The Fundamental Principles of Official Statistics: Not just Governments ... getting inter alia the public and media involved[1]

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Abstract

The Fundamental Principles of Official Statistics seem to enjoy (near) universal acceptance and form an indispensable foundation for all National Statistical Systems. To produce valid and reliable statistics it is necessary that Governments provide the legal framework and adequate resources to the statistical system of their countries to allow statisticians to produce the required statistical information, without interference, using the best available methodology and techniques from the best suited sources of information. Respondents, be they individuals, enterprises or organisations are requested to provide the required information truthfully and as completely as possible. While Governments can affect the professional independence and integrity of national statistical institutions, other actors can also affect the integrity and quality of statistical information. Well known is the case of donors or organisations that commission research. Official Statisticians and Statisticians in international organizations occasionally take short cuts or use inappropriate models that compromise the quality of the data. Graphical presentations of statistical data can convey inexact information because of inappropriate use of scales. These can be counteracted by proper statistical methodology and by strengthening the integrity of the research institute and quality researchers. Occasionally, the respondents provide deliberately false information either at his, or her, own initiative or through organized campaigns. To avoid or correct this requires continuous education of the public on the need of good statistics and the confidentiality of statistical information. Statistical education for policy makers and politicians, the media, and the public at large is essential. Statistical education in formal and informal settings should be encouraged. Via a series of exemplary cases, the case will be made for continuous statistical education to counteract most if not all improper interventions which deliberately or inadvertently compromise the integrity of official statistics.

Keywords: Ethical Codes, Professional Independence and Integrity, Involvement of public and media, Statistical Education.

1. Introduction

To produce valid and reliable official statistics it is necessary that Governments provide the legal framework and resources to the statistical system of their countries to allow statisticians to produce the required statistical information, without interference, using the best available methodology and techniques from the best suited sources of information. Respondents, be they individuals, enterprises or organizations need to provide the required information truthfully and as completely as possible.

Statistical activities, whether carried out by national statistical offices, academic, public opinion and marketing research institutions, are regulated by a number of international and regional codes of ethics and of conduct such as the ISI Declaration of Professional Ethics (DPE)[2], the Code of Ethics of the World Association for Public Opinion Research (WAPOR)[3], the European Statistics Code of

[1] Important comments and contributions from Alphonse L. MacDonald (former Director of UNFPA Geneva Office) and John B. Hannon Jr. (Independent International Consultant and Former Statistician of the BLS) are gratefully acknowledged. As usual, I remain solely responsible for the contents of this paper as well as for any remaining errors.

[2] http://www.isi-web.org/about-isi/professional-ethics/43-about/about/296-declarationprofessionalethics-2010uk

[3] http://wapor.org/wapor-code-of-ethics/

Practice[4] and CARICOM'S good statistical practices[5]. In January 2014 the General Assembly of the United Nations endorsed the Fundamental Principles of Official Statistics[6], which were adopted by the Statistical Commission in April 1994, following an initiative of the Conference of European Statisticians. Hence the Fundamental Principles of Official Statistics (FPOS) have universal acceptance and should be adhered to by all nations and societies. It establishes guidelines for the relationship between the Government and the national statistical system and recognizes the independence of statisticians.

In developing countries external donor agencies provide financial and technical support to the national statistical systems and their constituent parts. It is essential that national statistical offices and researchers are allowed to produce the required statistics without interference from the donor organizations.

Many developing countries have had a colonial past and the nature of their governments and their national statistical systems are in many cases still influenced by the authoritarian nature of the colonial past.

2. Use, misuse and abuse of statistics (and statisticians)

Use: In general statistical information in most instances is used (more or less) correctly and serves the purposes for which it was intended. The independence of statisticians and researchers is generally recognized, but occasionally due to interference by governments or donors (or even the media or public) the integrity of statistics and the independence of statisticians are compromised.

Misuse: Misuse of statistical data and reasoning is mostly due to insufficient knowledge and understanding of statistical principles. This occurs mostly in judicial cases (http://www.united-academics.org/magazine/dangerousminds/bad-statistics/ and http://arxiv.org/pdf/1009.0802.pdf), due to insufficient knowledge and understanding. It can lead to the wrongful conviction of innocent persons, with devastating effects on their personal life and well-being. Intervention by well-qualified statisticians can correct the technical mistakes, but cannot undo the harm done to the persons.

Abuse: Abuse of statistical information is a deliberate attempt to use the data for a purpose for which they were not intended. In this case users deliberately use statistical information to support issues for which they were not intended; e.g. using crime statistics in anti-migration propaganda. Less serious but equally relevant is the deliberate departure of statistical conventions by the media, and especially the press, by using inverted scales or different size scales to provide "statistical evidence" of a (newsworthy) fact.

3. Interference with the independence of statisticians and integrity of statistics

Integrity of statistics is at stake when Governments or donors deliberately wish to modify the methodology of an inquiry, or to alter the results of an inquiry to serve administrative or political objectives. In several countries national statisticians and international consultants have been asked whether it is possible to adjust GDP data, if the classification of the country based on GDP meant a "loss" of international financial and technical support. In most cases Governments tended to accept the opinion of statisticians that this is not possible and that such behavior would reflect negatively on the country's international standing.

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[4] http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-32-11-955/EN/KS-32-11-955-EN.PDF

[5] http://www.caricomstats.org/Files/Publications/CARICOM_Statistics_Code_of_Practice.pdf

[6] http://unstats.un.org/unsd/dnss/gp/FP-New-E.pdf

In some cases Ministers responsible for internal affairs, and/or justice and police, request access to individual census and survey data, supposedly to verify the nationality, residence (or criminal) status of respondents or to assess the completeness of population registration system. In the majority of cases proper arrangements can be made to verify the completeness of the population registration system **by providing the national statistical office access to the population registration without compromising the integrity of the statistical system or the confidentiality of the data and the anonymity of the respondents**. There are documented cases in which census information has been used for non-statistical purposes, both in developed and developing countries.[7]

There are instances in which Governments instruct statisticians to modify the methodology of measuring social and economic characteristics which are at variance with international standards. These are normally used for internal national purposes but could place undue pressure on statisticians to deviate from the most appropriate methodology or technique.

In extreme cases Governments occasionally instruct statisticians to modify the results of a statistical inquiry. A refusal to do so may lead to negative consequences for the statisticians concerned, including dismissal and judicial processes.

4. Not just Governments – Cases and Examples

Producing valid and reliable statistics requires the correct action of Government, all producers of official statistics, the media and the respondents. Undue intervention by governments in the statistical activities has been well documented and occasionally is also reported in the press. Not so well known are cases in which other actors in the statistical system endanger the integrity of statistics and the independence of statisticians. These may include Donor Agencies, Statisticians/Researchers, Respondents and unethical and/or sensation seeking Media. The Fundamental Principles of Official statistics are applicable to Governments in relation to the Statistical Systems in their country, while the ISI declaration of professional ethics is applicable to individual statisticians. Other professionals have comparable standards applicable, such as World Medical Association (WMA) and the International Federation of Journalists (IFJ)[8]. **However, having codes is certainly not the same as abiding by these codes.**

CASE 1. Donor agencies misbehaving

Example 1. Interfering with agreed scope of surveys

An international social science research program was carried out by a special team of international researchers associated with a reputable professional organization. This program was financed by an international agency and a major bilateral donor, which also was the main financier of the international agency. The agreement was that the surveys would be national in nature and follow a common methodology. In one particular country the international agency and the bilateral donor wanted to have an intervention program in only part of the country and wished to restrict the survey to that particular part of the country. In spite of objections of the statisticians involved, both the Government of the country involved and the leadership of the research team acquiesced to the desire of the donor. **The title of report of the survey of that particular country suggests that it was a national survey.**

Example 2. Not accepting results and thus wasting resources

In another country in the above mentioned international social research program one of the requirements was to use female interviewers. The national statistical office did not have such staff and suggested that a research and training department of another national institution could be used.

[7] See for example: W. de Vries, 2012 in STATOR 3-4, November 2012

WMA: http://www.wma.net/en/30publications/10policies/b3/index.html and http://www.wma.net/en/30publications/10policies/c8/index.html

IFJ: http://www.ifj.org/about-ifj/ifj-code-of-principles/

However, that institution was also involved in an intervention program financed by the international agency and the bilateral donor and doubt was raised on the integrity and independence of the statisticians involved. Nevertheless the leader of the international research team assigned experienced staff to assist the national staff in the execution of the survey. When the survey results were published the bilateral donor agency and the senior management of the national institutions were not happy with the results of the survey and tried to discredit the staff, both international and national. The leader of the international team however stood by the integrity of the staff and methodology applied and field procedures followed. The bilateral donor agency commissioned another survey to measure the variables of interest, **only to find that the results of the second survey one year later than the survey in question were 0.2 % less than the results of the original survey.**

Example 3. Blackmailing a developing country and trying to blame the NSO

In the early 2000's an NSO in a developing country piggybacked a study for a ministry to one of its surveys, which was funded by a donor. The deal was that only the piggybacked information would be handed to the pertinent ministry and indeed that is what happened. Suddenly the consultant for the ministry (funded by the same donor) demanded that in order to do perform his tasks properly, he would need the NSO micro data as well, which the NSO rightfully refused. The donor then wrote a stern letter to a senior minister "about a civil servant obstructing a major project and thus jeopardizing future funds to the Country". The senior minister wrote to the Minister with Statistics in his Portfolio, but luckily that Minister, after listening to all sides, supported the NSO position. The senior minister then wrote to the President about the director of the NSO jeopardizing a great amount of donor funds and that something should be done about it. The director's position was in jeopardy, but referring inter alia to the Fundamental Principles of Official Statistics things were brought back to normal.

CASE 2. Statisticians and/or researchers misbehaving

Example 1. Interfering with the sample design

A demographic survey was carried out in a country one year after it had carried out a national population and housing census. The sample design of the survey was based on the material and results of the census. However, the cartography and estimates of the enumeration areas (EAs) were not complete and the samplers decided to use the material of the supervisory areas as bases for a sample design, using probability proportional to size (pps). They developed an ingenious system to select the number of enumeration areas in the supervisory areas depending on size. The field teams were instructed to verify how many EAs there were in the selected supervisory area and in cases where there were more than one, they had to use a table to select the number of EAs that had to be included in the sample. When the results were processed it transpired that the estimated population size of the country (using the inverse sampling fractions) was less than the population estimates of the census. Detailed analysis of the field documentation showed that the field supervisors had not followed the selection procedures as indicated in the tables but had systematically selected less enumeration areas than were indicated in the table. This was done to reduce the work load of the field workers.

Example 2. Extreme data massaging and data fabrication

"Publish or perish" is a well-known adage in scientific endeavors. However, this may put undue pressure on researchers who want publishable / significant results, resorting to extreme massaging of data and even outright data fabrication. A well-known developed country example (the researcher is a psychologist, but most likely culprits can be found among all scientific disciplines) can be found here: http://static2.volkskrant.nl/static/asset/2012/114736354_Eindrapport_862.pdf

CASE 3. (Partisan) Respondents and/or Media misbehaving

Example 1. Individual Census data falsification

In some countries, notably those with a federal administrative structure, population size is a key variable in the distribution of seats in (both unicameral and bicameral) parliament and federal funds.

There are well- documented cases in which deliberate campaigns are organized to inflate the population figures of specific areas or ethnic groups in population censuses. This is done by creating phantom households, which would implicate the field workers, or by inflating the household size, which would involve deliberate falsification by the respondents.

Example 2. Harassing field staff dressed in undesirable colors

In one country Census takers dressed in green vests were severely harassed and even pelted in certain enumeration areas, and had to flee the area. The Census Office was unable to convince the population of that area to cooperate. After investigation it turned out that these enumeration areas were in a stronghold of the opposition party and (even though elections were more than 2 years away) the public had associated the green vests with the colors of a major government coalition party at that time. Afterwards the media were swamped with complaints that the Census Office had done a bad job enumerating certain areas and maybe this was politically motivated. Due to other unfortunate circumstances the Census had to be retaken the next year, the census takers were dressed in "neutral" gray vests and the majority of the population everywhere cooperated.

Example 3. Sensational Media Headings (Headlines)

"Census Office cannot account for Census cash"; was a sensational heading in a developing country newspaper in December 2011. The director of statistics (being the National Census Officer) came under attack from other media. What had happened was a simple case of a journalist taking information from one side; i.e. a Member of Parliament who had to wait a little longer to receive a copy of an audit report that had been submitted to the Government and donor agency following the previous Census. The Member of Parliament went to a journalist of the newspaper in question and complained. The journalist printed his complaint as the truth without any further verification. Subsequently the Census Officer had a Press conference and also appeared on a major TV talk show to clarify the issue.

5. Concluding: Safeguarding the integrity of statistics and independence of statisticians

Cases of Government intervention in statistical activities, misbehavior of donor agencies, misbehavior of statisticians, misbehavior of the media and the public at large, do happen and have been documented. Statisticians have the right and the duty to expose these and promote proper statistical procedures and behavior.

One could seek to answer the following questions: What has been done already? What can be done better at the International level and at the National level? How can we involve current and future generations of policymakers, official statisticians, journalists and the public at large?

Foremost there are a number of **factors contributing to maintaining statistical integrity**, as presented by William Seltzer, which are still applicable. Seltzer had stated that these factors "are neither necessary nor sufficient either individually or collectively to ensure the maintenance of the integrity of a national or international statistical program" (Seltzer, 1994 p. 13), but we consider them still so highly relevant and pertinent that we shall list them (not necessarily in the same order). These factors, contributing to maintaining statistical integrity, have national and international implications.

Factors contributing to maintaining statistical integrity	
Long tradition of Statistical integrity	International Support
Strong links between statistical user and producer community	Active professional Statistical society encompassing statisticians in government, academia, and industry
Uncensored and active journalism (newspapers, magazines, TV and Radio)	Laws relating to the independent status of statistical information and operations
Location of NSO within the government structure	Sound Civil Service system
Stature and contractual status of the head of the NSO	Pre-announced schedule of release dates

In addition the periodic reviews (every 5 years) of adherence to the Fundamental Principles (FPOS) are quite valuable, as well as the FPOS implementation guidelines[9]. Regional Codes of Good Statistical Practices and periodic reviews of adherence to these are also very important both nationally and internationally.

Very important is also the fact that NSOs have to put more emphasis on their **Public Relations & Information Unit** and have to pay more attention to **Continuous Training**, both internally and externally. Training in the formal education system, albeit very important, does not suffice and also occasions such as Statistics Day (e.g. Caribbean Statistics Day, Annually on 15 October) have to be used to educate the population at large, but also statisticians that may be active in academic institutions or industry, with respect to Official Statistics. An approach used by a CARICOM Associate member state that proved very useful was to conduct **"Lunch-and-learn"** seminars for the business community. This approach needs expanding to other stakeholders, such as senior policymakers, journalists (and other media personnel) and community leaders. Lunch-and-learn seminars appear to be excellent vehicles to improve links between users and producers of statistics and may be utilized also to educate on proper use, misuse and abuse of official statistics and ways to prevent and correct these.

Equally important is strongly investing in a **Research Section in NSOs**. An important area would be developing tools to detect fabricated data, as fabricated data can be both input and output to NSOs.

Finally, all involved in formal training will have to realize the fact that **all academic disciplines require a suitable dose of statistics and of ethics** and moreover, **the statistician of the future will have to be a data scientist and must be trained as such**.

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[9] http://unstats.un.org/unsd/statcom/doc14/BG-FP.pdf