

Why ethics of quantification is needed now

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Why ethics of quantification is needed now

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Abstract

Statistical and mathematical models, metrical objects, artificial intelligence applied to big data, all promise a better way to manage the present and the future. This proliferation of numbers, both visible and invisible, increasingly permeate the real, expanding in scope and sophistication. Not so society's capacity to adapt, manage and, when necessary, oppose, harmful or undesired effects.

Alarms against the downsides of quantification are heard from several disciplines, from within the number generating communities, as well as from outside, from sociologists, philosophers, and jurists concerned with quantification. Finance, economics, education, aid, law, environment, no field is left untouched by digits, rating, scoring and number-based decisions. The existing different instances and voices of critique may be assisted by an ethics of quantification. As part of this, an observatory is proposed here to judge of the quality of quantifications, both existing and oncoming, by tackling, in a trans-disciplinary style, different problems settings via case-studies.

Keywords: ethics of quantification, sociology of quantification, metrics, rating, algorithms, statistical modelling, mathematical modelling.

JEL codes: B400, C180, O330, O350

Why the ethics of quantification is needed now

Why should there be special ethics for the production and handling of numbers? Why an ethics of quantification? (Espeland and Stevens 2008). We live in a world that is significantly structured by numbers, where truth is conveyed and reality constructed by them (Drechsler 2000). Numbers are seductive (Merry 2016), performative, confer to their masters' epistemic power and legitimacy (Espeland and Stevens 2008; Porter 1995). Governing the modern state, or even contesting it, without numbers is impossible (Rottenburg and Merry 2015). Numbers are the prevalent means to express value in our societies, from cost-benefit analysis deployed by governments to financialised accounting of the corporate world. Both access to numbers that matter as well as the ability to use/misuse numbers, reflect and reinforce power imbalances in society and economy.

In everyday life, our exposure to different forms of quantification gains in scope and sophistication, as a result of both superior technologies and media literacy (Stiglitz, Sen and Fitoussi 2009). Numbers capture our attention; they illuminate the part of reality that is being made numerical, and fatally push those parts into the background that come without the clothing of numbers (Merry 2016). Numbers are at the core of the nexus between technoscience, society and the new media (Saltelli and Boulanger 2019). If we consider both visible and invisible numbers, including the use of artificial intelligence and big data in algorithms, to fields ranging from consumers' zombification to cyberwarfare (Zuboff 2019), then the potential of numbers to inflict harm is on par or superior to those of biotechnologies (Rozell 2020). Yet, numbers are so deeply entrenched in our existence that we barely reflect on them critically anymore — too close to us, they have become part of the very lens through which we view and comprehend the world.

Recently, a global observatory for gene editing has been suggested (Jasanoff and Hurlbut 2018), with the motivation that technology should serve society rather than harm it. A similar urgent argument must be made for an observatory of “numeroethics.” The observatory would aim to establish standards of transparency and diversity.

Such an ethics of quantification would usefully investigate the societal relevance of quantification and promote vigilance about their spoken and unspoken framings and assumptions. It could probe for missing numbers and blind spots, and provide a framework for various forms of data activism (Cardiff University 2020), model activism (Saltelli et al. 2020) and statactivism (Bruno, Didier and Prévieux 2014). Such ethics could foster quality, diversity and pluralism in quantification fit for societal purpose (Saltelli and Di Fiore 2020).

The dangers associated with improper use of numbers are evident. An incorrect use of statistics and its numbers in medical research may cost lives and squander billions (Harris 2017); rating and ranking can have devastating effects e.g. on the costs and nature of higher education (Muller 2018), the governance of science (Hicks et al. 2015; Mirowski 1991) and much more. Numbers arising from specific quantitative exercises (such as randomized control trials) may be misused to suggest more general conclusions that may not be valid (Deaton and Cartwright 2018); sophisticated statistical/econometric techniques can be designed in ways that promote particular policy conclusions reflecting researchers' biases (Storm 2019). In terms of their intrinsic danger, the numbers of finance deserve a special place (Ravetz 2008; Porter 2012; Wilmott and Orrell 2017).

The brave new world of numbers — be they visible or invisible, as when hidden in algorithms — may occasionally violate elementary ethical norms, but more dangerously it creates its own pattern of good and bad, and new standards of what is normal or acceptable (Amoore 2020).

Disparate alarms about quantification share common concerns (Popp Berman and Hirschman 2018): these come from philosophers (Zuboff 2019), statisticians (Stark and Saltelli 2018), data scientists (O'Neil 2016), mathematical modellers (Padilla, Diallo, Lynch, and Gore 2018), historians (Porter 1995), jurists (Supiot 2007) and civil society (Muller 2018).

At the time of the present pandemic, many like to point the finger — and rightly — at the OECD report (2015) lamenting the excess hospital beds in several OECD countries and the need to reduce them, or at the prestigious 2019 Global Health Security Index, for which the US was the safest place to be in case of a pandemic (Johns Hopkins Center for Health Security 2020).

If the widespread use of numbers represents the opening of a Pandora's box, then the lid cannot be closed anymore. An appeal to return to a society without numbers is, if not unthinkable, then completely unrealistic today (Drechsler 2019). But a defence against its excesses is necessary, and it is possible.

There is no lack of the virtuous use of numbers, as discussed in a recent manifesto in *Nature* (Saltelli et al. 2020). The powerful and yet humble models of meteorology serve as a role model for the reciprocal domestication of society and models. In the future, something similar may be achieved in other domains. The same can be said of other instances of quantification: while all models are wrong, some may be very useful. Attempts at improving the status quo are emerging. Statisticians themselves are at the forefront of solving the deep ambiguity in the use or abuse of statistical inference (Gelman 2019). Socially fair and responsible indicators are fought for by the stactivistes (Bruno, Didier and Prévieux 2014). Data activists engage in hackathons to discover biased uses of big data (O'Neil 2016) and artificial intelligence. New networks are created to investigate the sociology of quantification and datafication (French National Research Institute for Sustainable Development 2020; Cardiff University 2020), while the European Parliament runs a Centre for Artificial Intelligence (C4AI) (European Parliament 2019).

A parallel process of maturation and empowerment needs to take place in society to ensure this new world is properly mastered. There is also a need to address the unequal access to numbers that matter. Currently, powerful governments and large companies have access to all sorts of numbers about the citizenry, who are themselves denied access to the true numbers that would accurately indicate governmental decisions and implementation or corporate behaviour.

An observatory for the ethics of quantification could usefully complement existing initiatives, perhaps as a pilot, looking for common elements and strategies in the different families of quantification. The pilot could tackle themes of general interest, for example:

- Ratings of higher education has been a seriously performative numerical invention, de facto changing, and possibly worsening the landscape of higher education. Can families, newspapers and deans be talked out of using them?
- Public investments are often evaluated from a narrow cost-benefit analysis point of view, leading to short termism and underinvestment.

- Why don't initiatives for better evaluation of research and researchers — away from automated use of metrics — gain more traction? How can path dependencies and lock-ins be defused?
- The Food and Agriculture Organization and the World Bank use models to guide future strategies on food security and environmental welfare. Do these models properly map all possible outcomes given the uncertainties ahead?
- Echoes from the world of statistics. What should the lone experimenter make of the ongoing discussions? Are there safe routes to effective and responsible inference?
- The numbers of COVID-19. Too few, too many, too late or simply misused?

Such an observatory has great potential, improving peoples' lives by making visions, strategies, policies and implementations more realistic, honest, productive, and conducive — and there is no harmful side to it, because questioning one's numbers is basic performative ethics even for those abusing them, unintentionally or even intentionally. We can see that the clamour for numeroethics comes primarily from the inside — and the closer to numbers, the louder it is, as we see from the statisticians' initiatives mentioned.

The observatory may supply a much-needed link between the world of science and policy. It may convey the in-built limitations of scientific data to those making decisions on their basis. Conversely, it could channel back the need for data that is meaningful and that can be used safely in public deliberation. Such a mediator between science and society is needed for the various fields which inform the public through numbers, such as public health, technology and economics.

We need to think of how to combine, without homogenizing, the voices calling for the domestication of data; how to create a framework for observation, critique and improvement for all stakeholders alike; and to start, if slowly, thinking about how to at least softly institutionalize such a process. Numeroethics, a relevant and prominent ethics of quantification, is becoming more and more needed, and possible as well, every day. We can do better, and therefore we should, starting to discuss pragmatically what can be done, by whom, and how — yet not the when, because the when is now.

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