

TEACHING OF STATISTICS IN NEWLY INDEPENDENT STATES:
THE CASE OF KAZAKSTAN

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The aim of this report is to discuss the state of teaching Statistics in the Republic of Kazakstan after independence. The analysis is addressed to the whole education system, but particular attention is devoted to teaching of Statistics in the Faculties of Economics and Management. The resulting picture is one in which the discipline appears to be still neglected, needing further strong cares and investments in human and material capital, both from Government and University, even though recent encouraging progress have been achieved.

INTRODUCTION

In this paper, the teaching of *Statistics* in the *education system* of the Republic of Kazakstan will be analysed, with particular reference to University and, more specifically, the Faculties of Economics.

In a broad sense, the present situation of Kazakstan represents an emblematic case of how, during the life of the Soviet Union, this subject has been neglected and of at what dramatic extent its developments of the last 60-70 years have been ignored at any kind of education, at the University as well as at the secondary school levels.

In fact, in this country, at the moment of the breakdown of the Soviet Union, the way of looking at the social and economic questions and their development and of considering their role in the society was a very peculiar one and quite different from that existing in the rest of the world, specially in Europe and North America, due to the cultural, scientific and economic choice made by the old central government as far as education is concerned. This strongly influenced the way in which the use of quantitative tools in economic analysis was viewed and, therefore, the way in which the development of Statistics, as the fundamental tool for quantitative analysis in Economics, was approached.

As it is well known, in socialist countries, the economic theory was mainly considered in its sociological characters and the quantitative aspects did not receive much of the attention, perhaps except the questions linked to planning.

On the other hand, the efforts to the strengthening of the scientific research were addressed to a few special sectors, primarily the military and the astronautical ones and no attention was devoted to the developments of the quantitative approach to Economics and Management - that were either ignored or viewed in a very dogmatic way - and, therefore,

of Statistics. Last but not least, the narrowness of financial means prevented making investment in hardware and software.

Consequently, both methodological topics like probability, random variables, sampling theory and sampling survey methods, statistical inference, multivariate analysis, and applied ones like price indexes, National Accounts, GDP estimation and comparisons did not receive the attention they would have deserved, neither as autonomous disciplines, nor as quantitative methods for scientific research in Economics, Business and Management.

As regards theory and methodology, one of the main reasons for the delay is probably to be found in the above mentioned views that constrained many fields of science. As far as applications to Economics are concerned, almost all the useful statistical techniques, like survey systems, modelling, measures of inflation, etc., were not developed, either because the Material Product System (MPS) approach was based on administrative data, or because the prices were fixed by Government.

As a result, the contents of the papers of Statistics which are delivered at University in Kazakstan and particularly at the Faculties of Economics, are very out-of-date and unsuitable for the description and the interpretation of the happenings of the market economic systems and very far from being useful as tools for supporting economic decisions and policy.

This unsatisfactory situation has been perceived by the Government and the newly created (after independence) Ministry of Education, and an opening policy was undertaken, with the aim of strengthening the quantitative content of the subjects already taught and, therefore, of Statistics, and of introducing new statistical disciplines, in an effort of updating the scientific level and of reaching in the long period the standards of the western countries.

THE CURRENT SITUATION OF TEACHING OF STATISTICS

Secondary school level

Despite affirming at the beginning that our interest is basically concentrated on University and the Faculties of Economics, a glance to secondary school level is in order. In this respect, one can say that, contrary to what is now happening in many western countries - where the "culture" of Statistics is sharply growing and strongly supported by Governments, Ministries of Education and National Statistical Institutes, sometimes even at primary school level - in Kazakstan's secondary school, this subject, or some which

might be like Statistics, is totally absent.

University level, Faculties of Economics

Among the initiatives the European Union (EU) has put into practice in recent years with the aim of helping developing countries, the TACIS framework is the one specially addressed to the improvement of the University level teaching in the Newly Independent States (NIS).

In this framework, the projects aiming to develop and update methods and contents of the disciplines which are taught in the Faculties of Economics, Business and Management, as well as to introduce new subjects and topics in order to bring them at a satisfactory western level, hold a prominent position.

For the above faculties to be able to fulfil the requirements of providing an up-to-date training, there is the need for them to approach subjects in a strong quantitative way and therefore to use the best available statistical methodologies and tools. This is the most important reason why Statistics takes a crucial place inside the projects.

Kazakstan is one of the countries that received a broad attention and was included in the TACIS framework.

The activity I have been carrying out in 1997 and which started in 1996 in the framework of a TACIS Project for Kazakstan: “Strengthening of the training capacity of the Kazak State Academy of Management and three provincial training centres”, at the Kazak State Academy of Management (KazGAU) in Almaty and which is still in progress, is illuminating on the matter and allows to look at the state of Statistics in Kazakstan’s Universities from a privileged observatory.

Statistics as such, as a paper to be delivered in curricula, does not still exist, except Probability at the Faculties of Mathematics and Engineering, within a paper of Mathematics.

A little bit different and slightly better is the situation at Faculties of Economics. I take KazGAU as paradigm of the old situation and of the changes that are in progress under the TACIS umbrella (a second example of changing teaching at Faculties of Economics is the KIMEP, which was initially supported by USA aid).

Teaching of Statistics at KazGAU

Higher education in Economics in Kazakstan began in 1932, when the Moscow-

based Institute of Finance started training in Finance and Credit. In 1949, the Kazak State University “Al Farabi” opened the Faculty of Economics and in 1963, the Alma-Ata Economic Institute was opened, which, in 1991, was first renamed the Kazak State Economic University and, after a comprehensive reform of economic laws to support economic transformation in 1993, took the current name of Kazak State Academy of Management (KazGAU). After reform, the five year educational programme was abandoned and replaced with a four year programme. Training is given within five Faculties: Management, Marketing, Finance and Credit, Accounting and Economic Cybernetics, International Relations, all yet to be reorganised. Currently, most of the 3,200 full time and a few hundred correspondence students complete the specialist education only.

Among the topics which are delivered, Statistics takes a very neglected place. A paper on Probability and Statistics does exist in the framework of the teaching of Mathematics, as a semester among the three in which the course of Mathematics is subdivided. Nevertheless, its content is very mathematically oriented and with a very traditional planning, without any mention to the developments of the last decades.

A Department of Statistics and National Accounts does exist inside the Faculty of Accounting and Economic Cybernetics, which delivers a series of papers of Statistics which syllabuses regard topics of an entirely applied content, all concerning outlines of the structure of the national statistical apparatus and of the surveys it carries out and strongly oriented to Demography. All that from an angle they call Social Statistics, now to be converted, according to their view and terminology, into Statistics for Business or Market Statistics. All this is taught in a very conversational framework, without making resort to methods and formulas, except the use of the most elementary tools like ratios and graphs and, it must be said, some interest in using in some way the regression analysis, in at least its basic concepts. Finally, a paper on Econometrics is delivered, which refers to somewhat advanced content and makes use of the Russian translation of a very good English textbook.

Anyway, any quantitative and formalised approach to Economics has to take into account - and in some sense conflicts with - the surprisingly low quality of the mathematical training of students.

On the other hand, this situation is reflected by the state of equipment. Didactic

facilities like typewriters, overhead projectors, photocopying machines are far from widely being found. Computers are non-existent, except some very rare cases and there is not a computing centre. The Library does not have any advanced books on Statistics and also the elementary ones are quite rare. No reference to the international literature on the matter can be found, both as regards to books and as far as statistical reviews are concerned. Only in recent years, some Russian translation of foreign books became available.

In this respect, however, it should be stressed that the above describes a situation which is rapidly changing. In fact, very recently, let's say starting from 1995-96, thanks to the joint efforts of Government and the international co-operation and projects, a flow of computers, software, books and other kinds of equipment is reaching the various Faculties of KazGAU, as well as a new mentality, brought there by foreign teachers, towards the use of data and Statistics, which is more and more viewed as a tool for the analysis and the explanation of the reality and therefore, as a great aid for Government and enterprise policy, rather than a mere tool of bureaucratic and political control and information.

The whole work of the above mentioned TACIS Project has been addressed to the teaching and research advancements of the Faculties of KazGAU. In this framework, I took the responsibility for the improvement of the quantitative content of the topics, that is, of the design of the entire system of Statistics in curricula and, accordingly, of the various syllabuses. Parallel to that, two Masters in Business Administration (MBA) have been introduced in 1996, which meet the international requirements: one in Economics and one in Management, four year programmes, both organised in semesters; now they are at the second year of life, with due attention to Statistics.

Three statistical topics have been designed: *Statistics*, *Economic Statistics* and *Econometrics*.

Statistics has been included in the second semester of the first year, as a compulsory subject for both MBAs (Mathematics being delivered at the first semester); *Economic Statistics* has been placed in the second year, the first semester, compulsory for the MBA in Economics and elective for the MBA in Management; *Econometrics* has been inserted in the third year, the second semester, as an elective for the MBA in Economics.

The contents of the three above papers meet Western standards. In fact, the content of *Statistics* follows the international medium level ones, with an opening of probability and then, continuous and discrete random variables, sampling distributions, estimation

theory, testing hypotheses, regression analysis and time series analysis, all parts being treated at an intermediate level with the aim of providing the students with the basic training in Statistics. The content of *Economic Statistics* is basically one of National Accounting in its broad meaning: the international System of National Accounts (SNA) and therefore, accounts, Gross Domestic Product (GDP) and its components estimation, Input-Output Table, price and quantity index numbers, international comparison of GDP, that is, Purchasing Power Parities (PPP) problems; moreover, some elements of applied microeconomics like consumption analysis and productivity are taught. The content of Econometrics is the classic one that can be found in any western intermediate textbook: from the general linear model up to some multivariate and simultaneous equation methods.

In the framework of the TACIS activities, a Doctor of Business Administration (DBA) has been created, which allows Statistics a major emphasis, both in the theoretical aspects and as far as the applications via computers are concerned.

CONCLUSION

It is not easy at all, within the constraints of these few pages, either to discuss in depth the past and present state of teaching of Statistics in Kazakstan, nor to provide an adequate description of the restructuring that is being attempted and related comments. This is the difficult task I tried to summarise in the above lines.

To conclude, it is worth underlining that a way towards the full recognising of the role of Statistics in the education system has been undertaken. It is far from being satisfactory and above all, adequate to the needs and it will likely take many years of hard work. Nevertheless, it is an encouraging beginning, which is also greatly helped by the open attitude and parallel efforts made by the National Statistical Agency (NSA) of Kazakstan to reinforce the culture of Statistics in society: inside any level of the Public Administration as well as in productive private and public sectors and in households.

Now, there is scope for putting Statistics on stage, since the opening of the country, the activity of international staffs and the sudden discovering of market and business in the quantitative western approach by policy makers, entrepreneurs, households, like a sort of panacea for all problems, have contributed to open the way. Maybe, and paradoxically, this might be now the true problem and become a danger: that is, to look at Statistics as if it was something magic, capable of giving any solution in no matter which circumstances might occur and to reject it after discovering that obviously

this is not so.