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Is globalisation a threat for official statistics?

Enrico GIOVANNINI,
Chief Statistician, OECD

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Globalisation of economic processes, technological revolution and cultural change must be considered together to identify how the world is changing and how this change can impact on the “statistical function” (not the pure production of statistical figures) carried out by national statistical offices (systems) and international/supranational organisations. Therefore, hereafter we will use the term “globalisation” in a wide sense, to make reference to all these aspects.

In the second section of this paper we will discuss where the value added of statistics is coming from, while in the third one we will see how globalisation can affect the way in which this value added is created. The fourth section will deal with the issue of trust in official statistics and the fifth with the way in which globalisation is modifying how information is spread in society. In the sixth section, we will discuss why statistics should be relevant for all citizens.

Finally, the last two sections deal with the risks for official statistics due to globalisation and with the need for national statistical offices to be more innovative and transform themselves from “information providers” into “knowledge builders”.

1. Introduction*

One of the current “mantras” suggests that everything in the economy and in the society is changing because of globalisation. Therefore, one could say that globalisation is also going to change statistics. Of course, due to the increased mobility of goods, services and people, as well as to the bigger role of multinationals, the measurement of economic transactions within a country and across countries has become more difficult and requires new tools (new surveys, access to

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microdata, etc.). All these issues have been debated over the last ten years in several international meetings and stimulated the update of statistical manuals. But beyond that, is globalisation going to influence the way in which the “statistical function” is currently conceived? Is it going to change the way in which official statistics is perceived and its role in the society?¹

To answer these questions we should first agree on what we mean by “globalisation”. According to the *OECD Handbook on Economic Globalisation Indicators*:

“the term ‘globalisation’ has been widely used to describe the increasing internationalisation of financial markets and of markets for goods and services. Globalisation refers above all to a dynamic and multidimensional process of economic integration whereby national resources become more and more internationally mobile while national economies become increasingly interdependent ... In a globalising economy, distances and national boundaries have substantially diminished as most of the obstacles to market access have been removed. In this global market, multinational enterprises (MNEs) are perceived to be a key vector through which globalisation has occurred and continues to evolve. Thanks to information and communication technologies, firms continue to organise themselves into transnational networks in response to intense international competition and the need for strategic interactions. Despite the fact that economic integration is a dominant feature of globalisation, other dimensions are also of significance, including the social, cultural, political and institutional realms”.

Therefore, economic globalisation is process that cannot be analysed in isolation, without considering the impact that information and communication technologies (ICT), as well as social and cultural changes, have produced on the economy and the society. In other words, globalisation of economic processes, technological revolution and cultural change must be considered together to identify how the world is changing and how this change can impact on the “statistical function” (not the pure production of statistical figures) carried out by national statistical offices (systems) and international/supranational organisations. Therefore, hereafter we will also use the term “globalisation” in a wide sense, to make reference to all these aspects.

¹ It is interesting to note that, according to Wikipedia, statistics “is the science and practice of developing knowledge through the use of empirical data expressed in quantitative form. It is based on statistical theory which is a branch of applied mathematics”.

In the second section of this paper we will discuss where the value added of statistics is coming from, while in the third one we will see how globalisation can affect the way in which this value added is created. The fourth section will deal with the issue of trust in official statistics and the fifth with the way in which globalisation is modifying how information is spread in society. In the sixth section, we will discuss why statistics should be relevant for all citizens. Finally, the last two sections deal with the risks for official statistics due to globalisation and with the need for national statistical offices to be more innovative and transform themselves from “information providers” into “knowledge builders”.

2. How to measure the value added of official statistics?

Globalisation is determining, among other things, a re-distribution across countries of production processes. Companies officially established in a particular country have decentralised some industrial and administrative functions in other countries without losing their control. Industrial processes have been fragmented in sub-processes spread in various establishments and final products are often assembled in countries different from those where the parts have been produced. Even higher fragmentation can be observed for service activities. In this context all companies are re-thinking their strategies starting from the question: what is my “core business and how is globalisation going to affect it”?

To answer these questions companies need to first of all, identify the main sources of their value added, and this is not an easy task. Statisticians know very well how difficult is, in a globalised economy, the correct allocation by country of the value added created by production activities carried out in different countries. Moreover, the correct allocation of value added by activity is also a challenge, because of the growing share of services embedded in the industrial products sold to the final customer. Of course, this fragmentation is less pronounced for non-market services, although, also in this case (for example in education), the cross-boundary transactions are becoming more frequent than in the past. In any case, the absence of a price makes the measurement of the value added for non-market activities even more challenging.

According to the International Standard Industry Classification (ISIC Rev.1), the production of official statistics is a non-market service. It is part of Section L, Division 75 “Public

Administration and Defence”, Group 7511 “Administration of the State and the economic and social policy of the community”, which includes:

“administration and operation of overall economic and social planning and statistical services at the various levels of government”.

Being part of the government, official statistics must be carried out by an economic unit based in a particular country and not one of the NSOs has establishment in other countries. We could therefore conclude that the globalisation of economic processes should not *per se* strongly affect NSOs’ production functions and related costs. Of course, all statistical offices (and central banks) are studying new ways of measuring economic transactions in a globalised world, the flow of migrants, the “brain drain”, etc., but they do that using tools that are also used for other domains (surveys, administrative data, etc.)².

Having established that official statistics is part of non-market services, we should now analyse the nature of the statistical service and whether it can be affected by globalisation (in wide sense). According to the System of National Accounts, services are the result of a production activity that changes the conditions of the consuming units. In particular:

“The changes that consumers of services engage the producers to bring about can take a variety of different forms such as:

(a) changes in the condition of the consumer’s goods: the producer works directly on goods owned by the consumer by transporting, cleaning, repairing or otherwise transforming them;

(b) changes in the physical condition of persons: the producer transports the persons, provides them with accommodation, provides them with medical or surgical treatments, improves their appearance, etc.;

(c) changes in the mental condition of persons: the producer provides education, information, advice, entertainment or similar services in a face to face manner”³.

² A very obvious solution to some of these problems would be the exchange of microdata between countries, and this would change quite significantly the current working models of NSOs, but legal constraints prevent them from doing it.

³ System of National Accounts 1993, pag. 123.

For statistics, the third case seems the relevant one. Therefore, the value added of a statistical service should be related to the change in mental condition of persons.

For market services the price paid by the consumer is, by definition, reflecting the value that he attributes to the fruition of the service, but for non-market services a different approach must be followed. According to Atkinson (2005), various methods can be followed to evaluate the value added of non-market services, but as a general rule, methods aimed at measuring outputs should be preferred to those based on the measurement of inputs (salaries and intermediate costs). The output of statistics could be measured in terms of publications, data points disseminated, microdata validated, etc. and this is the way normally used by national statistical offices when they report on their activities, but according to Atkinson,

“the output of the government sector should in principle be measured in a way that is adjusted for quality, taking into account of the attributable incremental contribution of the service to the outcome” (pag. 187).

But what should be the final outcome of official statistics, considering what the SNA states? The answer seems “knowledge”, knowledge of economic, social and environmental phenomena. If a person does not know anything about a particular issue and looks at relevant statistics, should s(he) not become more knowledgeable (to a certain extent) about it? Of course, the “new” knowledge could eventually lead the person to particular behaviours, but to do that, s(he) needs to combine the statistical information with other information (including her(his) beliefs, ideology, cost-opportunity considerations, etc.). Therefore, the immediate outcome of the consumption of statistics is not the behaviour, but the expansion of the information set used to make decisions.

We could then conclude that the value added of official statistics is linked to what the actual (not the potential) users know about the facts relevant to making their decisions. Therefore, from a collective point of view this value can change depending on two elements:

- The size of the audience (i.e. the number of people who know official statistics);
- The quantity of official statistics actually included in the information sets relevant for each individual’s decisions.

If just a little group of people is aware of official statistics, the probability that the society uses them to make decisions is relatively small. On the other hand, if everybody knows official figures, but they are not concretely used by individuals when they make decisions, their value added will be minimal. Therefore, it is necessary to see if and how globalisation influences these two elements.

3. How globalisation affects the size of the audience

For several years the main mandate of NSOs was to serve a small, but very influential, audience (the government, academic experts, etc.) and, then, only as by-product, the rest of the society. This narrow focus had a lot of practical consequences: in several countries, NSOs were (and some still are) not allowed to carry out substantive analyses on the data they produce, or disseminate analytical studies on economic, social and environmental issues. In some cases, heads of NSOs were removed because political masters did not like the data or the public positions taken by NSOs. The way in which data were disseminated was suitable for economists or other experts, but not for the public at large.

Fortunately, this vision has been gradually replaced by a wider view of the statistical function. Notwithstanding the very narrow definition of official statistics still contained in the ISIC Rev. 1, some NSOs have evolved and transformed themselves into research institutes, whose main role is to produce information (not only statistical data) for the entire national community, as well as for international comparisons, to foster public knowledge. In this context, programmes to increase statistical literacy have been launched, new products developed and new communication tools have been used to present information in layman's terms, to help all citizens better understand what is going on at world, national and local levels.

We should then conclude that, nowadays, the “core business” of official statistics is *to foster, across the whole society, a better knowledge of economic, social and environmental phenomena*. This means that NSOs should try to maximise the audience of official statistics and not to target only the government sector or academic experts. Therefore, actions aimed at maximising the audience cannot be considered ancillary to the main function of producing statistical figures, but they should be considered fundamental tools to increase the value added of statistics.

Of course, this conclusion can have a relevant impact on the way in which available resources are allocated to different activities: although few NSOs have developed innovative tools to bring statistics into schools or to reach new generations, the large majority of NSOs dedicate a very tiny fraction of their budgets to actions aimed at increasing the population's statistical literacy. Even less money is spent to foster the use of official statistics by businesses.

In this context, does globalisation affect the size of the audience of official statistics and, if yes, how? Of course, with globalisation the potential audience for statistics on a particular country is enlarged well beyond national boundaries. More and more people are interested in comparing economic and social performances between countries to make their decisions. Companies have to decide where to open a new establishment. An increasing number of people leave their country to work in another. Students chose countries in the hopes of a better education. All these people need information about the country in which they are eventually interested. At the same time, as international benchmarking has become a must to assess the performance of a country, media report more and more on comparative statistics in terms of economic and social issues.

Do NSOs fully exploit these new opportunities? Do they include among their strategic objectives the target of serving a “global” audience? Do they invest resources to make their products accessible to and accessed by this global audience?

For years this demand has been satisfied by international organisations and specialised private data providers, who invested a lot of resources to collect data from national sources, make them comparable and produce publications with data concerning different countries. But the development of Internet and the standardisation of data formats changed, at least partially, this division of labour. Users are now more capable than ever of navigating national web sites where data and metadata are available. Of course, linguistic barriers may prevent people from accessing data and metadata available on national statistical web sites, but several NSOs have developed multilingual databases that can help in this respect.

Notwithstanding these recent developments, it seems that the target audience considered by NSOs when they plan their dissemination strategies is largely domestic. But also in this perspective, it seems that NSOs are not exploiting all opportunities to maximise their audience (and therefore their value added). If one recognises that globalisation is increasing the demand for

cross-country comparisons, NSOs have a great opportunity to present their figures in a wider context. Although in some cases they re-distribute data produced by international organisations, normally NSOs are not big consumers of international statistics. Paper publications edited by them are still largely focused on national data, with a relatively small space dedicated to international comparisons. The same applies to on-line products, where the cost of including figures concerning other countries would be relatively lower.

It must be recognised that a growing number of NSOs produces “country portraits” covering economic, social and environmental phenomena and including some data concerning other countries. In few NSOs have published products to assess the position of their country vis-à-vis key geo-political entities (for example European Union or OECD), from economic and social points of view. But these are often seen as ad-hoc projects, more than on-going activities based on a strategic rethinking of the role of NSOs in a globalised world.

In conclusion, we should say that the expansion of the audience is a key element to maximise the value added of official statistics and that a lot of opportunities are available to NSOs because of globalisation. But to fully exploit these opportunities, NSOs must change the way in which they look at their role, transforming themselves from “information brokers” into “knowledge builders”, targeting the whole (global) society and not just a relatively small domestic community of government and academic experts.

4. The use of and the trust in official statistics

As previously argued, the second fundamental element to maximise the value added of official statistics is the amount of official data actually used to make decisions. For statisticians, the normal way of looking at this issue is based on the concept of “quality”, as if high quality statistics should be, by definition, chosen and used by users to make decisions. Unfortunately, globalisation is making this assumption less and less relevant, changing, among other things, the way in which the competition between official statistics and other sources takes place.

The first element to consider is that the cost of producing statistics is nowadays much lower than in the past. The number of companies producing data for marketing and business purposes, as well as data based on opinion polls, increased a lot over the last 10-20 years while unit prices declined. Moreover, the development of statistical methods and the availability of

statistical software also allow research institutes, non-government organisations (NGOs), etc. to produce, using existing data, statistical indicators to advocate particular topics or highlight specific issues. Finally, in several countries the production of opinion polls and other data useful for marketing purposes has become a profitable business and a myriad of companies now offer these services to both public and private customers. Therefore, the amount of information disseminated in our societies increased dramatically. Of course, the quality of some data is very poor, but this does not seem to prevent their dissemination.

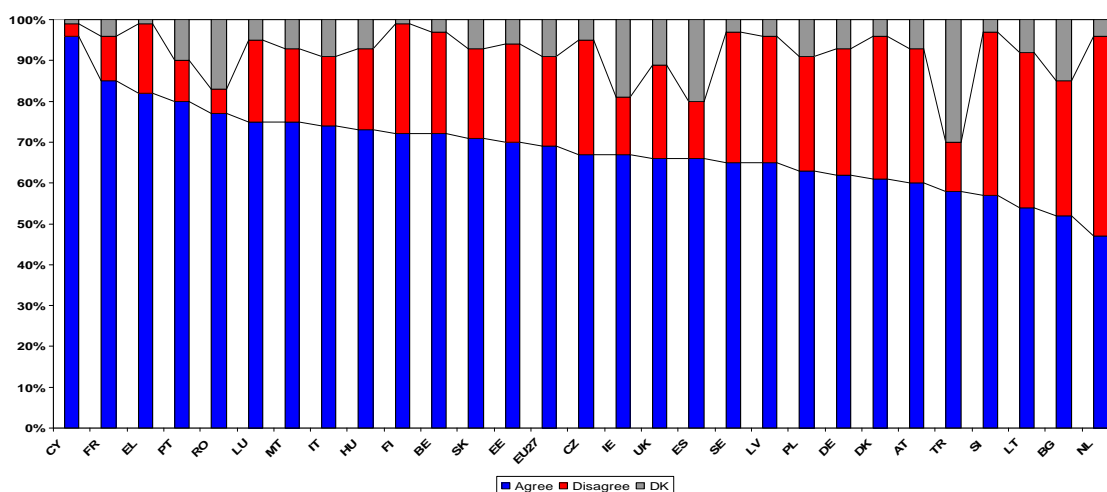
In theory, the inclusion of certain data in the information set used to make decisions should depend on the credibility of the source. Unfortunately, as media like “curious” data and give them space in the public debate, even if they are not produced using sound methodologies, there are quoted and influence the public opinion. Therefore, NSOs have big difficulties in facing this unfair competition. Moreover, media seem very open to give space to criticisms to official statistics, while they do not investigate with the same attention the quality of unofficial sources.

In conclusion, to maximise its value added, official statistics should be known and actually used by as many people as possible, as only in this way public knowledge, i.e. the “outcome” of the relevant public service associated to statistics, can be truly enhanced. Globalisation is creating new conditions that seem to make this outcome potentially easier to achieve, but at the same time it seems to put official statisticians in a more difficult position vis-à-vis other players.

To better assess to what extent these risks are concrete and/or growing, statistical evidence would be extremely useful. Unfortunately, official statisticians have not paid enough attention to these elements in the past: therefore it is almost impossible to have a good sense of the use of official statistics and what people think about them. To the best of our knowledge, the only international survey on these issues is the one recently carried out by the European Commission (Eurobarometer) at OECD’s request in preparation of the second OECD World Forum on “Statistics, Knowledge and Policy (www.oecd.org/oecdworldforum). The survey, aimed at measuring what citizens know about key official statistics and their trust in these figures, was conducted between the 10th of April and the 15th May in the 27 EU countries, plus Turkey and Croatia. Around 1.000 people were interviewed in each country.

A first set of questions concerned to what extent European citizens know key economic figures, such as the GDP growth rate, the unemployment rate and the inflation rate. Other questions try to assess whether citizens think that it is important to know these figures, believe that they are used to take political decisions and trust official statistics. On average, 69% of the respondents consider that it is necessary to know these key economic data, but the variance is extremely high. Cyprus, France, Spain and Portugal are the countries with the highest percentages of citizens (more than 80%) with this conviction. On the contrary, in Slovenia, Lithuania, Bulgaria and Netherlands the percentage of those who believe that it is important to know these figures is between 50% and 60%.

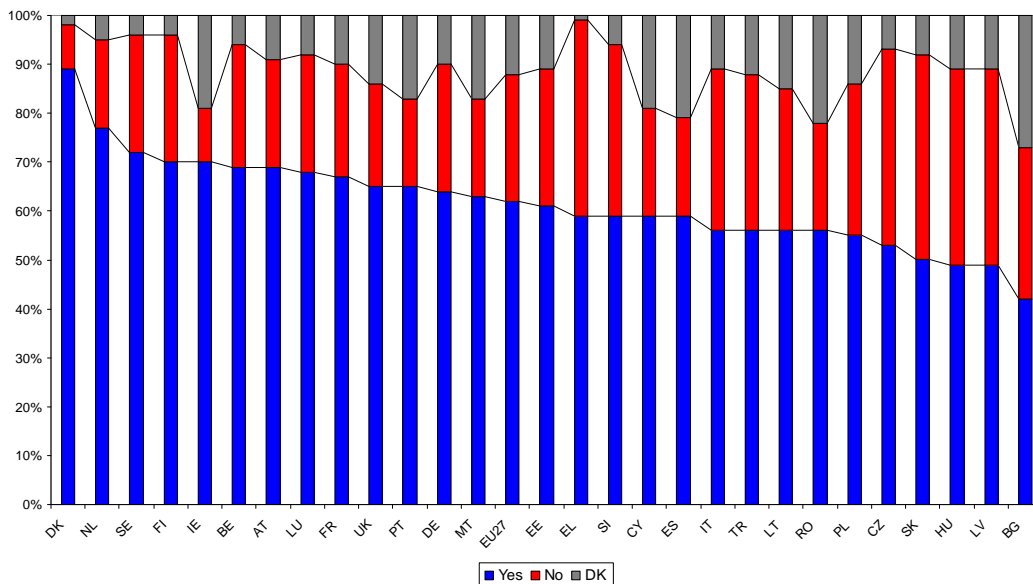
Figure 1 – Importance of knowing key macroeconomic indicators



Unfortunately, the consideration of the high importance to know key economic indicators does not correspond to a good knowledge of them. The survey carried out by Eurobarometer also asked questions about what citizens know about statistics on GDP growth, unemployment rate and inflation rate. The answers are quite discouraging: on average, 53% of European citizens do not try even to indicate the GDP growth rate and only 8% know the right figure. Corresponding figures for unemployment rates are 48% and 11%, while for the inflation rate they are 28% and 6%. And this is not just a European problem, as similar figures have been obtained for United States by Curtin (2007).

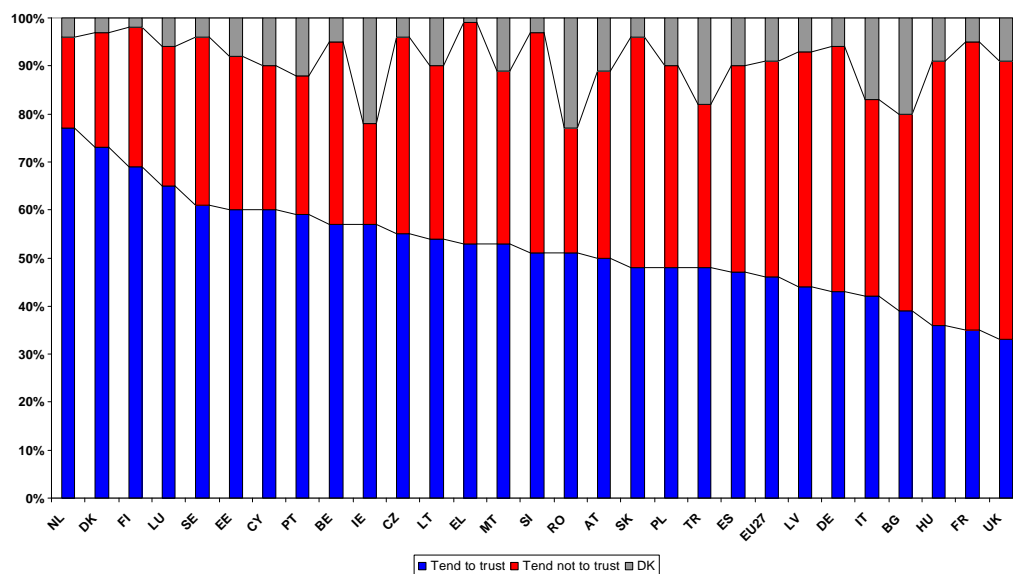
The first conclusion that emerges from these data is that people would like to know more about what is going on in their country, but the actual knowledge of key data is very limited. Is this because they do not pay attention to official data? Is it because they do not trust them? To investigate this issue a second question concerning the use of statistics for policy making was included in the survey: “Some people say that statistical information plays an important role in business, public and political decision making. Personally, do you think that, in your country political decisions are made on the basis of statistical information?” On average 62% of the respondents consider that in their respective countries political decisions are made on the basis of statistical information. Also in this case the variance is quite significant. In general, Scandinavian countries present the highest shares of “yes”: for example, 89% of Danish respondents answered in this way, as well as 77% of respondents from the Netherlands. On the contrary, several former communist countries present the lowest shares of citizens who think that political decisions are taken on the basis of statistics.

Figure 2: Use of statistical information to take political decisions



Finally, the trust in official statistics was evaluated. 45% of European citizens tend not to trust official statistics and 46% tend to trust them. Also in this case the highest percentage of trust is shown in some Scandinavian countries (Netherlands, Denmark and Finland), while United Kingdom, France and Hungary show the lowest trust in official statistics.

Figure 3 - Trust in official statistics



In summary, these results confirm both the existence of a general demand for economic data as part of the global knowledge that people should have to better understand what is going on in their country, and the fact that a large majority of citizens do not know them. They also confirm the serious problem that official statistics are facing today as far as trust is concerned. The strong correlation between the belief that statistical information is used for policy making and the trust in official statistics also show that the way in which they are perceived by citizens also depends on the way in which policy makers use statistics and vice versa.

The significant correlation between trust in official statistics and general trust in government as measured by the Eurobarometer survey (Figure 4) must also be noted. This result seems to indicate that whatever effort a statistical office can make to improve the quality of data, a key element that the public evaluates to decide whether the figures can be trusted or not is the “distance” between the NSO and the government. The good news for European NSOs is that in

the large majority of cases (25 out of 29) the percentage of people who trust official statistics is higher than that of those who trust national governments (Figure 5) and in seven cases the difference between the two percentages is 25% or more.

Figure 4 – Trust in official statistics and trust in national governments

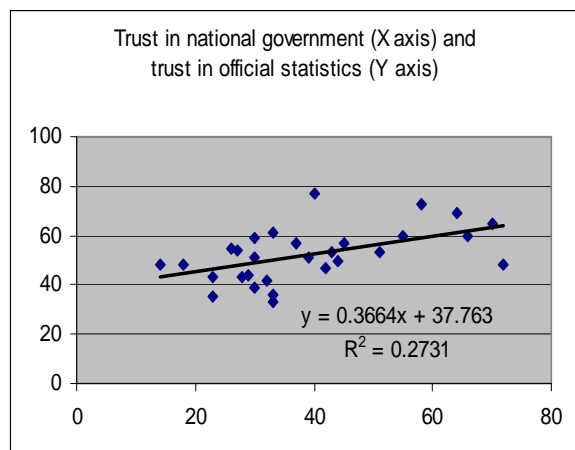
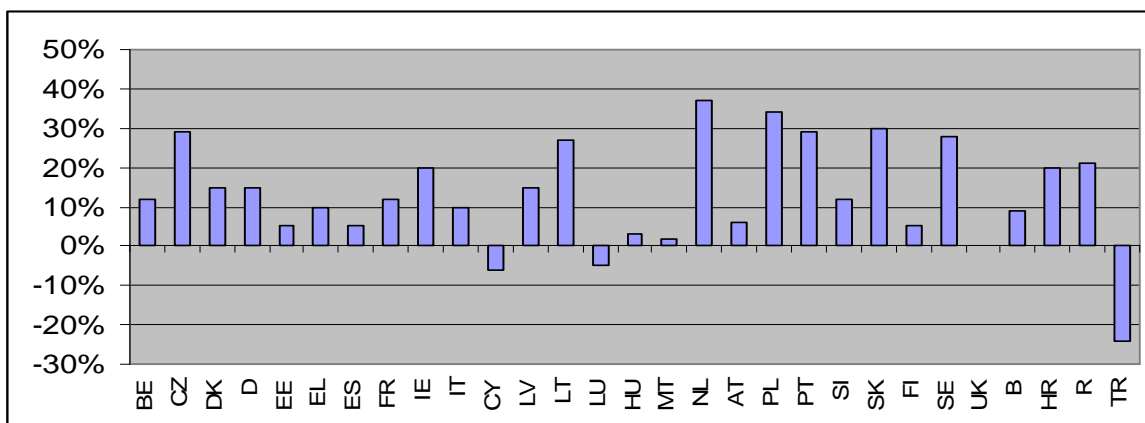


Figure 5 – Difference between trust in official statistics and trust in national governments



BE – Belgium; BG – Bulgaria; CZ - Czech Republic; DK – Denmark; DE – Germany; EE – Estonia; EL – Greece; ES - Spain; FR – France; IE – Ireland; IT – Italy; CY - Cyprus; LT – Lithuania; LV – Latvia; LU – Luxembourg; HU – Hungary; MT – Malta; NL - The Netherlands; AT – Austria; PL – Poland; PT – Portugal; RO – Romania; SI – Slovenia; SK – Slovakia; FI – Finland; SE – Sweden; UK - The United Kingdom; HR – Croatia; TR – Turkey.

Of course, these figures should be carefully analysed to better understand the reasons for these differences. Moreover, NSOs should carefully reconsider the emphasis put on the data quality as the solution to the declining trust in official statistics. In fact, over the last 20 years NSOs and international organisations have been working a lot in this direction. Several approaches have been developed to define quality and to design and implement concrete actions aimed at improving quality and, in this way, increase the credibility of official statistics⁴. Quality reviews of statistical processes/products are regularly carried out both by statistical offices and international organisations. More recently, discussions took place about the possibility of attaching a “quality label” to official statistics produced according to quality guidelines. In the European context the adoption and the implementation of the “Code of Conduct” was identified as an additional tool to increase trust in official statistics.

All these activities are clearly important and need to be carried out. But the results discussed above show that perhaps they are relatively less important to build trust in official statistics. Therefore, what can make the difference? And is globalisation, and the way in which it is perceived by the public and makes the governments perceived, helping or damaging NSOs in their effort to build trust in their products? To answer these questions we have to look at the way in which information is spread in modern and globalised societies.

5. Globalisation and information spreading

This evidence makes clear that, as Einstein said: “information is not knowledge”. Of course, trust in the source of information plays an important role in the way in which people use the available data to make their decisions. Therefore, what people know is not to be confused with the amount of information they receive everyday and absorb from the most disparate sources. Instead, knowledge refers to a complex and dynamic process involving cognitive mechanisms whose effect is not reducible to what is known by the subject at a certain time. Therefore, as the value added of official statistics depends on its contribution to building societal knowledge, it is

⁴ The European Statistical System sees quality as based on the following six dimensions: relevance, accuracy, timeliness, accessibility and clarity, comparability, coherence. IMF uses five concepts: assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility. The OECD uses a seven dimensions concept: relevance, accuracy, credibility, timeliness, accessibility, interpretability and coherence.

necessary to understand how information – and, at a higher level, knowledge – is spread through the population in a globalised world.

Of course, knowledge and information are strongly related to each other, but for a body of information to “become” knowledge through cognitive mechanisms (usually referred to as processes of codification and de-codification) are required. Several models have been developed to explain how these mechanisms work and particularly relevant for this discussion is the model based on the so-called “epidemiologic” approach. Originally developed for cognition and culture by Dan Sperber (a French cognitive scientist), this approach aims at explaining the relation between human mental faculties and social cultural phenomena. Sperber argues that there are two kinds of representations: mental and public representations. The former depends on the functioning of each individual’s brain, while the latter are phenomena belonging to an environment of people who perceive and represent them in a certain way.

The thrust of the epidemiological approach consists in putting the two in relation with each other. In fact, individuals are used to representing mentally the contents deriving from their own experience of life as well as from communication with others, with the effect of creating mental representations that, in turn, end up being shared through language and further communication. This is based on the assumption that “when we say that a representation is ‘shared’ by several individuals, what we mean is that these individuals have mental representations similar enough to be considered versions of one another” (Sperber, 1996). In other words, complex social cultural phenomena are explained by assuming that representations are *both* individual mental representations insofar as it is the subject’s brain that initiates the process of representation, and shared representations distributed among humans.

The concept of epidemiology has been increasingly applied to the study of a large range of phenomena becoming, then, an eclectic term apt to be employed in different areas of study. Recently, economists have also begun to loosely refer to epidemiological processes for economic modelling. In particular, Carroll (2001 and 2002) has recently provided a new explanation of the way rational expectations get formed among people that make appeal to epidemiology⁵.

⁵ Since its early formulation in the 1970s, the rational expectations approach turned out to rely on bold assumptions among which the idea is that agents share equal and costless opportunities of having access to economic data. Thus, on the basis of the same economic information available to everyone, agents are supposed to share also the same beliefs about the structure of the economy and the way future trends can be forecasted. This guarantees a relevant

According to this approach the way agents form their expectations follows rather complex mechanisms that cannot be grasped by the traditional models. In fact, the access to economic data through the channel of global information is costly and sometimes difficult to undertake as well as it comes in different degrees depending on a variety of social and cultural factor.

In a nutshell, the epidemiologic approach says that information is spread in a society like a virus. At the beginning only few people get it, but then each “infected” person transmits it to others, and so on, but every time there is a transmission the information changes a little, like the viruses do. Moreover, in this context two points require special attention:

- first, the news released by media plays a key role in affecting what people know. Since their ‘exposition’ to media varies for many reasons, then it seems incoherent to assume that the amount of information at everybody’s disposal at the beginning of the process is the same;
- second, the degree of “exposure” to the media is not sufficient for a person to be really informed and to process the news so as to show effective knowledge of the contents at stake. For example, some people are likely to be more interested in economic information than others are, and also the capacity of fully understanding and effectively processing it varies a lot across individuals.

Like the spread of a disease through the population, the news penetrates to the agents in various degrees. Moreover, the news which people are exposed to can come from a variety of sources, namely a community of experts, opinion leaders, friends, etc. The formation of rational expectations, therefore, can be modelled on the basis of the mechanisms by which people absorb and process the information spread out by the media or other sources. But what does it mean for official statistics?

If information is spread across the society as a virus, which evolves at every passage, it would be fundamental for NSOs to “infect” as many people as possible at the beginning of the chain. In this way, both the “brand image” of the statistical office would be transmitted together with the data, and the message itself would be the most correct. But this is not what NSOs

uniformity in terms of macroeconomic modelling but brings also a lot of criticisms on the extent to which the theory captures the real phenomena.

normally try to do. Instead, they heavily rely on mass media, such as newspapers, radio, television, etc. who are delegated to present data to people⁶.

To maximise the impact on “classical” media a lot of initiatives have been launched by NSOs, including training courses for journalists. The time of data releases is also chosen to maximise the impact on media. But how effective is this approach?

Unfortunately, there are only few case studies available to shed light on this issue. The most recent one, carried out by R. Curtin (2007) in preparation of the second OECD World Forum on “Statistics, Knowledge and Policy”, provides very interesting results for United States. In particular, his main findings can be summarised as follows:

- the most common source of information on official figures concerning GDP growth, unemployment rate and inflation rate is TV (78%), followed by newspapers (58%), Internet (37%), radio (34%), family/working networks (34%) and magazines (14%);
- the five main TV networks report quite frequently data concerning unemployment rate (83% of cases on average), much less frequently data on GDP growth (46%) or inflation rate (35%). Reports on the CPI and GDP were often given in qualitative rather than quantitative terms, such as “prices rose faster” or “the economy worsened”;
- looking at the 27 most popular newspapers, on average, just 39% of the official reports on GDP appeared, 53% of those concerning CPI and 52% of those announcing official unemployment rate⁷;
- Associated Press and United Press International (the most popular wire services) typically do not mention the specific source agencies (Bureau of Labour Statistics – BLS – and Bureau of Economic Analysis – BEA) in their releases. They usually simply use the phrase that “the government reported...” or at most refer to the Labour or Commerce Department, the parent agencies for the BLS and BEA). This approach has a clear impact

⁶ Of course, Internet also plays a crucial and growing role to reach important, but smaller audiences (academic experts, consultants, etc.).

⁷ “If we presume that the 27 papers with the largest circulations all had access to the wire reports, the lack of complete coverage would be an active decision of the newspaper to not carry the report. It was likely to reflect a judgement about the newsworthiness of the latest figures given their subscribers’ interests. There was a tendency for newspapers to more frequently report the latest official figures when it represented an unfavourable development, which may reflect the greater importance people place on the information content of ‘bad’ news” (Curtin, 2007)

on the “brand name” of the source: the percentage of Americans who have never heard about official data or the source agency is 23% in the case of unemployment data, 34% in the case of CPI and 40% for GDP figures.

Table 1: Television and newspaper reports of official economic statistics: Proportion of news reports that cited official rates, from January 2006 to April 2007

Television Reports

Unemployment Rate		Consumer Price Index		Gross Domestic Product	
CNN	100%	CBS	63%	CNN	81%
NBC	100%	CNN	50%	FOX	50%
FOX	94%	FOX	31%	ABC	44%
ABC	63%	ABC	19%	NBC	31%
CBS	56%	NBC	13%	CBS	25%
<i>Mean</i>	<i>83%</i>	<i>Mean</i>	<i>35%</i>	<i>Mean</i>	<i>46%</i>
<i>Median</i>	<i>94%</i>	<i>Median</i>	<i>31%</i>	<i>Median</i>	<i>44%</i>

Newspaper Reports (top four)

Unemployment Rate		Consumer Price Index (CPI)		Gross Domestic Product (GDP)	
Wall Street Journal	100%	New York Times	100%	Washington Post	100%
New York Times	100%	Washington Post	100%	New York Times	94%
Washington Post	100%	Long Island Newsday	100%	Newark Star-Ledger	88%
Chicago Tribune	100%	Houston Chronicle	94%	Wall Street Journal	81%
<i>Mean (27 cases)</i>	<i>52%</i>	<i>Mean (27 cases)</i>	<i>52%</i>	<i>Mean (27 cases)</i>	<i>39%</i>
<i>Median (27 cases)</i>	<i>44%</i>	<i>Median (27 cases)</i>	<i>38%</i>	<i>Median (27 cases)</i>	<i>19%</i>

Source: Curtin (2007)

In conclusion, according to Curtin, these results:

“suggest that people’s lack of knowledge can be in part attributed to the inadequate communication of that information by the mass media. It was true that news on unemployment was more frequently reported in the media, and people’s knowledge of the unemployment rate was more accurate in the survey. The coincidence is suggestive but does not prove causation”.

What is undisputable is that, in very rough terms, only 50% of key data concerning the US economy is actually passed on citizens by TV or newspapers. This means that the overall value added of statistics is largely reduced by mass media, which filter data released by official sources depending on their corporate policies or political interests. Perhaps this is the only case of public service whose final outcome is decided by the private sector!

Of course, the functions of wire services have been supplanted in recent years by the simultaneous Internet releases of the official statistics. In this way, people from around the globe can access the same data the instant it is released via the Internet. According to data provided by BLS, the full release of the unemployment rate was seen (on May 4, 2007) by 8,243 people, while the release for the CPI (on May 15, 2007) was opened 11,959 times (about 1% of all the visits to their Internet sites on those days). These figures show that, although growing, these alternative communication channels cannot replace the most classical ones.

6. Why should official statistics be relevant for citizens?

Although economic models assume that all economic agents (including consumers) always have full information on all relevant economic variables, the evidence quoted in the previous sections show a very different picture: a large majority of citizens thinks that it is necessary to know key economic indicators, but people are quite ignorant. This is also thanks to the limited efforts done by mass media to disseminate relevant official statistics. Of course, this is not new to economists, who have developed new models to describe this concrete behaviour without abandoning the “agents’ rationality” assumption. As noted by Curtin:

“more recent theoretical advances have emphasized two departures from the standard model. First, rather than simultaneously, information updating occurs in a staggered pattern across individuals and over time. People make decisions about whether to update information depending on the costs of acquiring, processing, and interpreting new information compared with the potential benefits of the new information. ... While there is no universal standard to judge whether the current costs and expected benefits warrant updating economic information, it is nonetheless more likely when the inflation or unemployment rate is high and variable rather than low and stable. These data were collected when unemployment, inflation, and economic growth were relatively favourable and stable, which would imply little need for updating”.

The second modification is that the same information can be relevant for some people and not for another group, and this relevance may change over time. “Being relevant” means that they need that particular piece of information to take a decision (looking for a job, voting, etc.). “Indeed, rather than economy-wide information, it is more likely that local information is more appropriate. Local unemployment rates for jobs that individuals are qualified for are more important than national unemployment rates, and people that consume a greater proportion of their incomes on certain products or services would naturally view the potential benefits of information on those products or services greater than information on overall inflation. The implication of the primacy of these more specific information needs increases the importance of what economists call ‘private’ compared with ‘public’ information” (Curtin, 2007).

This consideration is indeed true if we look at individuals as economic agents. Of course, each individual (a consumer or a producer) faces, by definition, a “local” market and therefore is more interested in the information concerning that particular market⁸. But the situation changes if we look at the individual as a “voter”, because in this case the person should have a direct interest

⁸ Of course, the actual use of information by citizens depends on the cost of acquiring/updating it. In theory, with the development of Internet and other information sources, such a cost should be lower than in the past. Unfortunately, while the cost of accessing information is now lower than ever, the cost of selecting the relevant one is still very high.

However, Curtin’s results show that almost all citizens are able to provide an estimate of the expected inflation in the near future, although they are “ignorant” to the official inflation rate. This result indicates “an independence between knowledge of the official CPI and the ‘private’ information people possess on prospective trends in the inflation rate. The general lack of knowledge of the official CPI does not mean that people do not know about inflation, only that they do not know the official rate most recently published by a governmental agency. Private knowledge about expected price trends, as well as unemployment and economic growth, was widespread, and past analyses has shown those expectations to be relatively accurate” (Curtin, 2007).

in knowing about the overall outcomes of policies. As discussed in Giovannini (2007), in the context of “public choice” models based on the games theory, politicians act following a multi-step process (design alternative projects, hire experts to investigate and predict consequences, select a project and implement it) about which voters have only limited information. At best, they can observe outputs/outcomes, but for many political actions voters are not able to evaluate their consequences, especially if they only become fully visible in the long run⁹.

Analysing various alternatives, the main findings of these models can be summarised as follows:

- a higher probability of observing, through reliable and independent statistics, the policy outcomes narrows welfare losses needed to give the right incentives to the incumbent politicians for examining projects and enlarges the range of examined policies. This suggests that it is in the interest of the citizens to know economic, social and environmental conditions of their country.

⁹ Modelling this situation in game-form, Swank and Visser (2003) consider a representative voter, who derives his utility from specific implemented projects. His preferences are described by the following utility function:

$$E [\sum \delta^t X_t (p + \mu_t)]$$

where E is the expectations operator, t is time, δ the discount factor, X_t is a variable with $X_t = 1$ when a new project is implemented and $X_t = 0$ when the *status quo* is maintained, p is the expected net benefit of the project and μ_t is a stochastic term, uniformly distributed over $[-h, h]$, with $h > |p|$ ⁹.

The incumbent politician has the responsibility of three distinct actions:

- his first decision is whether to design a project ($D_t = 1$) or not ($D_t = 0$). The cost of designing is $C \geq 0$.
- The second decision is whether to examine the benefits of a project ($B_t = 1$) or not ($B_t = 0$). The cost of examination is $W > 0$ and it could be viewed as the effort a politicians needs to understand the project's quality⁹. By paying W the incumbent, *but not* the voter, knows the value μ_t .
- Finally if the project has been designed, the incumbent has to decide whether or not to implement the project⁹.

His pay-off is therefore

$$E [\sum \delta^t (\lambda - D_t C - B_t W) + \phi X_t (p + \mu_t)].$$

According to this function, the incumbent cares about social welfare and the weight $\phi < 1$ represents the degree to which he internalises the effects of project implementation on citizens. He also cares about personal rents, captured by the value λ , which could be seen as “ego rents”, as monetary remuneration plays a limited role in motivating a politician.

The information asymmetry is due to the fact that only the incumbent politician can observe the value of the stochastic term μ_t , by paying W to the examining office. The voter, instead, can only observe $(p + \mu_t)$ with probability α , while with probability $(1 - \alpha)$ he ignores the outcomes of the implemented projects. At the elections he just knows whether a project has been implemented or not, but he does not observe if a project has been examined or not.

- Elections are not an appropriate “stick and carrots” mechanism to enforce an effective political process. Information, instead, plays the main role. As long as indicators about concrete actions and achieved results are a right measure of policy and properly publicised, they may help society to achieve better goals with less resources.

In other words, knowledge about statistical indicators about policies’ outcomes allow for a shift from a game with incomplete information to one with complete (shared) information and this has a relevant impact on the way in which democratic societies work: in fact, in the Nash-Bayesian equilibrium position a Pareto improvement would appear, because of the better definition of incentive constraints and the higher ability that the voter would have to influence the politician¹⁰. This means that, even if for day-by-day decisions, consumers do not need to be aware of all economic and social data, as participants in the democratic game they should be very much interested in them.

7. Risks for official statistics

During one of the debates organised in March 2007 by the United Nations Statistics Division to celebrate the 60th anniversary of the Statistical Commission, Pali Lehola (the chief statistician of South Africa) mentioned the need for official statisticians to carry out “an anatomy of power” analysis to fully understand whether existing economic, technological and social changes are strengthening or weakening the role of official statistics. In this paper we tried to identify the main risks and challenges for official statistics coming from globalisation and related phenomena. As we said at the beginning, globalisation of economic processes, technological revolution and cultural change must be considered together to identify how the world is changing and how this change can impact on statistics. We also argued that the value added of official statistics depends on its capacity of creating knowledge in the whole society, not only among

¹⁰ In equilibrium (known in literature as “Nash-Bayesian”), the strategies chosen by each player are subjected to updates based on the new information available during the strategic interaction. In this case, not only is each player in an uncertain situation, but he can even supply information to others in his own interest. For example, if the game is repeated (that is a realistic assumption, because of new elections), politicians can reveal private information on the state of their actions to increase their expected utility. Therefore, in this incomplete information environment, information is an endogenous variable for policy makers, but indicators shared among all participants could have an impact on the information structure of the game. Given a common information set, voters need only to choose the best action to maximise their expected utility, without being constrained by the update of the information set. Due to this consideration, the game changes into a complete information one.

policy makers. In fact, as demonstrated by public choice models, because of the power of information in our societies, all individuals need more than ever statistics to make their decisions, including the voting ones.

In summary, the most important changes to statistics coming from globalisation are the following:

- Globalisation is fostering the demand for internationally comparable statistics, as well as national data. This demand for very timely data, with a detailed sectoral and geographical breakdown, is mainly due to the growing role of multinationals and international investors, which need to make decisions about the re-location of production processes or the investment of available funds. But also millions of enterprises need data to decide where are the most dynamic markets, the most skilled workers, etc.
- The development of a culture of “evidence-based decision making”, together with the transfer of some decisions from the State to individuals and the growing opportunities created by globalisation, has stimulated an unprecedented growth in the demand for statistics by individuals. Millions of people are looking for the best opportunities to study, to work, to spend their life once retired from work, etc.
- Monitoring policy outcomes through statistical indicators is a common practice in a growing number of countries and at international level. Therefore, citizens need more statistics than ever to exercise their democratic rights, participate in the public debate and select the best politicians.
- The development of statistical methods and ICT have reduced the cost of producing statistics, fostering the presence of new “agents” in the market of statistical information, including NGOs, private companies, lobbies, etc.
- The multiplicity of sources is producing a “cacophony” in our societies, where users feel bombarded by data and have a growing difficulty to distinguish high and low quality statistics. Mass media love “numbers” and quote them as much as possible, without paying attention to their quality.

- The declining trust in governments, as well as the behaviour of media and policy makers, can affect the overall trust in official statistics. The concept of “official” itself is not the most popular amongst new generations and other parts of our societies.
- New ICT tools and the success of Internet are deeply changing the way in which people, especially new generations, look for and find data. According to the Internet experts, 95% of those who use Google do not go beyond the first page of occurrences; once they reach a particular site, a similar percentage of users does not click more than three times to find what they want: if after three clicks they have not found what they are looking for, they quit the site.

Available information indicates that all these phenomena are putting under pressure national statistical offices and international organisations, namely:

- In several countries, a large part of citizens does not have trust in official statistics. As demonstrated in the case of “Euro changeover”, in some countries it is very easy to convince public opinion that official data are less trustful than data produced by unqualified research institutes. In other countries, mistakes in official figures or their misuse during electoral campaigns or by the government easily produced mistrust in official sources. The level of trust in official statistics is correlated to trust in governments.
- Media do not properly quote the relevant data and/or their source. This behaviour makes the official sources less visible and recognised, affecting their overall impact on the society.
- The demand for statistics coming from governmental organisations and international/supranational organisation is often satisfied by suppliers who are not part of “official statistics”. A lot of users prefer to have “quick and dirty” data instead of going through the better established, but often less flexible, more costly and less timely in delivering the results, entities participating in national statistical systems. This behaviour seems fully coherent with a declining value that the society seems to attach to the term “official” statistics.

- The large majority of users do not have the capacity of evaluating data accuracy. The visibility of official sources on Internet (and therefore the likelihood of being used) does not depend on it, but simply on the way in which the websites are built or the metadata are organised and presented to be easily found by search engines.
- National statistical systems have great difficulties in dealing with challenges coming from globalisation. Legal constraints prevent them from exchanging data across national borders and this reduces the accuracy of some statistics, making them less meaningful. Even in the context of the European Statistical System the exchange of microdata between countries is very complicated and there are strong resistances to the idea of compiling more accurate data using international/supranational organisations as “clearing houses”.
- The protection of privacy also obliges NSOs to reduce the sectoral and geographical detail of data concerning businesses: these limitations make business statistics much less relevant for private decision makers and encourages complaints against the burden on respondents, which in turn does not help to foster the public image of national statistical offices.
- Although in a globalised world the demand for statistics on a particular country can come from all over the world, in several countries the dissemination policies followed by NSOs are still largely oriented to serve domestic public institutions and, the investment in multilingual databases is often seen as a “luxury” and not as a priority. The number of NSOs’ publications which contain data concerning other countries is still very limited.
- In several countries, NSOs are facing significant budget constraints which reduce their capacity of investing on new domains or more innovative policies for data collection, processing and dissemination.

8. The need for a more innovative approach: from “information providers” to “knowledge builders”

Looking at the pressures coming from globalisation and the current official statisticians’ reactions to them, a “mismatch” between risks/opportunities and concrete behaviours seems to be emerging. Debates organised at international level correctly identify the threat that globalisation

and other phenomena can represent to official statistics, but the speed at which official statistics is adjusting itself to a very fast changing environment does not seem the most appropriate. Of course, there is a long list of success stories of innovation in several NSOs and international organisations, but the acceleration impressed to the world by globalisation and related phenomena require a very high speed of change. Both NSOs and international/supranational organisations need to become more innovative, proactive and necessarily less conservative and more risk-taking.

During the June 2007 meeting of the OECD Committee on Statistics, some heads of NSOs recognised their tendency to be “conservative”. But why is this? In the paper prepared for the session about the role of NSOs organised in the context of the second OECD World Forum on “Statistics, Knowledge and Policy”, Van Tuinen (2007) argued that there are intrinsic reasons for NSOs to be conservative:

“A ‘law of inherent conservatism’ operates in advanced statistical work program design. ... The mission of official statistics is to provide the society with undisputed information ... Statistical institutions have to guard the authority of their statistics. Therefore they will be reluctant to emphasize the shortcomings or to develop competing (conflicting) information ... Changing the work program is costly. As most statistics are used in the form of rather long time series, the stimulus to be conservative is strong.”

Moreover, Van Tuinen underlines how:

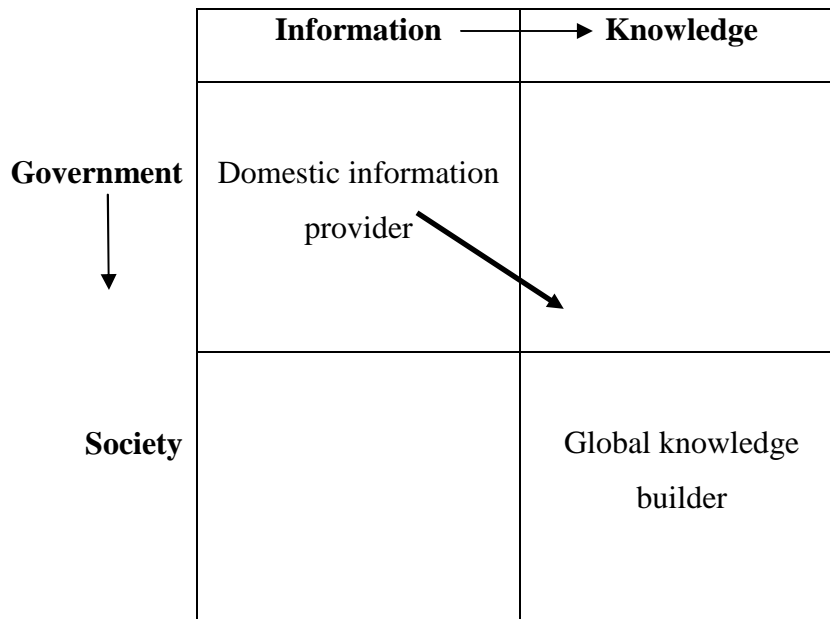
“In modern societies, where an important function of official statistics is to reduce uncertainty and to lower transaction costs, the inclination to statistical conservatism seems to be ‘natural’. This inclination is intensified by structural tendencies to conservatism in other sectors of modern societies. From epistemology it is well known that the scientific world is conservative. New paradigms are confronted with strong opposition and often face a long struggle, needing completely convincing victories over ruling paradigms before being accepted. ... Science and policy are the dominant clients and inspiration of official statistics. Their conservatism contributes to the workings of the law of inherent conservatism in drawing up statistical work programs.”

Some actions can be suggested to fight against the phenomena quoted in this paper:

- create a forward/outward looking culture in statistical institutes, to be able to provide the most relevant information for the whole society and its different parts;
- stimulate scientific attitude, creativity, courage and communication at all levels, to become and be recognised as part of the “knowledge industry”, and not of the bureaucratic public sector (for example, as suggested by Van Tuinen, earmarking at least 2% of the total budget of official statistics for strategic research projects);
- maximise direct communication with the final users using new ICT tools and re-discuss with mass media the way in which they disseminate official data;
- engage emerging players (NGOs, youth associations, etc.) in the use and re-dissemination of statistical information;
- develop a dissemination platform designed for a global audience and include more international comparisons in standard statistical products;
- re-think the way in which statistical releases can be useful to build “personal information” (for example, putting emphasis on detailed data and on variability – across sectors, across regions, etc. – instead of giving prominence to averages);
- take a more aggressive communication attitude against sources characterised by very low data quality;
- investigate how the society looks at official statistics and try to fix the specific problems that emerge from this analysis;
- regularly discuss with political masters the risks and the opportunities for the statistical function in a fast changing society;
- dedicate more resources to initiatives aimed at developing statistical culture in the population, especially in new generations.

All these suggestions are coherent with a vision of NSOs and international organisations as “knowledge builders” and not simply as “information providers”. Therefore, the job of official statisticians should not be limited to produce and disseminate data, but to make statistics actually used to build knowledge by all components of the society, and therefore to be used in as many decision-making processes as possible. This requires innovative thinking, re-orientation of

resources, alliances with new partners, revision of the skills needed to perform these new functions, changes in the legal and institutional set ups, better integration between national and international organisations. In this way, statistics can become more relevant than ever.



Is this just a dream? Maybe, but what happened just over the last 12 months seems to indicate that more and more people think that the dream can come true:

- several “web 2.0” sites have been launched (Swivel.com¹¹, ManyEyes.com¹²), where people can upload, share, visualise, comment on data. Thousands data sets have been created, millions of charts produced;
- Newsweek recently published an article named “Power in numbers”, explaining how “Wiki software is reforming bloated bureaucracies and changing the face of communication”;

¹¹ “Swivel’s mission is to make data useful. If you’re curious about data, Swivel is the place for you”.

¹² “Many Eyes is a bet on the power of human visual intelligence to find patterns. Our goal is to ‘democratize’ visualization and to enable a new social kind of data analysis”.

- After the breakthrough done by Hans Rösling and his Gapminder Foundation, statistical offices, international organisations and others are investing in the development of dynamic animations to present their statistics in a more understandable way;
- The Columbian NSO is producing short video clips where actors perform comedies to introduce statistical concepts and figures to citizens;
- The London School of Economics organised a few days ago a public lecture on “Why thinking-by-numbers is the new way to be smart”;
- An art gallery in New York hosted an exhibition “Running the numbers”, a series of pictures looking at “contemporary American culture through the austere lens of statistics”. Since 8 September the exhibition is now in Seattle;
- Eric Schmidt, the CEO of Google, recently said “Internet tools, like search, ultimately help make the world a better place, allowing more people to access information that affects their lives and make smarter choices when voting for officials”.

These are just few examples to show that something very interesting and potentially revolutionary is going on in our globalised societies and statisticians are facing the historical challenge of renovating their culture and role to maximise their valued added for the new society that is under construction.

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