

Probability and statistics in Africa

Professor Gane Samb LO, the coordinator of the Statistical Pan African Society, writes:

How many statisticians and specialists in probability theory do we have in Africa? In which research or consultancy fields do they work? What is their distribution over the different regions and countries of Africa, with respect to gender? Where are they trained? Is it possible to have high-level training in these fields in Africa? These are some of the questions we ask ourselves regarding the situation of statistics and probability in Africa. In order to be able to respond to them, we conducted a simple survey and addressed a questionnaire form to some specialists in almost every African country. (Because South Africa is not comparable to any other countries, it is not addressed in this document.)

Amazingly, we only received eight filled forms back (from Senegal, Côte-d'Ivoire, Algeria, Burkina-Faso, Tunisia, Mali, Congo and Togo). If statisticians themselves do not respond to survey questions, what would do others who are less aware of the importance of data? Nevertheless, we made inferences from this very incomplete data set by using other sources and common facts. We give some responses to the questions, and propose strategies for a definitive take on these beautiful, and useful, subjects in the oldest yet most underdeveloped continent.

Africa has been divided, since colonial times, into mostly French-speaking (francophone) and English-speaking (Anglophone) countries, with some Arabic-speaking countries. In the francophone zone, official statisticians are trained in five international statistics schools (see www.ensae.fr/capesa/) after a competitive examination, while the researchers are trained in universities mainly in France. In the Anglophone zone, statisticians as well as probabilists come from the universities.

Official statistics are generally well-

organized in Africa, through the African Centre for Statistics (see www.uneca.org/statistics/) of the Economic Commission for Africa of the United Nations.

On the research side, specialists are very isolated, especially in the Anglophone zone. From our quick survey results, we determined that there is an average of five to ten holders of PhD degrees per country, with some higher peaks in countries like Morocco, Algeria and Nigeria. But the number of active researchers remains low, around an average of five. In most countries, there is at least one Master's training program in statistics and/or probability.

Yet Africa has a few renowned statisticians and probability theory specialists living, working and teaching in Africa, like Professor Youssef Ouknine (www.ufrsat.org/spas/fr/spas_pw_membres.php?cle=19). Most of our specialists are trained in the best universities in the (rest of the) world.

Africa is a young continent in the sense that the 75th percentile of Africans' ages is relatively low, and young people in Africa are attracted to fundamental sciences and mathematics, as shown by data in many of our universities.

It is in this context that the initiative of launching the Statistical Pan African Society (SPAS) was born. It has been enthusiastically welcomed by our 90 founding members in all Africa (with the exception of South Africa). A list of these people, as well as some information about them, may be found at http://univi.net/spas/ang/spas_cherche_membres.php?premler= The website of SPAS (www.statpas.net), via its database, gives information on the specialization fields of the members, their training, activities and publications. We hope that in due course all the specialists will register in these databases so that the above mentioned questions may be responded to in time.

The society may help give more visibility

to research and use of statistics and probability in Africa. We are working on some applications that would permit for example IMS or ISI members to know everything about the situation in Africa regarding these fields with updated information. This program, called the African Visibility Program in Statistics and Probability (AVPSP) provides an automatic personal page to SPAS members, and information about the publications of African scholars (peer-reviewed papers, working documents, textbooks, books), the different masters programs in statistics and/or probability in Africa, and the regional research projects and training programs. This program will be a tool for mutual collaborations inside Africa and for outside exchange between Africa and the rest of the world.

Our international journal, named *Afrika Statistika* (www.jafristat.net) is already online. A biannual meeting that will be a great scientific event, to be held in Africa with attendance by renowned scientists, is in the works. This meeting will be an opportunity to exchange ideas among our members.

SPAS links together African scholars working in Africa and outside Africa. Specifically, African statisticians who teach and work in Western countries (Europe, USA, and Canada) are now able to contribute to African statistical development through the SPAS programs, in the form of graduate teaching, research programs and thesis supervision. SPAS is also expected to concentrate on applied research programs about the major challenges faced by Africa: HIV/AIDS and other epidemics, water policies, the H1N1 flu pandemic and poverty, among others.

We believe that in the coming years, our determination will help paint a better picture of statistics in Africa and present a success story.