

W A Wijewardena: The role of statistics and challenges for statisticians

Keynote address by Mr W A Wijewardena, Deputy Governor of the Central Bank of Sri Lanka, at the Stat Day, organized by University of Colombo, Colombo, 26 March 2009.

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Consciously or unconsciously, we use statistics in everything we do in our day to day life. When we say that it rained yesterday, we simply pronounce a fact we have observed as having happened. When we say that it is raining now, we again mention something that we have observed as happening. When we say that it will rain tomorrow, we are predicting a future event. Our life is full of such statements: facts that have been experienced by us in the past, facts that are happening now and being experienced in the present and facts that we feel would happen in the future. What has happened and is happening now are our personal experiences. What will happen are our learned judgements based on our experiences. If we keep these experiences and learned judgments to ourselves, then, it would not form the subject matter of statistics. It becomes statistics only when we share them with others. Hence, statistics is basically, observing, analysing, learning and sharing facts about the real world. That sharing of facts need not necessarily be in quantitative or measurable form. They can be simple expressions in verbal form so that others could form opinions on the happenings in the real world.

Statistics do not have a heart or a religion

When we express our personal experiences, we step into a dangerous territory. Our personal experiences are guided by our emotional and subjective feelings. When we share them with others, we are inviting them to accept our emotional and subjective feelings as if they too have experienced the same. This is where we run into problems. Unless others too have the same emotional and subjective feelings, there is no reason for them to accept our experiences as their experiences. Hence, statistics to be shared by everyone should necessarily be based on objective considerations. In other words, statistics should not have a heart. Its religion should be pure objectivity. It should convey facts as has been observed by an individual free from personal biases or prejudices. Only such an impersonal statistical framework has the capability of serving people intending to use them for making judgments about the real world.

How economic development occurs?

An economy has to play a specific role towards its members. It has to produce and supply goods and services as demanded by them having consideration for timeliness, quantity and quality. When an economy produces these goods and services in larger and larger volumes year after year, new wealth is created, raising the well-being of its members. The continuous creation of wealth by people in this manner raising the overall welfare levels brings about what is called “economic development”. That has become the prime objective of all societies today as has been demonstrated by the choice of the theme of this Stat Day Event.

Wealth is created in any society by people who make choices between consumption and production, decide on appropriate production methods and take risk on what they do. A vital input which they use for this process is “information”. Statistics is nothing but another name for information presented in a more sophisticated and analytical form. Hence, any society desiring to attain the highest level of economic development cannot disregard the importance of statistics.

The use of statistics as an input

If statistics are an input, like any other input, there should be a demand for them. If statistics help people to create wealth, they should be prepared to pay a price to acquire them. When there is a price for statistics, there should be a supply of statistics as well. It, therefore, connotes that there is a market for statistics, like the market for all other inputs. This means that people who have information that can be traded in the market will have to package and sell it. The packaging should be done in such a way that the users would be able to consume statistics as an instant product without having to process them further in-house. This is the biggest challenge which statisticians face today: how to sell their product to would-be users as a readily consumable product and help them to create wealth.

The market for information and statistics

There are market based statistics-producers in developed countries. The market agents are ready to pay a price in order to acquire such statistics. The producers of statistics conduct frequent market surveys, analyse results, supply them on line at a price and help market agents to create wealth. Unfortunately, in Sri Lanka, we do not have such market based statistics-producers. The collection and analysis of vital data that are useful to market agents are being done by a few governmental organisations. Like any other product supplied by the government, such data are also supplied as a public good free of charge. Even when the governmental agencies could sell statistics at a price, they do not venture to do so, because they are guided by such principles as “doing utmost benefit” to people as a social service. The country too, therefore, expects free goods from these governmental organisations. But this creates a problem known as “the agent-principal problem” in economics.

The agent-principal problem

The agent-principal problem is typical to any government service. It says that the agent who is a government bureau or a department or even a university does not have incentive to produce its output at its best. The principal who is the user of the service, on the other hand, is scattered and not in a position to influence the agent to improve quality. This is why in many countries the governments have tried to make the agents amenable to public's requirements through the implementation of such devices as “people's charters”. The result is the production of the agent remaining at low quality, becoming unreliable and failing to satisfy the users. The same fate has befallen the governmental organisations that produce and supply statistics to the public free of charge. Many have witnessed the increasing occurrence of the “misuse of statistics” by those who produce and supply statistics to the market. The Google search machine has documented some 2.5 million cases of the misuse of statistics from around the world.

The misuse of statistics

Why does the production of statistics become unreliable? There are many pitfalls to which statisticians fall when they produce statistics. Wikipedia, the cyber-encyclopaedia, has listed out these errors often committed by statisticians. According to Wikipedia, **“a misuse of statistics occurs when a statistical argument asserts a falsehood”**. It could be due to both accidental and purposeful. When it is purposeful, it is always perpetrated in order to gain an undue benefit to the perpetrator. The danger with the wrongful use of statistics is the creation of a statistical fallacy that would be costly to those who make use of the deliberately doctored statistics. Such statistics are damaging to the quest of knowledge in the sense that, once they are rooted in the minds of the people, it would take years to correct the falsehood that it would have created in the society.

The types of misuse of statistics listed by Wikipedia are as follows:

- First, the statistician may discard the unfavourable data and make use only what is favourable for him to prove his point.
- Second, in field surveys, the statistician may ask loaded questions in order to elicit an answer of his choice.
- Third, the statistician may tend to over-generalise facts and make wrong conclusions.
- Fourth, the samples used may be biased.
- Fifth, the causality outlined may be fallacious.
- Sixth, the data may have been manipulated in order to show a result favourable to some interested party.
- Seventh, data may be dredged or mined in order to find a correlation that would not be there.

How to gain credibility for statistics?

All these instances of the misuse of statistics make the statistics less reliable and suspicious. The governmental statistical agencies throughout the globe are criticised by public on this ground. Once the organisations lose credibility regarding the compilation of statistics, it would be very hard to regain trust and confidence of users. The statistical bureaus run by former Soviet Union and its satellite states have been subject to this criticism. The way to avoid this criticism is to adopt global best practices with regard to compilation and dissemination of statistics. It requires countries to adopt a code of ethics and practices when it comes to dissemination of information. Many member countries of the International Monetary Fund have adopted such a code in the form of signing for following the principles of outlined in a general data dissemination system and, at a more stringent level, a special data dissemination system. The Central Bank of Sri Lanka is a signatory to the IMF's General Data Dissemination System.

The final message

In summary, if statisticians are desirous of supporting economic development, they should necessarily produce and supply statistics to meet the requirements of the market. It is essential that they produce such statistics as a readily usable product that could be sold in the market at a price. It is now time in Sri Lanka for the private statistics-producers to enter the vast market of information. The universities in this sense are in an advantageous position, because they have the best human talents with them. It is unfortunate that they sit idly on this vast wealth of resources. It is time that universities in Sri Lanka reorient themselves to gain advantage from the market resources and become financially self supporting. In addition, the universities should train their statistics students to become entrepreneurs of statistics rather than becoming employees of agencies that may plan to hire statisticians.