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Availability Cascade, Information Cascade and Reputation Cascade: The Relevance of Cascades to Cotton

Summary: An “availability cascade” is a self-reinforcing process of belief formation, in which repetition of a belief triggers a chain reaction of additional repetition. Merely because the belief is repeated, it becomes widely accepted. In other words, a belief becomes irresistible simply as a result of its repetition.

Cotton is suffering from an availability cascade of demonizing allegations that have become so thoroughly interwoven into the consciousness of retailers, organic cotton advocates and environmental and social activists that objective information, no matter how powerful, contrary data, no matter how well researched, and historical perspective, no matter how valid, are automatically rejected as invalid, unacceptable and illegitimate.

Examples of availability cascades of negative information about cotton include the Aral Sea, pesticide use and water consumption.

Cascades and Cotton

“Availability Cascades and Risk Regulation” was a paper published in 1999 by Timur Kuran at Duke University and Cass R. Sunstein at Harvard Law School (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=138144). Kuran and Sunstein defined an “availability cascade” as a self-reinforcing process of belief formation, in which repetition of a simple proposition that seems to explain a complex situation triggers a chain reaction of additional repetition. Merely because the belief is repeated, it becomes widely accepted. In other words, a belief becomes irresistible simply as a result of its repetition.

According to Kuran and Sunstein, when an availability cascade is underway, individuals endorse a belief, not because of objective or impartial evidence that the belief is accurate, but because they have heard others say it (an information cascade) and because they wish to maintain social acceptance with friends, colleagues or peers who endorse the belief (a reputation cascade).

The two authors, one an economist and one a lawyer, were concerned about public policy and the development of government regulations, and they wrote the paper to advocate for governmental structures that would shield civil servants against “mass demands” for regulatory changes based on “popular (mis)perceptions.” Their work is highly influential in finance theory (explaining herd instincts by traders and market analysts) and regulation of risk-taking behavior by firms and investors.

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As a result of the availability cascade, it is possible to make almost any allegation to demonize cotton without so much as a blush. Environmental and social activists participate in a reputation cascade through a process of signaling their activist credentials to each other by demonizing

cotton. Retailers reinforce an information cascade when they demonize cotton in order to enhance brand identity, and thus expand sales.

Availability Cascades That Have not Developed

Most historians estimate that between 7 and 10 million people perished in famines in the Soviet Union in the early 1930s (Adam Hochschild, *The Unquiet Ghost*, 2003). Those deaths are blamed on Joseph Stalin and the Soviet government; no one suggests that people should buy less wheat today because of the Soviet famines of the 1930s. There is no availability cascade demonizing the wheat industry.

An estimated 45 million people starved to death in China between 1958 and 1962 (Frank Dikötter, quoted in the *Independent*, 17 September 2010). Mao Zedong and the Government of China are blamed for those deaths; no one says that consumers should buy less rice today because of famines 60 years ago. There is no availability cascade demonizing the rice industry.

The “Dust Bowl,” was a period of severe dust storms across the prairies of the U.S. and Canada in the 1930s. The Dust Bowl was both an ecological and social disaster that displaced hundreds of thousands of families and caused thousands of premature deaths. The agricultural practices of the 1920s to plow up the prairie to plant wheat are blamed for the Dust Bowl; no one urges consumers to buy less wheat today because of the agricultural practices that caused the dust bowl. There is no availability cascade against the wheat industry.

The transatlantic slave trade began in the 1440s and lasted until the 1860s. Between 12 and 15 million Africans were taken in slavery to the Western Hemisphere. Over 90% of the total were taken to the Caribbean and Brazil to work on sugar plantations and silver and gold mines. About 6% of all Africans taken in slavery were brought to North America, and many of those were forced to work on sugar plantations. (Dr. Marshall Eakon, *Conquest of the Americas, The Great Courses*, 2002.) Yet today, popular opinion associates African slavery with North American cotton (Example: *Empire of Cotton: A Global History*, by Sven Beckert). No one today suggests that consumers should buy less silver, gold or sugar because of slavery; there are no availability cascades against sugar, silver or gold.

Availability Cascades Against Cotton

Aral Sea

In contrast, cotton is still being demonized today for practices decades past and for policies unrelated to the agronomic needs of the crop. The premier example is the Aral Sea. The Soviet government deliberately diverted the rivers feeding the Aral Sea beginning in the 1960s to irrigate Central Asia. Between 25% and 75% of the water diverted just soaked into the desert or evaporated. Cotton accounted for 41% of cultivated land; grains, including rice and wheat, accounted for 32% of cultivated land, fruit crops 11%, vegetables 4%, and other crops 12%. (Thompson, Columbia University, 2008, <http://www.columbia.edu/~tmt2120/introduction.htm>).

Yet, environmentalists blame the Aral Sea disaster on cotton, not on Soviet mismanagement, not on an inefficient irrigation system and not on other crops. Even today, a museum display in Hamburg, partially supported by the Government of Germany, pictures the shrinkage of the Aral Sea and urges consumers to buy less cotton (<http://www.fastfashion-dieausstellung.de/en/>). Images of the Aral Sea contribute to the information cascade against cotton, and the reputation of the museum curator as a concerned environmentalist is enhanced by participation in the

cascade.

CottonConnect, a company that must demonize conventional cotton in order to survive, along with retailers such as John Lewis, IKEA, Primark, and Marks and Spencer, refer to the Aral Sea at every opportunity in order to enhance their brand images and boost sales (Example: <http://innovation-forum.co.uk/sustainable-and-ethical-cotton-sourcing.php>).

Additional examples of demonization of cotton with images of the Aral Sea are almost innumerable. The Guardian newspaper: <http://www.theguardian.com/sustainable-business/sustainable-fashion-blog/2014/oct/01/cotton-production-linked-to-images-of-the-dried-up-aral-sea-basin>. People & Planet: <https://peopleandplanet.org/redressfashion/briefing/dirty>. Environmental Justice Foundation: <https://www.youtube.com/watch?v=JLsQ0Ruby40>. Electric Tree House: <http://electrictreehouse.com/cotton-and-the-disappearance-of-the-aral-sea/>.

Each environmentalist is participating in the reputational cascade by demonizing the cotton industry with images of the Aral Sea. If retailers and environmentalists believe consumers should buy less cotton because of the Aral Sea, why shouldn't consumers buy less wheat and rice because of the Soviet and Chinese famines or the American Dust Bowl; the situations are parallel. Cotton has experienced an availability cascade, while other crops have not.

Pesticides

DDT (dichlorodiphenyltrichloroethane) is an insecticide used during WWII to prevent malaria. After WWII, DDT was released for commercial application in agriculture and was used widely on all crops in many countries, and the Swiss scientist who discovered its insecticidal properties was awarded a Nobel prize. However, DDT was banned in the United States in 1972 and has since been banned in all countries except for limited application in malaria suppression. Today, all pesticides used in modern agriculture are fully biodegradable, and none of the pesticides used in cotton production has a mode of action that persists for more than a few weeks. Cotton is regulated as a food crop in the United States, the EU and most other countries, and tests show that samples of cotton lint are clean enough to pass European food standards.

Yet, four decades after the banning of DDT and other persistent pesticides, environmentalists still refer to cotton as a "dirty" crop or a "dangerous" crop (World Wildlife Fund, many organic cotton advocates, Pesticide Action Network) and many of cotton's detractors still claim that cotton accounts for 25% of all pesticides used worldwide (Example: <http://www.rollingstone.com/music/news/neil-young-urges-boycott-of-non-organic-cotton-20140804>).

Cotton now accounts for less than 6% of world pesticide sales, down from 11% in 1988. Typical insecticide applications per hectare of cotton are approximately one kilogram of active ingredient in most production areas, although applications in some countries are higher. More pesticides are applied on other crops, including fruits and vegetables, grains, and soybeans than on cotton, although use per hectare is lower for grains and oilseeds than cotton.

Cotton may have accounted for 25% of all insecticide sales in the 1950s and 1960s in the United States, prior to the elimination of the boll weevil, but cotton never accounted for 25% of all pesticide sales worldwide. Yet, environmentalists and retailers continue to demonize the cotton industry over pesticide use because the association of cotton with pesticide use has become so much engrained in the consciousness of many activists that they believe it, and because the 25% figure is so compelling, and thus useful to their marketing activities, that the

desire to repeat the 25% statistic or to label cotton as dangerous is overwhelming. The association of cotton with pesticide use is a classic example of an availability cascade in which the 25% statistic is universally accepted because it has been repeated. Any environmentalist that tried to counter the accepted statistic would lose stature with other environmentalists.

Water Consumption

A final example will suffice for this article: cotton and water consumption. The cotton genome has evolved over more than 60 million years to survive in harsh conditions. Cotton is a drought-tolerant crop with a taproot that can reach 1.5 to 2 meters for water. Cotton is grown in arid regions because it can be grown in such conditions; regions are not arid because cotton is grown there. Cotton uses less water per dollar value of production than grains and oilseeds, and cotton provides an economic yield even in years of drought and alternative-crop failure. These reasons are why cotton is grown in arid and semi-arid regions in the first place. Indeed, cotton is grown in arid and semi-arid regions because water is precious in those locations.

Yet, the World Wildlife Fund (WWF) persists in labeling cotton a “thirsty” crop, and a “water wasting crop.”

(http://wwf.panda.org/about_our_earth/about_freshwater/freshwater_problems/thirsty_crops/cotton/). The web site of the WWF is almost a how-to handbook in demonization. The web site uses pseudo science to discuss biotechnology, evocative language to demonize rather than inform, evasive language such as, “it can take more than,” or “could be as much as,” to avoid accountability, and just plain fabrication, such as the claim that water consumption associated with cotton production has damaged the Rio Grande River basin between the United States and Mexico.

The WWF makes these allegations because it benefits their interests to do. By participating in the reputational cascade against the cotton industry, individuals at the WWF burnish their credentials with other environmentalists, and by contributing to the information cascade, the WWF as an organization furthers its fundraising efforts. Nowhere on the WWF website is there objective information about cotton and water use, nor is there any attempt to explain, to offer perspective, or to provide insight into why farmers choose to grow cotton. To provide such information would harm the interests of the WWF.

The Role of CAI

As mentioned in this column a month ago, I am one of the most enthusiastic supporters of efforts by the Cotton Association of India to provide positive information about cotton to students and consumers. However, because of the cascade of demonization efforts undermining demand for cotton around the world, positive efforts are not sufficient.

CAI and all other cotton industry organizations must start systematically and specifically challenging those who demonize by demanding accountability, by rebutting spurious allegations, and by publicly challenging those who undermine the livelihoods of farmers in order to enhance brand identity for themselves, their companies and organizations.

Environmentalists and retailers demonize cotton because it is without cost to do so. Too often, allegations can be made without challenge, thus the incentives to make such allegations are dominant. Only by repeatedly and volubly challenging those who demonize, with public, specific, fact-based rebuttals, will the cotton industry be able to make demonization expensive and thus shift the structure of incentives that currently makes demonization profitable.