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Topic (iv): How to integrate statistics from different sources and subject-matter areas to produce analysis that would be of interest to a wide audience

THE HOLISTIC APPROACH TO STATISTICAL STORY-TELLING

Journalists ask not “What is the truth?”, but “What is the story?”

Invited Paper

Submitted by the Office for National Statistics¹

I. INTRODUCTION

1. Can the finished story tell more than the sum of the statistics put in to it? We could have an interesting philosophical argument about this but I intend this paper to look more at the practical elements of getting our messages across. How can we bring data together from many different sources to create a clearer story? What are the main advantages? Are there any dangers? How might the media use such stories? Who else might use these stories and to what purpose?

2. It's often said that a picture's worth a thousand words; but even then a well-told story is still worth a battalion of dry numbers.

3. Other sessions have discussed how we can turn our armies of numbers into stories that paint a memorable picture. But often our picture uses data from just one source when other sources and even seemingly unrelated subject areas may have something to contribute. If we can find a way to bring together all the relevant different sources and subject-areas, we can paint an even more vivid picture and maybe one that is harder for a journalist to misinterpret or the public to misunderstand.

4. It sounds great, but it's a tough nut to crack. Can we get data-producers to work together to make two or more series come together and tell a richer story? Does it really need a major culture change? If it does how can we change the culture? And, importantly, will it create a culture of more accurate reporting of statistical findings or are we building a dangerous monster?

II. IDENTIFYING OUR AIMS

5. The golden rules of:

- **Who?**
- **Why?**
- **What?**

apply equally to writing these stories as to writing any other report.

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6. **Who are your readers? Who are your writers?** How will your writers build a useful relationship and understanding with your readers?

7. **Why?** This is always key. What is the purpose of doing these stories? The simple answer is, of course, to inform. But we have to consider, 'is this the best way?'. Is it really adding anything to people's understanding of our statistics to try to bring together data from many sources or are we running the danger of simply causing more confusion. We need to be clear about what material is right for bringing together and its suitability for the purpose. The stories need to be clear and appropriate.

8. Of course, there may be other reasons why you want to create stories in this holistic way. You may want to provide some interpretation and analysis. You may even be trying to persuade your readers to accept your particular interpretation. You may be recommending them to do something. Or you may just be providing a written or electronic record of what has been done for others to see in the future.

9. **What?** What you write will become more evident once you have tackled the first two points. You need writers who will stick to their remit. But whatever topic is chosen for the stories it should be tested against five more criteria:

- Is it unusual or different (not the same old story)?;
- Does it involve people (not just dry numbers and concepts)?;
- Is it relevant?
- Is it topical?
- Does it meet the 'so what' test?

If it fails these criteria, no matter what you write, it is not going to work as a media story; it becomes just another piece of dry public information that may be of interest to specialists or possibly students (if they can understand it!).

III. IDENTIFYING SOURCES

- a) Suitable data (are some data best kept as a simple one-dimensional story or should all data be used in a bigger picture?)
- b) Reliability (different sources, different methodology, different sample sizes – if you combine them how reliable a picture is it that you are putting out?)
- c) Should sources always be from within the National Statistical Institute or should we bring in data from other commercial sources?

10. **Suitable data** – should we give all of our data outputs the 'holistic' approach? Or is some of it or even all of it best served up in separate small bites? Sushi rather than a rich stew?

11. There is no doubt that serving up each series of separate results in a single bite is easier. You are only dealing with one source and usually only have one message to give. Embroidering a story around this one item is pretty straightforward to any good writer. Equally, the readers should find the one-concept-one-story approach easy to grasp, particularly if it is written in such a way as to be easily understood.

12. But one source sometimes does not tell the whole story. Sometimes it may not even be the most accurate story. A reader may come across a story from one source saying one thing, then a few days later find a story which is ostensibly about the same thing but giving different results. Which should they believe?

13. Well it's quite possible that both are right but that they are measuring things in a different way by different researchers/ statisticians obeying slightly different remits. This cuts no ice with most readers. The general public has a perception that all our statistics are accurate and absolute to the nearest possible

unit. They remember their sums from school – they were either right or wrong – confidence factors are totally meaningless to most people. We, of course, know that the vast majority of results are estimates subject to all sorts of vagaries like sampling errors or late data. The public thinks revisions must be correcting mistakes not improving the standard of the data through later or better information.

14. We should be making every effort to make sure our readers grasp the context of our releases to better educate and inform them. It seems obviously better to bring together different sources from the same subject area and explain in a simple way what they mean and how they should be interpreted to give a clearer picture.

15. In the UK, for example, there are different sources of unemployment data. For many years the source everyone referred to was the number of people claiming unemployment benefit but, at the same time, the ONS also produced the ILO-measure. The current government preferred to use the internationally recognised ILO-measure but both measures continue to be published side-by-side. There is sometimes confusion in the media and public when the two measures tell conflicting stories. The public is baffled that one source can say unemployment seems to be falling while the other says it is rising. A properly crafted story could explain the seeming anomaly and dispel the suspicion that many people have that statistics are all manipulated.

16. **Reliability** – If we draw data from different sources can we be sure we are not comparing apples with pears? Of course what we could do is take both apples and pears and call them both ‘edible fruit’. But this is only part of the process. If we are to strive for accuracy, then we are going to need to explain all the nuances that make each data source different – methodology, sample sizes and all. The trouble with this is that, by the time you’ve finished explaining all the differences, the reader is left wondering what are the similarities! Lengthy explanations spoil the flow of the story.

17. The simple answer to this is to encase all the detailed explanations in background or editor’s notes at the end of your story or on the web as explanatory links. Of course, the chances are that most journalists will not read this boring appendix of detail and we must be aware of the possible consequent loss of accuracy.

18. **External sources** – Do national statistical institutes have a monopoly of all valid statistics? Of course they don’t. There are countless independent research organisations capable of producing data equally as valid and relevant as ‘official’ sources. The question is, should national statistical institutes use these ‘non-official’ data to create a broader picture? If so, how should it be done?

19. In the UK, Social Trends – an annual compendium publication – has been bringing together data in this way for more than 30 years. The editors, first of all, satisfy themselves that the standard of the data is statistically sound. The contributors then normally supply the data on the condition that the source is clearly indicated where the tables appear in the main commentary and that names, addresses and contact numbers are clearly laid out in the appendix.

20. This system works well for a major compendium publication but would it work so well if we were telling a smaller part of the story? This then begs the question ‘where do we draw the boundary around our story?’

21. This is a tricky area, and probably one of personal opinion. Annual reports and compendium publications are undeniably multi-source reports but rarely do they tell a story. They still come over as a scatter-gun and many good ‘stories’ are wasted in the broad spread.

22. A better approach, surely, is to pre-identify ‘topics’ that are of interest to the media and the public-at-large. These ‘topics’ may not always coincide exactly with what a national statistical institute believes its main users want. But what we are talking about here is trying to get more accurate reporting of statistics in the media and therefore better understanding of the issues in society and the economy.

IV. 'CHAMPIONS'

- a) Identifying individuals and teams who can bring the story together. (Should the specialist writers in the press office prepare the material or should the expert statisticians retain control? Who does the work and who takes the responsibility?).
- b) Defeating the castle mentality (how can we break down the walls that individuals build around their areas of work to the exclusion of others?).
- c) Creating a culture of teamwork and inclusiveness across NSIs.

23. **Who should be the authors of these stories?** Experts are usually the last people who should be in charge of any form of media or business communication involving their field of expertise. Unless of course the target audience are equal experts. What an expert thinks is easy for a child to understand is often well beyond what that child's parents can understand. Being too close to the subject; knowing the detail backwards are both real dangers to clear thinking – or at least to clear writing. It's very easy to overlook the things that may seem trivial but are very important to the reader.

24. For example, common expressions like Gross Domestic Product (GDP) or Consumer Prices Indices (CPI) seem obvious to those of us working regularly with statistics. We often think we've simplified it by calling them 'growth' and 'inflation'. But have we ever bothered to find out how many people understand what we're talking about even using these simplified expressions? I bet not, in most cases. I'm prepared to bet that most intelligent people only have a hazy understanding of what we are talking about and a slim grasp of what they actually mean to real people.

25. Further than this, I believe that the public at large and even many specialist media writers only have a basic grasp of how to use the numbers we produce and, in particular, percentages. It's not our right to look down our noses and say 'sorry, but you should have paid more attention at school'. We must try to cater for this lack of statistical literacy in the way we present our stories.

26. The most common problem I've noticed is when journalists are expected to understand a proportion of a proportion and end up saying that this is the proportion of the whole. This is usually because they have been bombarded with a lot of numbers and get lost in the fog.

27. The point of these examples is that those who are closest to, and most understand, the numbers are often unable to grasp the difficulties many of their readers have with what they consider the most basic of concepts. Our role as communicators must be to search for the lowest common denominator of understanding and building from that. For example, providing links to or handouts that explain simply what subjects like GDP and CPI are and what they actually mean for people. When it comes to statistical literacy, you would ensure your writers stick to the one-idea-one-sentence principle and applied that to their percentages; so in addition to saying something was a proportion of a proportion you would always explain what proportion that was of the original whole.

28. To get the best stories we need people who can approach any piece of work afresh. I've seen far too many reports from across the world written the same way as they have been for the last goodness-knows how many years. Just because something's been done in a certain way for some time does not mean it's the right way this time. Beware too the person who tells you 'I know what my audience wants to read'. No you don't! Just because the readers were happy last time doesn't mean they want to see the same again.

29. I suspect few of us do sufficient research of our audience. I've often heard it said: 'it's expensive and rarely tells you anything you don't already know.' Another common one is: 'we did that a couple of years ago' [they probably meant at least five, possibly ten years ago!]. Well whatever you discover about your readers only applies to the moment you did the research. Attitudes, opinions and perceptions can change in a matter weeks, days or even hours. So we must beware of complacency in our knowledge of our readers.

30. In the UK for example, we have recently endured a barrage of ill-publicity following a number of revisions to data from census and population estimates through to major economic growth estimates. How has this affected the public perception of the National Statistical Institute? Well, we don't know for sure. Has it all gone over the readers' heads and do we still have basic trust? Or are we now writing for an increasingly sceptical audience? Until we do some new research we are always going to be in the dark.

31. **Writers**. Given that we all need to research our readers better, who should actually be responsible for bringing together the data and the words? Need they be the same people? Can we use a data analyst to sort out the statistical meaning and a writer to put the words together? Can we train our analysts to be better writers? Writing style is an extremely personal thing. It is very rare for two people to write something in exactly the same way.

32. It may be a slight diversion from the thread of this paper but I think it worth putting down five golden rules that statistical story writers often lose sight of:

- Write as people speak;
- Don't just get to the point – start with it;
- Make every sentence relevant to the audience – what's in it for them;
- Stay simple, but don't patronise;
- Use only one idea per sentence.

You could list a dozen more but if you have to write with your 'corporate voice' remember to use your audience's language.

33. With appropriate training and practice, anyone can write good stories . . . in theory, anyway.

34. However, you will always find some people write more fluently than others and it should be the job of the information division to identify these 'champions' and bring them to the fore.

35. **Breaking down the 'castle walls'**. If we can build this corps of 'champions' from a wide range of statistical disciplines, we may well be on the way to knocking down the castles that are so divisive and so destructive of the 'big picture'. Castle mentality is one of the biggest drags on good communication. People don't consciously realise that they exist in a castle. It is something that grows out of custom and practice and the natural instinct of people to group together and exclude 'strangers'.

36. Teams may be working in the same building, on the same floor or even in the same room and not know, or even be particularly interested in what other teams are doing. They are focused on doing their job, getting their results out and moving on to the next cycle of their work. How their work may fit in with their neighbours often does not concern them.

37. This is where the corps of champions comes into play – some people may call them 'cross-cutters' because their work cuts across lots of different disciplines. They must have it as an active part of their job descriptions that they look out for work that forms part of a bigger picture. They must also be given authority to take forward the ideas and work with the information/ communication division to present a rounded and serious piece of analysis.

V. SELLING THE BIGGER PICTURE

- a) Who's interested? (We've painted a more integrated picture . . . but so what . . . who's going to look at it?)
- b) How do we avoid falling into the trap of confusing our readers by giving too much information?
- c) Will the bigger picture be less focused?
- d) Getting the media's interest; finding new media.

38. **Who's interested?** Just because we've gone the extra mile and provided a nicely balanced statistical story doesn't mean it's going to win coverage in the media. However, if the story is well enough written and interesting that should be sufficient in itself. Websites provide an excellent repository for such stories and even 'old-fashioned' printed magazines could be an outlet.

39. If you think a story should be seen by the media, it can be turned into a press release or simply web-linked to journalists by e-mail.

40. Now we come to the 'so what?' factor. This is sometimes the hardest point for academics and statisticians to grasp. A piece of work isn't interesting just because you've done it, or because of how you've done it, or even because of how well you've done it. It must have something about it that will grab the public or media imagination.

41. This something also needs to be simple to understand and able to be put into context. This something needs to be up there at the top of your story. Marketing people sometimes call it a unique selling point. Journalists often call it the news angle or peg. All the analysis and best intentions in the world are worth nothing to the media if there is no news angle. In other words it must be relevant, topical and unusual or different.

42. It should also involve people. The media are mostly interested in stories that directly involve people – not just things, or just great ideas, or even work well done. It is the people element that makes any story special. It is people that make a story matter so that it may pass the 'so what' test. Even the driest and dustiest of economic stories can be brought to life if you apply it to people. For example 'inflation is down, this is important for pensioners, many of whom live alone in flats with no central heating' etc.

43. You use your imagination to bring together data from different sources to breathe life into a story and you achieve better coverage and a higher positive profile. But there are always possible dragons to slay on the path the greater clarity.

44. A thorny point to consider is the balance of statistical credibility with the need for a news story. Even if you can get agreement from the various branches of your organisation to write an integrated multi-source story, will it aspire to the levels of quality demanded by the management board?

45. The more complex the analysis and the more elements that are brought aboard, the more difficult it is for the average reader to understand. The reader's attention is lost and the story is worthy but a waste. On the other hand, if you drive to make your story too 'chatty' it may become superficial and lose authority and credibility.

46. There is a powerful friction here that can leave both the guardians of high statistical quality and the writers of clear and simple stories both feeling very frustrated. As with everything there usually has to be a compromise. This may mean your story doesn't get the coverage you think it may deserve. On the other hand, it might have achieved great coverage but at such a superficial or trivial level that it leaves your data producing statisticians thinking 'that is nothing like the truth, I'm never co-operating with this again'. What have we achieved then?

47. I was struck by a passage from a book I have just finished reading (no great literary classic I'm afraid, but it makes a good point):

"Polly had kept the newspaper articles. They weren't accurate, not in the detail, because the writer told stories, not what was actually happening. They were like paintings, when YOU had been there and seen the real thing."

– Terry Pratchett, *Monstrous Regiment*, 2003.

48. There are other issues we need to consider too. Too much information in a single story can leave a reader bewildered and wondering what the point of the story is. A scatter of seemingly unrelated statistics can suffer from a lack of focus. If a single topic story is well written it should never lose focus but once you start introducing other sources there is a danger of being bogged down in a miasma of explanations and attempts to qualify what the data say.

49. You could say it is all a question of proper labelling so that it is clear to the reader who is the source of a particular piece of data. However, the NSI must always remember that if a story is published under its banner or on its website, the reader will take the NSI as being the source. The media don't like having to refer to a multiplicity of sources. As a result the NSI becomes quoted as the ONE source and has to live with that label.

50. **Finding new media:** We have all marvelled at what power the internet has to put over our message. Ten years ago, I, and the many like me who were brought up with a print-biased media, had absolutely no concept of what the internet was going to do to my business of communication. It is only really in the past five years that the power of new electronic media has exploded into our workplace and homes.

51. We've all had to learn and adapt very quickly. A whole new breed of communicators has been spawned. It is now so much easier to display your message to a potentially wide audience. However, at the same time, we have to compete for people's attention to an even greater degree. All the world has a website and many have something useful to say. Consequently, how you say your message has become even more important.

52. The web is a modern media and requires modern styles of communication. The web is also the media of the people and not just a specialist clique. Therefore we must put out our messages in a package that tells the story to interest the people and not just the experts and specialists.

53. The web also lends itself to giving the bigger picture. Cross-referencing in books can be cumbersome and tedious but a web story can have lots of layers through which people can expand the understanding of the subject as they wish. However, I would caution against what I call 'click-fatigue' – people don't want to have to click on too many different links to get the information they want.

54. With the web is growing up another kind of news-media. They scour sites to come up with news stories and the ones that will attract them most are those that are simply and clearly understandable and which have good easy-to-use interactive graphics like Adobe's Scalable Vector Graphics (SVG).

55. In many ways too, stories crafted for the web are replacing the old-style news releases. E-mailing links to journalists in all kinds of media whether written or electronic is supplanting the rigid and slow written media release.

56. The new, flexible multi-source story must be the way forward whatever media we are trying to encourage to publicise our data.

VI. CONCLUSION

57. So can striving for the bigger picture by bringing together various sources and seemingly unrelated subject areas win the broader argument about statistical story-telling? The simple answer is yes, but . . .

58. We have some big mountains to climb. The first relates to culture and attitudes. Recent UK research has shown that many health professionals believe journalistic values to be shallow and unhelpful. I think this generalised statement could also apply to statisticians' views of journalists.

59. There is some trust of specialist journalists whom they believe usually strive to be accurate. But those of us who have ever been journalists will recognise that stories you write do not always bear close resemblance to what actually appears in the newspaper or is read in the bulletin.
60. The complaint is usually thrown at the sub-editors and news-editors. Many feel these 'back-desk' staff deliberately set out to use material to create scares and alarms. They look at a story and say 'how can we make this excite or disturb someone?'
61. This raises a whole other issue of the reporting of risk in the news. I think this is an important subject area that should be discussed at future workshops.
62. Here is an example of how presenting a broader picture than just the bare statistics might have helped public understanding when the media created a 'scare story'. In the UK a 'scare' report on the risk of thromboembolism in women as a result of taking certain 'new-generation' contraceptive pills resulted in a huge increase in both the numbers of pregnancies and subsequent abortions. Had we at Office for National Statistics been around and on the ball at the time we might have been able to put together a statistical story which would have shown that getting pregnant was twice as likely to trigger thromboembolism as the pill.
63. There are other mountains we must climb too. Looking at the counter side of presenting stories, we must not be too naive. If we put out data that are in any way sensational we must remember that there are many other people in the public arena who will use or misuse our data outside the media. These would include politicians and representatives of various special interest pressure groups. They are just waiting to pounce on anything they can add to their armoury and many would not think twice about stooping to a bit of distortion.
64. These two big mountains combine to create mistrust among our statisticians and data analysts. The only way this mistrust can be broken down is when there is a coming together of the aims of our statisticians and those of the media who want to report their findings. The only way of achieving this that I can put forward is better, education, training and bringing together the journalists and the statisticians face to face.