Stiglitz (2016).

“Nudges” are based on the idea that a change in a frame changes what is seen and may change what one does. Interventions to change experience or exposure (for example, exposure to new role models) are based on the idea that in the medium-run, they will change the repertoire or accessibility of mental models and thereby change the conceptual frames that one brings to a problem.

Figure 1.2 illustrates the three types of actors assumed in modern work in economics: the rational actor; the quasi-rational actor; and the quasi-rational, enculturated actor. By conceptualizing the last actor, recent work in behavioral economics has taken up Ken Arrow’s recommendation that sociology should play more of a role in economics.

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This is a section of [doi:10.7551/mitpress/11130.001.0001](https://doi.org/10.7551/mitpress/11130.001.0001)

The State of Economics, the State of the World

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Citation:

The State of Economics, the State of the World

Edited by: Kaushik Basu, David Rosenblatt, Claudia Sepúlveda

DOI: 10.7551/mitpress/11130.001.0001

ISBN (electronic): 9780262353472

Publisher: The MIT Press

Published: 2020



The MIT Press



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This book was set in Stone Serif and Stone Sans by Westchester Publishing Services. Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Names: Basu, Kaushik, editor. | Sepúlveda, Claudia Paz, 1969– editor. | Rosenblatt, David, editor.

Title: *The state of economics, the state of the world* / edited by Kaushik Basu, Claudia Sepulveda, and David Rosenblatt.

Description: Cambridge, MA : MIT Press, [2019] | Includes bibliographical references and index.

Identifiers: LCCN 2018046336 | ISBN 9780262039994 (hardcover : alk. paper)

Subjects: LCSH: Economic development. | Information technology—Economic aspects. | Monetary policy. | Social change.

Classification: LCC HD82 .S8223 2019 | DDC 330.1—dc23

LC record available at <https://lcn.loc.gov/2018046336>

10 9 8 7 6 5 4 3 2 1