PUTTING NUMBERS INTO CONTEXT

There's no getting away from them. They define where we sit on the economic strata – low-income, middle-income, high-income -- reveal how well federal, provincial and municipal governments are functioning, and define the safety of the cities in which we live. Yes, I'm talking about numbers, or to use a broader term, data.

Numbers determine the interest we pay, the money we borrow to pay for tuition, cars, houses, or overdue Visa bills. Politicians use numbers to spin narratives: if a mayor manages to preside over a council that keeps property tax increases below the rate of inflation, he or she takes credit for being good with money, specifically, other peoples' money. Society generally holds officials who are good with money in high esteem, be they politicians, businesspeople, athletes or, closer to home, family and friends.

But as Sarah Cohen points out in Numbers in the Newsroom: Using Math and Statistics in News, a number is merely an "opinion", "summary" or a "guess". Echoing what we've just observed, Cohen, who is the president of the Investigative Reporters and Editors and a reporter with the New York Times, and writes: "Keeping these views of numbers in mind will help you avoid the 'lies' that numbers are often accused of

spreading." Or to use I.F. Stone's aphorism, "All governments lie."

So here's a tip sheet, courtesy of Sarah Cohen, that you should find helpful

1) "Choose your numbers as carefully as you choose your quotes. It forces you to find simpler ways to describe numbers using words like 'double', 'nearly', or 'more than'. And it forces you to demand that your sources simplify their numbers enough for you to summarize them."[i]
2) Eyeball , or "gut-check" the numbers carefully to see if they add up. Many times, we'll stare at a number, feeling intuitively that it doesn't make sense, but not having the reflex or confidence to check it out. "Always force a gut-check on your numbers. Use them in a couple of sentences. Ask yourself if whether you'd believe them if a fellow journalist (rather than a math-savvy expert) gave them to you." [ii]
3) If it's your own number from a calculation you've just completed, then return to the original table in your Excel workbook, a habit that should become automatic. If it's a number that you heard at a news conference, force a gut-check by asking the mayor, member of Parliament or police chief where and how she got the number. As we have seen with the Globe and Mail stories[iii] about temporary foreign

worker statistics, inflated numbers can overestimate (or underestimate) the extent of a problem, which can serve a political purpose, in this case cracking down on abuse. So in addition to the checks we've described thus far, you might also run the key numbers by other major players in the story – or experts -- you're covering.

4) Memorize the most important numbers on your beat or areas of interest. If you regularly cover city hall, it's important to know the city's entire budget. That way when a scandal breaks about the mayor's expense account, you can put it in perspective as a tiny fraction of the total amount of money the city spends, or better yet, the amount the city wastes in other areas that could be better spent on essential services such as roads, bridges and public health. This is not to minimize the importance of the focusing on expenses, which as we've seen with the stories of the eye-popping limo expenses of federal health minister Jane Philpott do generate stories. The point is that we always need perspective that helps us. "The hardest part of dealing with numbers is answering this question: 'is it big or is it small?'[iv]

5) Apart from our beats, or areas of interest, it's also important to know the general numbers to tell us how many people live in our city, province, and country. This helps, for instance, when doing stories about being "flooded" with refugees. Okay.Well, how does this influx compare to other refugee claimants? What percentage of the city's or

region's refugee population does this increase constitute? These are all important questions that help put the influx – itself a loaded term that should be attributed to the politician or community activist who said it – into perspective.

6) When it comes to the economy, we should understand its size, especially relative to the United States.
7) Other numbers that influence the economy such as inflation, the value of the dollar compared to the U.S. currency, the rate of inflation, will help us gut-check stories about a government's spending priorities, the value of tax breaks, the real value of salary increases at the heart of disputes like Ontario's spat with doctors and its focus on the salaries they earn.
8) For general numbers about population and the economy, Statistics Canada and the Bank of Canada are two excellent sites, with updated numbers on key indicators that drive the economy like the employment rate, interest rates and inflation.
9) Numbers need context: How big is it? How small is it? How does it compare to others? Without answering some of these basic questions, raw numbers alone make little sense. It's our job to use resources, including credible institutions such as Statistics Canada and the Bank of Canada.
10) For instance, when discussing crime, comparing the numbers of assaults in Ottawa and Toronto makes little

sense. Since Toronto is almost as six times as many people as the nation's capital.

11) Comparisons can be made if we express numbers as the ratios – a percentage, a percentage difference, a rate or value per person. According to Cohen, ratios help "level the playing field" when comparing two entities such as Ottawa and Toronto. For instance, statisticians and police calculate crimes as the number for every 100,000 people. Rates express a phenomenon in terms we can understand. For instance, there were 582 robberies in Ottawa in 2013. Dividing the number of robberies – 582 – by the population or base -- 933,596 – gives us a hard-to-comprehend decimal of 0.062340, which represents the percentage of the population nabbed for robbery. While this is accurate, it's a difficult number to write in a story, which is why statisticians and police forces express the number as a figure per 100,000 people, which in this case means multiplying by 100,000 or simply moving the decimal four places to the right to give us 62.3, which we can round off to 62 (generally speaking, anything above .6 round up, below .4 round down. This means 3.4 becomes 3; 3.6 becomes 4). So in 2012, there were slightly more than 62 robberies for every 100,000 people, a much easier number to convey to our audience. The 100,000 is the multiplier.

12) Multiplying by 100,000 makes sense in this case, because almost $1 million people live in Ottawa. However, if we were comparing crime rates for Ottawa wards, which

ranged between 25,000 to 54, 000 in 2013, a smaller multiplier may be in order. Although the Ottawa police express the crime rates in wards as numbers out of 100,000, using a smaller multiplier like 1,000 might make more sense, meaning that we can compare the rates in wards as crimes or offences per 1,000 people. The ward population is still the denominator.

13) We've used some terms in this last step that may be new: numerator (as Sarah Cohen says "the number we care about") , denominator or base can be the total of all the groups, which in this case is people.

14) The number of denominators you use can be endless. If you're writing about accidents and are getting numbers from a police or workers' compensation database, the denominator may be the number of kilometres driven, allowing for comparisons in different parts of the city or province. If it's workplace safety, the denominator is the total number of workers for that industrial sector, a figure that Statistics Canada tracks.

15) So think hard about numbers and the best way to put them into the kind of context that makes sense!!

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[i] Sarah Cohen, Numbers in the Newsroom: Using Math and Statistics in News, Investigative Reporters and Editors, (2001), 2 , http://store.ire.org/collections/frontpage/products/numbers-in-the-newsroom-using-math-and-statistics-in-news-second-edition

[ii] Ibid, 8

[iii] http://www.theglobeandmail.com/news/politics/ottawa-to-review-data-on-employers-who-rely-on-temporary-foreign-workers/article20903173/

[iv] Sarah Cohen, Numbers in the Newsroom: Using Math and Statistics in News, Investigative Reporters and Editors, (2001), 3