

# TIM HARFORD

## THE UNDERCOVER ECONOMIST

### \* The Problem With Facts

1.

Just before Christmas 1953, the bosses of America's leading tobacco companies met John Hill, the founder and chief executive of one of America's leading public relations firms, Hill & Knowlton. Despite the impressive surroundings — the Plaza Hotel, overlooking Central Park in New York — the mood was one of crisis.

Scientists were publishing solid evidence of a link between smoking and cancer. From the viewpoint of Big Tobacco, more worrying was that the world's most read publication, *The Reader's Digest*, had already reported on this evidence in a 1952 article, "Cancer by the Carton". The journalist Alistair Cooke, writing in 1954, predicted that the publication of the next big scientific study into smoking and cancer might finish off the industry.

It did not. PR guru John Hill had a plan — and the plan, with hindsight, proved tremendously effective. Despite the fact that its product was addictive and deadly, the tobacco industry was able to fend off regulation, litigation and the idea in the minds of many smokers that its products were fatal for decades.

So successful was Big Tobacco in postponing that day of reckoning that their tactics have been widely imitated ever since. They have also inspired a thriving corner of academia exploring how the trick was achieved. In 1995, Robert Proctor, a historian at Stanford University who has studied the tobacco case closely, coined the word "agnotology". This is the study of how ignorance is deliberately produced; the entire field was started by Proctor's observation of the tobacco industry. The facts about smoking — indisputable facts, from unquestionable sources — did not carry the day. The indisputable facts were disputed. The unquestionable sources were questioned. Facts, it turns out, are important, but facts are not enough to win this kind of argument.

2.

Agnotology has never been more important. “We live in a golden age of ignorance,” says Proctor today. “And Trump and Brexit are part of that.”

In the UK’s EU referendum, the Leave side pushed the false claim that the UK sent £350m a week to the EU. It is hard to think of a previous example in modern western politics of a campaign leading with a transparent untruth, maintaining it when refuted by independent experts, and going on to triumph anyway. That performance was soon to be eclipsed by Donald Trump, who offered wave upon shameless wave of demonstrable falsehood, only to be rewarded with the presidency. The Oxford Dictionaries declared “post-truth” the word of 2016. Facts just didn’t seem to matter any more.

The instinctive reaction from those of us who still care about the truth — journalists, academics and many ordinary citizens — has been to double down on the facts. Fact-checking organisations, such as Full Fact in the UK and PolitiFact in the US, evaluate prominent claims by politicians and journalists. I should confess a personal bias: I have served as a fact checker myself on the BBC radio programme More or Less, and I often rely on fact-checking websites. They judge what’s true rather than faithfully reporting both sides as a traditional journalist would. Public, transparent fact checking has become such a feature of today’s political reporting that it’s easy to forget it’s barely a decade old.

Mainstream journalists, too, are starting to embrace the idea that lies or errors should be prominently identified. Consider a story on the NPR website about Donald Trump’s speech to the CIA in January: “He falsely denied that he had ever criticised the agency, falsely inflated the crowd size at his inauguration on Friday . . . —” It’s a bracing departure from the norms of American journalism, but then President Trump has been a bracing departure from the norms of American politics.

Facebook has also drafted in the fact checkers, announcing a crackdown on the “fake news” stories that had become prominent on the network after the election. Facebook now allows users to report hoaxes. The site will send questionable headlines to independent fact checkers, flag discredited stories as “disputed”, and perhaps downgrade them in the algorithm that decides what each user sees when visiting the site.

We need some agreement about facts or the situation is hopeless. And yet: will this sudden focus on facts actually lead to a more informed electorate, better decisions, a renewed respect for the truth? The history of tobacco suggests not. The link between cigarettes and cancer was supported by the world’s leading medical scientists and, in 1964, the US surgeon general himself. The story was covered by well-trained journalists committed to the values of objectivity. Yet the tobacco lobbyists ran rings round them.

In the 1950s and 1960s, journalists had an excuse for their stumbles: the tobacco industry’s tactics were clever, complex and new. First, the industry

appeared to engage, promising high-quality research into the issue. The public were assured that the best people were on the case. The second stage was to complicate the question and sow doubt: lung cancer might have any number of causes, after all. And wasn't lung cancer, not cigarettes, what really mattered? Stage three was to undermine serious research and expertise. Autopsy reports would be dismissed as anecdotal, epidemiological work as merely statistical, and animal studies as irrelevant. Finally came normalisation: the industry would point out that the tobacco-cancer story was stale news. Couldn't journalists find something new and interesting to say?

Such tactics are now well documented — and researchers have carefully examined the psychological tendencies they exploited. So we should be able to spot their re-emergence on the political battlefield.

"It's as if the president's team were using the tobacco industry's playbook," says Jon Christensen, a journalist turned professor at the University of California, Los Angeles, who wrote a notable study in 2008 of the way the tobacco industry tugged on the strings of journalistic tradition.

One infamous internal memo from the Brown & Williamson tobacco company, typed up in the summer of 1969, sets out the thinking very clearly: "Doubt is our product." Why? Because doubt "is the best means of competing with the 'body of fact' that exists in the mind of the general public. It is also the means of establishing a controversy." Big Tobacco's mantra: keep the controversy alive.

Doubt is usually not hard to produce, and facts alone aren't enough to dispel it. We should have learnt this lesson already; now we're going to have to learn it all over again.

3.

Tempting as it is to fight lies with facts, there are three problems with that strategy. The first is that a simple untruth can beat off a complicated set of facts simply by being easier to understand and remember. When doubt prevails, people will often end up believing whatever sticks in the mind. In 1994, psychologists Hollyn Johnson and Colleen Seifert conducted an experiment in which people read an account of an explosive warehouse fire. The account mentioned petrol cans and paint but later explained that petrol and paint hadn't been present at the scene after all. The experimental subjects, tested on their comprehension, recalled that paint wasn't actually there. But when asked to explain facts about the fire ("why so much smoke?"), they would mention the paint. Lacking an alternative explanation, they fell back on a claim they had already acknowledged was wrong. Once we've heard an untrue claim, we can't simply unhear it.

This should warn us not to let lie-and-rebuttal take over the news cycle. Several studies have shown that repeating a false claim, even in the context of debunking that claim, can make it stick. The myth-busting seems to work but then our memories fade and we remember only the myth. The myth, after all, was the thing that kept being repeated. In trying to dispel the falsehood, the endless rebuttals simply make the enchantment stronger.

With this in mind, consider the Leave campaign's infamous bus-mounted claim: "We send the EU £350m a week." Simple. Memorable. False. But how to rebut it? A typical effort from The Guardian newspaper was headlined, "Why Vote Leave's £350m weekly EU cost claim is wrong", repeating the claim before devoting hundreds of words to gnarly details and the dictionary definition of the word "send". This sort of fact-checking article is invaluable to a fellow journalist who needs the issues set out and hyperlinked. But for an ordinary voter, the likely message would be: "You can't trust politicians but we do seem to send a lot of money to the EU." Doubt suited the Leave campaign just fine.

This is an inbuilt vulnerability of the fact-checking trade. Fact checkers are right to be particular, to cover all the details and to show their working out. But that's why the fact-checking job can only be a part of ensuring that the truth is heard.

Andrew Lilico, a thoughtful proponent of leaving the EU, told me during the campaign that he wished the bus had displayed a more defensible figure, such as £240m. But Lilico now acknowledges that the false claim was the more effective one. "In cynical campaigning terms, the use of the £350m figure was perfect," he says. "It created a trap that Remain campaigners kept insisting on jumping into again and again and again."

Quite so. But not just Remain campaigners — fact-checking journalists too, myself included. The false claim was vastly more powerful than a true one would have been, not because it was bigger, but because everybody kept talking about it.

Proctor, the tobacco industry historian turned agnotologist, warns of a similar effect in the US: "Fact checkers can become Trump's poodle, running around like an errand boy checking someone else's facts. If all your time is [spent] checking someone else's facts, then what are you doing?"

4.

There's a second reason why facts don't seem to have the traction that one might hope. Facts can be boring. The world is full of things to pay attention to, from reality TV to your argumentative children, from a friend's Instagram to a tax bill. Why bother with anything so tedious as facts?

Last year, three researchers — Seth Flaxman, Sharad Goel and Justin Rao — published a study of how people read news online. The study was, on the face of it, an inquiry into the polarisation of news sources. The researchers began with data from 1.2 million internet users but ended up examining only 50,000. Why? Because only 4 per cent of the sample read enough serious news to be worth including in such a study. (The hurdle was 10 articles and two opinion pieces over three months.) Many commentators worry that we're segregating ourselves in ideological bubbles, exposed only to the views of those who think the same way we do. There's something in that concern. But for 96 per cent of these web surfers the bubble that mattered wasn't liberal or conservative, it was: "Don't bother with the news."

In the war of ideas, boredom and distraction are powerful weapons. A recent study of Chinese propaganda examined the tactics of the paid pro-government hacks (known as the "50 cent army", after the amount contributors were alleged to be paid per post) who put comments on social media. The researchers, Gary King, Jennifer Pan and Margaret Roberts, conclude: "Almost none of the Chinese government's 50c party posts engage in debate or argument of any kind . . . they seem to avoid controversial issues entirely . . . the strategic objective of the regime is to distract and redirect public attention."

Trump, a reality TV star, knows the value of an entertaining distraction: simply pick a fight with Megyn Kelly, The New York Times or even Arnold Schwarzenegger. Isn't that more eye-catching than a discussion of healthcare reform?

The tobacco industry also understood this point, although it took a more highbrow approach to generating distractions. "Do you know about Stanley Prusiner?" asks Proctor.

Prusiner is a neurologist. In 1972, he was a young researcher who'd just encountered a patient suffering from Creutzfeldt-Jakob disease. It was a dreadful degenerative condition then thought to be caused by a slow-acting virus. After many years of study, Prusiner concluded that the disease was caused instead, unprecedentedly, by a kind of rogue protein. The idea seemed absurd to most experts at the time, and Prusiner's career began to founder. Promotions and research grants dried up. But Prusiner received a source of private-sector funding that enabled him to continue his work. He was eventually vindicated in the most spectacular way possible: with a Nobel Prize in Medicine in 1997. In his autobiographical essay on the Nobel Prize website, Prusiner thanked his private-sector benefactors for their "crucial" support: RJ Reynolds, maker of Camel cigarettes.

The tobacco industry was a generous source of research funds, and Prusiner wasn't the only scientist to receive both tobacco funding and a Nobel Prize. Proctor reckons at least 10 Nobel laureates are in that position. To be clear, this wasn't an attempt at bribery. In Proctor's view, it was far more subtle. "The tobacco industry was the leading funder of research into genetics, viruses,

immunology, air pollution,” says Proctor. Almost anything, in short, except tobacco. “It was a massive ‘distraction research’ project.” The funding helped position Big Tobacco as a public-spirited industry but Proctor considers its main purpose was to produce interesting new speculative science. Creutzfeldt-Jakob disease may be rare, but it was exciting news. Smoking-related diseases such as lung cancer and heart disease aren’t news at all.

The endgame of these distractions is that matters of vital importance become too boring to bother reporting. Proctor describes it as “the opposite of terrorism: trivialism”. Terrorism provokes a huge media reaction; smoking does not. Yet, according to the US Centers for Disease Control, smoking kills 480,000 Americans a year. This is more than 50 deaths an hour. Terrorists have rarely managed to kill that many Americans in an entire year. But the terrorists succeed in grabbing the headlines; the trivialists succeed in avoiding them.

Tobacco industry lobbyists became well-practised at persuading the media to withhold or downplay stories about the dangers of cigarettes. “That record is scratched,” they’d say. Hadn’t we heard such things before?

Experienced tobacco watchers now worry that Trump may achieve the same effect. In the end, will people simply start to yawn at the spectacle? Jon Christensen, at UCLA, says: “I think it’s the most frightening prospect.”

On the other hand, says Christensen, there is one saving grace. It is almost impossible for the US president not to be news. The tobacco lobby, like the Chinese government, proved highly adept at pointing the spotlight elsewhere. There are reasons to believe that will be difficult for Trump.

5.

There’s a final problem with trying to persuade people by giving them facts: the truth can feel threatening, and threatening people tends to backfire. “People respond in the opposite direction,” says Jason Reifler, a political scientist at Exeter University. This “backfire effect” is now the focus of several researchers, including Reifler and his colleague Brendan Nyhan of Dartmouth.

In one study, conducted in 2011, Nyhan, Reifler and others ran a randomised trial in which parents with young children were either shown or not shown scientific information debunking an imaginary but widely feared link between vaccines and autism. At first glance, the facts were persuasive: parents who saw the myth-busting science were less likely to believe that the vaccine could cause autism. But parents who were already wary of vaccines were actually less likely to say they’d vaccinate their children after being exposed to the facts — despite apparently believing those facts.

What's going on? "People accept the corrective information but then resist in other ways," says Reifler. A person who feels anxious about vaccination will subconsciously push back by summoning to mind all the other reasons why they feel vaccination is a bad idea. The fear of autism might recede, but all the other fears are stronger than before.

It's easy to see how this might play out in a political campaign. Say you're worried that the UK will soon be swamped by Turkish immigrants because a Brexit campaigner has told you (falsely) that Turkey will soon join the EU. A fact checker can explain that no Turkish entry is likely in the foreseeable future. Reifler's research suggests that you'll accept the narrow fact that Turkey is not about to join the EU. But you'll also summon to mind all sorts of other anxieties: immigration, loss of control, the proximity of Turkey to Syria's war and to Isis, terrorism and so on. The original lie has been disproved, yet its seductive magic lingers.

The problem here is that while we like to think of ourselves as rational beings, our rationality didn't just evolve to solve practical problems, such as building an elephant trap, but to navigate social situations. We need to keep others on our side. Practical reasoning is often less about figuring out what's true, and more about staying in the right tribe.

An early indicator of how tribal our logic can be was a study conducted in 1954 by Albert Hastorf, a psychologist at Dartmouth, and Hadley Cantril, his counterpart at Princeton. Hastorf and Cantril screened footage of a game of American football between the two college teams. It had been a rough game. One quarterback had suffered a broken leg. Hastorf and Cantril asked their students to tot up the fouls and assess their severity. The Dartmouth students tended to overlook Dartmouth fouls but were quick to pick up on the sins of the Princeton players. The Princeton students had the opposite inclination. They concluded that, despite being shown the same footage, the Dartmouth and Princeton students didn't really see the same events. Each student had his own perception, closely shaped by his tribal loyalties. The title of the research paper was "They Saw a Game".

A more recent study revisited the same idea in the context of political tribes. The researchers showed students footage of a demonstration and spun a yarn about what it was about. Some students were told it was a protest by gay-rights protesters outside an army recruitment office against the military's (then) policy of "don't ask, don't tell". Others were told that it was an anti-abortion protest in front of an abortion clinic.

Despite looking at exactly the same footage, the experimental subjects had sharply different views of what was happening — views that were shaped by their political loyalties. Liberal students were relaxed about the behaviour of people they thought were gay-rights protesters but worried about what the pro-life protesters were doing; conservative students took the opposite view. As with "They Saw a Game", this disagreement was not about the general

principles but about specifics: did the protesters scream at bystanders? Did they block access to the building? We see what we want to see — and we reject the facts that threaten our sense of who we are.

When we reach the conclusion that we want to reach, we're engaging in "motivated reasoning". Motivated reasoning was a powerful ally of the tobacco industry. If you're addicted to a product, and many scientists tell you it's deadly, but the tobacco lobby tells you that more research is needed, what would you like to believe? Christensen's study of the tobacco public relations campaign revealed that the industry often got a sympathetic hearing in the press because many journalists were smokers. These journalists desperately wanted to believe their habit was benign, making them ideal messengers for the industry.

Even in a debate polluted by motivated reasoning, one might expect that facts will help. Not necessarily: when we hear facts that challenge us, we selectively amplify what suits us, ignore what does not, and reinterpret whatever we can. More facts mean more grist to the motivated reasoning mill. The French dramatist Molière once wrote: "A learned fool is more foolish than an ignorant one." Modern social science agrees.

On a politically charged issue such as climate change, it feels as though providing accurate information about the science should bring people together. The opposite is true, says Dan Kahan, a law and psychology professor at Yale and one of the researchers on the study into perceptions of a political protest. Kahan writes: "Groups with opposing values often become more polarised, not less, when exposed to scientifically sound information."

When people are seeking the truth, facts help. But when people are selectively reasoning about their political identity, the facts can backfire.

6.

All this adds up to a depressing picture for those of us who aren't ready to live in a post-truth world. Facts, it seems, are toothless. Trying to refute a bold, memorable lie with a fiddly set of facts can often serve to reinforce the myth. Important truths are often stale and dull, and it is easy to manufacture new, more engaging claims. And giving people more facts can backfire, as those facts provoke a defensive reaction in someone who badly wants to stick to their existing world view. "This is dark stuff," says Reifler. "We're in a pretty scary and dark time."

Is there an answer? Perhaps there is.

We know that scientific literacy can actually widen the gap between different political tribes on issues such as climate change — that is, well-informed liberals and well-informed conservatives are further apart in their views than

liberals and conservatives who know little about the science. But a new research paper from Dan Kahan, Asheley Landrum, Katie Carpenter, Laura Helft and Kathleen Hall Jamieson explores the role not of scientific literacy but of scientific curiosity.

The researchers measured scientific curiosity by asking their experimental subjects a variety of questions about their hobbies and interests. The subjects were offered a choice of websites to read for a comprehension test. Some went for ESPN, some for Yahoo Finance, but those who chose Science were demonstrating scientific curiosity. Scientifically curious people were also happier to watch science documentaries than celebrity gossip TV shows. As one might expect, there's a correlation between scientific knowledge and scientific curiosity, but the two measures are distinct.

What Kahan and his colleagues found, to their surprise, was that while politically motivated reasoning trumps scientific knowledge, "politically motivated reasoning . . . appears to be negated by science curiosity". Scientifically literate people, remember, were more likely to be polarised in their answers to politically charged scientific questions. But scientifically curious people were not. Curiosity brought people together in a way that mere facts did not. The researchers muse that curious people have an extra reason to seek out the facts: "To experience the pleasure of contemplating surprising insights into how the world works."

So how can we encourage curiosity? It's hard to make banking reform or the reversibility of Article 50 more engaging than football, Game of Thrones or baking cakes. But it does seem to be what's called for. "We need to bring people into the story, into the human narratives of science, to show people how science works," says Christensen.

We journalists and policy wonks can't force anyone to pay attention to the facts. We have to find a way to make people want to seek them out. Curiosity is the seed from which sensible democratic decisions can grow. It seems to be one of the only cures for politically motivated reasoning but it's also, into the bargain, the cure for a society where most people just don't pay attention to the news because they find it boring or confusing.

What we need is a Carl Sagan or David Attenborough of social science — somebody who can create a sense of wonder and fascination not just at the structure of the solar system or struggles of life in a tropical rainforest, but at the workings of our own civilisation: health, migration, finance, education and diplomacy.

One candidate would have been Swedish doctor and statistician Hans Rosling, who died in February. He reached an astonishingly wide audience with what were, at their heart, simply presentations of official data from the likes of the World Bank.

He characterised his task as telling people the facts — “to describe the world”. But the facts need a champion. Facts rarely stand up for themselves — they need someone to make us care about them, to make us curious. That’s what Rosling did. And faced with the apocalyptic possibility of a world where the facts don’t matter, that is the example we must follow.

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