0:00

Tim: My name is Tim Harford. I'm a columnist for The Financial Times, writer, presenter of the podcast Cautionary Tales, and the BBC Radio 4 and World Service programme, More or Less. And, well, I wouldn't exist if it wasn't for Oxford University because my parents met here. But also I studied here, both as an undergraduate, and for an MPhil in Economics, and I still live in Oxford, and I'm fortunate enough to have an Associate Membership of Nuffield college and therefore, Bodliean library card. So still clinging on to university life as much as I can.

0:46

Ruth: When did you first become aware of the power of data and statistics?

0:51

Tim: I think it was a slow awakening really. I remember as a teenager reading Darrell Huff's book, 'How to Lie with Statistics', which is a terrific guide to misinformation into the many ways in which statistics can be abused and misused and used to deceive us. But it was only I think, much later that I came to realise that that may not be the most helpful way to think about statistics. If we're constantly in this defensive crouch, we're constantly expecting to be lied to, we fail to appreciate that actually, statistics are one of the only ways we have to really encompass a very complex world that that surrounds us; to understand environmental problems, to understand our own bodies, our own brains, to understand the economy. These are things that they happen too slowly or they happen too subtly or they happen on too large a scale for us to really appreciate without the statistical lens. So I would say there's no, there's no one single moment. But it was a slow realisation that simply viewing statistics as a kind of trick that clever people could expose as a trick was really not appreciating the most important part of the story.

2:19

Ruth: Do you have any guiding principles that you use when you're interrogating statistics?

2:25

Tim: I have 10 guiding principles in fact - 11 if you count the the golden rule. But the one I think that surprises people the most is simply to notice your own emotional reaction to a statistical claim. Because so many of the statistics that we encounter in the wild, are in social media posts, are in newspaper headlines, are in political speeches and sound bites. And they are designed to produce an emotional reaction. They are designed to make us feel joyful or shocked or angry or vindicated. Or they may make us feel defensive and full of denial. And all of those emotions, I think, are perfectly legitimate. You know, we're social beings. It's right that we feel angry about certain things. It's right that we're influenced by what other people think. But I think we really need to start by examining, or at least, noticing our emotional reactions, before we go anywhere else or do anything else. And if that seems like a slightly weird thing to say, you only have to think about 2016 to think about the Brexit referendum, to think about the US Presidential election. And having fact checked both the presidential election and the Brexit referendum in the same year, I became acutely aware that many people were not that interested in the data, they weren't that interested in the evidence on both sides. They were just having a visceral reaction to what was going on. It was all about trying to be on the right side. And so I realised there's absolutely no point in writing a book helping people understand statistics if I don't also help them understand and notice their own emotional reactions. So that's my number one rule. And that's, of course, the rule that is, I think, most surprising to professional statisticians, but I stand by it.

4:16

Other rules that I would suggest are things like just to understand what is being described. Very often, we see a claim, like our GDP has risen by 3%, or that COVID cases are up to 7000 today. And we leap all over that to draw all kinds of conclusions without really understanding what is meant by GDP, or in fact, what is meant by a COVID case. I mean, the very fact that newspapers were recently reporting that COVID cases were at record levels. That's true in the sense that the number the last few days - I'm speaking to you just at the beginning of October - the number on several days in late September was higher than the number back in April or May. But that doesn't mean that actual infections of COVID are higher, they're much lower than they were during the first wave. And what's being misunderstood here is we haven't really understood what a COVID case is, it's not a person with COVID, it's a positive COVID test. And a positive COVID test, well that depends how many tests you're doing. So a lot of this is actually not about huge technical knowledge, or about complex calculations. It's about asking fairly straightforward questions about the world and about the data we use to describe that world.

5:39

Ruth: And that leads me onto my next question, which is: what have been some of the main statistical conundrums during the Covid-19 pandemic?

5:51

Tim: I think the first and most important one, very early on in February, March, was that we simply didn't know how many undetected cases there were; how many people maybe didn't even have symptoms? And so there was a view that there was a huge number of undetected cases, a huge number of possible asymptomatic cases. And therefore, the virus was actually much more widespread than we thought, and therefore much less deadly than we thought. And in fact, herd immunity might be just around the corner. Now back in March, perhaps even early April, I think that was a defensible view of the data - we just didn't know. And we were making enormously consequential decisions on the basis of very limited knowledge. Now, I think we've we've had, sadly, many more deaths. We've also had the introduction of antibody tests that can detect signs that somebody's had the virus. And while there are still some people who think that there's a vast number of asymptomatic and undetected cases, I think the evidence is coming in that that that's probably not what is happening. So that was a huge question mark that I had, that I was desperate to know the answer to. And I was very hopeful that the answer would come out differently to what it has.

7:15

More recently, we've been very engaged with questions such as - how effective is the testing system? How timely is the testing system? How many false positives is it producing? And can we judge what's going on by looking at official cases or do we need to be looking at other sources of data, for example, the ONS's infection survey, which is fairly small, but it's much more rigorous than going on a raw case count? Or maybe we should be looking at hospitalisations. So here, we start to get quite deep in the weeds, but at the same time, really understand what an incredibly important set of questions we're asking. We are now making these hugely consequential decisions about local lockdowns about reintroducing restrictions on people's lives. And that's based on our best guess of what's going on with this virus that we we can't see we can only indirectly detect. And it's a reminder that statistics, as I say, are not just weapons in some political shouting match - they are a matter of life and death.

8:26

Ruth: What do you think is the most helpful application of data and statistics at the moment? How can it best serve us during this crisis?

8:36

Tim: Well, I don't think it's a surprise to say that we need a good contact tracing system. If we can really pin down who's had the virus, and who they've met, who they've been in, in serious contact with, who's at serious risk of, of having contracted the virus and go and find them and test them - this is absolutely vital. This is the kind of statistical detective work that really needs to be done. And very often we think of statistics as being this quite dry stuff that is just gets downloaded from the cloud somewhere. It's in some spreadsheet somewhere on the internet. But actually, all statistics need to be gathered, somehow - somebody needs to make a decision to get the data, whether it's produced as a sort of byproduct of administrative activity, or as a byproduct of, say, web surfing or wandering around with a smartphone in your pocket, or whether it's deliberately collected to serve a particular purpose. The data that we're relying on, they don't just appear from nowhere, decisions have to be made. And very often we just take this stuff for granted. Just we just think it's out there. But I think when you start talking about a contact tracing system, that potentially if it was done right has the potential to basically keep the virus under control while we go about our lives without the need for all these lockdowns, you start to realise just how vital the data can be if we have the right data and we've put enough resources into it.

10:14

Ruth: So in a way, it comes down to the old adage that knowledge is power. And the more knowledge we have, the more empowered we are to make good decisions?

10:24

Tim: Yes, if you think about the old Ready Brek adverts where children used to sort of eat this kind of vaguely porridge adjacent product, and then they'd walk out in these grim, cold, rainy, British winter days, glowing orange, because they'd had their Ready Brek. Just imagine that we were able to do the same thing for the virus? Like everybody who was actually infectious with COVID, glowed orange, the whole thing would be over in a couple of weeks. Because we would find it so easy to just avoid people who were infectious. But of course, we can't do that. But I think that thought experiment shows you just how useful it is to have better, more timely, more inexpensive information. So the idea that maybe we could use paper strip tests to, very quickly test who's positive who's negative, or possibly even data from a smartwatch or a Fitbit or something like that might maybe be able to detect who has COVID. I think it's possibly a little optimistic, it's possibly science fiction, but it is a reminder of how useful the data can be. So yeah, knowledge is power. Absolutely.

11:35

Ruth: Is there anything you've learned over the last six months that has surprised you?

11:41

Tim: Well, I've been in a state of constant surprise, I think... but, anything that's really surprised me? I have been surprised at the fact that even a global pandemic can be polarised. I knew that polarisation, political polarisation, was a very powerful force; wishful thinking, motivated reasoning - that people are very good at reaching the conclusions they want to reach. But when we were six weeks into lockdown, I was saying to myself - at last, yeah, this is incredibly stressful, anxiety producing, traumatic - personally - and for the world, this is a tragedy. But at least we have a clear example of everybody is on the same side, everyone is trying to work out what is going on. Everybody wants to know the truth. There's no Conservative and Labour, there's no Republican and Democrat. We're all just trying to understand. And that, I think, was naive of me, because very quickly, you see this polarisation into the maskers and the anti maskers, the COVID zero people and the lockdown sceptics, and I wouldn't want to exaggerate that too much, because clearly, most people are just trying to figure out what's going on. Most people just want to understand how to keep themselves safe, and how to keep their families and their communities safe. They just want, they do want the truth. But it is surprising how to me - I shouldn't have been surprised, but I have been surprised - how quickly certain kinds of people decided that this was yet another weapon in a political argument. What we want, I think is, you know, we want to figure out what's going on, we want an open-minded curious search for the truth. But unfortunately, that is not always what is rewarded by our political system, by our media ecosystem, by social media. People love an argument people love to take sides. And if you see somebody who is just cherry picking the data, who is willing to use any piece of information to argue their case, you've got to be sceptical.

14:02

Ruth: Do you think that the general public in the UK and across the world have become amateur statisticians during this pandemic? And is that a good thing?

14:14

Tim: I think a lot of people have become more interested in the numbers and I think that is a good thing. But I still think that instinctively, most people don't trust themselves to think clearly about numbers. And since they don't trust themselves to think clearly about numbers, they end up not really trusting the experts, either. They don't trust the media, they don't trust what they're being told. Because they sense that they don't have the ability to tell the difference between truth and propaganda. I think that's a real shame. Because actually, I think that it's not as hard as people tend to think, to figure out, you know, who's telling the truth and who's lying, to ask sensible questions. So that's one of the things I'm trying to do with my book is to give people more confidence to think critically. And I don't mean cynically, I mean, to think critically and clearly about what they're being told. I very often encounter people who feel helpless. And in fact, if you walk them through the thought processes necessary to think about the numbers, it's really not that hard. A lot of questions can be illuminated very clearly using the kind of mathematics that a primary school child should be able to master.

15:35

Ruth: So what motivates you to open it up and to give people the confidence that they can manage numbers?

15:42

Tim: Well, I mean, I can't explain everything to everyone all by myself! People got to take some responsibility for themselves, and they can do. And I just think that it's a... The world is a really interesting place. But there is a lot about the world that we can't, we can't see, and we can't understand without the statistical perspective. And so I think that statisticians and data scientists have to be a little bit more like Brian Cox or David Attenborough. We're not just trying to explain the numbers in a serious and clear way. We're trying to show people a glimpse of a remarkable and amazing world, that just as, you know, Attenborough can only show us the polar bears with his underwater cameras, and Brian Cox can only show us the solar system through radio telescopes. Well, we can only see certain facts about the way the world is using statistics. So I think there's nothing wrong with a sense of wonder, a sense of curiosity about the world, using statistics as a kind of telescope to to see something that couldn't be seen in another way.

17:00

Ruth: Well, that's a lovely note to end on. Thank you very much.

17:05

Tim: It's my, it's my pleasure.