

STATUS OF STATISTICS IN AFRICA: THE CASE OF ETHIOPIA

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In spite of the fact that topics in introductory statistics are invariably integrated into different levels of school Mathematics syllabi and almost all university graduates are required to take at least one course in Statistics, the proportion of incoming students to the field of Statistics is not as remarkable as its wider applicability. On the other hand it seems that the needs for appreciating the power and uses of statistics are almost universal today. There is perhaps nothing surprising about this because career is a course of professional life or employment which affords opportunity for progress or advancement in the world. Hence career choice is a reflection of the job market or the social status accorded to the field professionals. This paper tries to investigate the attractiveness of statistics to freshmen as compared to other disciplines in Science (Mathematical science, life science, physical science, Engineering and Pharmacy).

INTRODUCTION

The Central Statistical Authority, CSA, in Ethiopia by proclamation is responsible to provide a relevant and accurate body of statistics through censuses, sample surveys, administrative records and registrations as well as process, evaluate, analyze, publish and thereby disseminate the results and also serve as the country's information center. CSA has accomplished a lot in making available a relatively organized and reliable data in the country. A number of rural and urban household surveys were conducted producing essential information for economic and social management.

STATISTICS TRAINERS

Addis Ababa University (AAU) is the only higher institution that offers a formal statistics training in Ethiopia. The Department of Statistics at AAU runs a two- year diploma program, a four-year program leading to a Bachelor's degree in Statistics and a two-year Masters programs. From 1994 to 2003 the full-time teaching staff ranges from 8 to 20 with an average of 13. The average number of Diploma, B.Sc and M.Sc graduates per year is 16, 38 and 4 respectively during 1994-2003. The pass rate in the three programs diploma, B.Sc, and M.Sc is about 38%, 65% and 89%, respectively. In all programs apart from studying Economics (or Econometrics), Demographic analysis and techniques, students also study computer applications of various software programs used in analysis of problems in Agriculture, Biological Sciences, Health Sciences and other fields.

Employment opportunities therefore lie in various ministries, especially the Ministries of Agriculture, Health, Trade and Industry, Labor and Social, Finance and Education. There are also opportunities in non-government organizations and business groups.

In order to have insight on how statistics is popular among the fields of Mathematical science, life science, physical science, Engineering and Pharmacy at Addis Ababa University. At Addis Ababa University the schools/faculties of Architecture, Biology, Chemistry, Engineering, Geology, Mathematics/computer science, Pharmacy, Physics and Statistics have got a common freshmen program. Though Ethiopia has got more than 6 universities, trainings in Architecture, Geology, Pharmacy and Statistics are offered only at Addis Ababa University. Students who successfully completed the common freshmen program were asked to rank their choice for actual placement for their prospective field of study. They ranked their order of preference from 1 to 9, from the most liked 1 to the least wanted, 9, as their future career. The average rank of each field from 666 randomly selected forms is given in Table 1.

Table 1: Average rank each field

Biology	Chemistry	Geology	Math/CS	Physics	Statistics	Architecture	Engineering	Pharmacy
6.01	6.30	6.07	4.37	6.02	5.25	4.43	2.14	4.41

We test the hypothesis that all the fields are equally attractive against the alternative hypothesis that at least one field is more (or less) favored to others. That is,

H₀: All fields are equally attractive

H₁: At least one field is different from others

The value of Friedman test statistic on the basis of our data is 1258.53. The chi-square test based on 8 degrees of freedom leads to rejection of the null hypothesis. Therefore, a significant difference seems to exist in the degrees of attractiveness of the fields.

Since the hypothesis of being equally attractive of the fields is not found to be tenable, we may ask which pairs of fields are different. This can be answered by applying a multiple comparison test. Table 2 displays multiple comparison statistic to be compared with

where α is the overall level of significance for all tests and k is the number of fields considered, which is 9.

Table 2: Multiple Comparisons

	Biology	Chemistry	Geology	Mathematics	Physics	Statistics	Architecture	Engineering	Pharmacy
Biology	0	6.04*	1.31	34.81*	0.12	16.10*	33.47*	81.83*	33.91*
Chemistry			4.72*	40.85*	5.92*	22.15*	39.52*	87.88*	39.96*
Geology				36.12*	1.19	17.42*	34.79*	83.15*	35.23*
Mathematics					34.93*	18.70*	1.33	47.02*	0.89
Physics						16.22*	33.59*	81.95*	34.03*
Statistics							17.37*	65.73*	17.80*
Architecture								48.35*	0.43
Engineering									47.92*
Pharmacy									

* significant at 5% level of significance

From Table 2, Biology and Geology, Biology and Physics, Geology and Physics, Mathematic/computer science and Architecture, Mathematic/computer science and Pharmacy, and Pharmacy and Architecture have no significant difference at 5% level of significance. But the remaining 30 pairs of fields have shown a significant difference. Hence it is meaningful to apply Page's test in order to assess the order of attractiveness of the fields. Accordingly the Page's test favors the rank of the fields as given in Table 3.

Table 3: The attractiveness rank of the fields

Biology	Chemistry	Geology	Math/CS	Physics	Statistics	Architecture	Engineering	Pharmacy
7	9	7	3	7	5	3	1	3

CONCLUSION

Statistical information that is not shared with users and producers adds no value, and is tantamount to dormant projects that yield no benefits. The important question is: do our statistical offices have capacity to effectively disseminate information? The centrality of statistical information in influencing a wide spectrum of policies affecting all sectors of our economies is well-recognized issue. Nevertheless, the recognition that the production of official statistics have suffered neglect by governments and development partners. Consequently, quality of policies left a lot to be desired because they were not adequately informed by empirical data. The endeavor to strengthen credible statistics Capacity building is certainly required in such areas.

The practice has been that once the census data was summarized, published and disseminated, little or no effort was made to explore variable use of the census information. Why? This is because of poor collaborative activities between CSA and research institutions and Universities.