

SIXTY YEARS OF TEACHING STATISTICS AT THE UNIVERSITY OF ECONOMICS IN PRAGUE

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Abstract

For six decades of the activities of the University of Economics in Prague (UEP), the statistics was one of the fields of study and the teaching of the theory of statistics (and usually the teaching of economic statistics) was one of the compulsory courses for students of all faculties and programmes. UEP was at its founding in 1953 the successor of the Economic Faculty of the University of Political and Economic Sciences, but the Department of Statistics continued in its work mainly on former teaching statistical-actuarial engineering at the University of Special Sciences. (It was closed in 1952, and from 1953 to 1959 there was the separate Faculty of Statistics at the UEP). The most important representatives of statistics at the University of Economics were graduates of these studies (e.g. prof. Cyhelský, prof. Korda, prof. Likeš, prof. Walter and others). This article summarizes the development of teaching statistics and study literature at the UEP since 50's to the present.

Key words: statistics, teaching statistics, University of Economics, study programmes

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Introduction

The 60th anniversary of the University of Economics in Prague (UEP) is a good reason to reflect on the development of the growing statistics at this college. The Department of Statistics (later three individual departments), the statistical study program and statistical courses, which are compulsory for students of all study plans are constants throughout the history of University of Economics in Prague.

1 The historical roots of statistics at the University of Economics

Historical predecessor of the University of Economics was the College of Business (Vysoká škola obchodní – VŠO), founded in 1919 and cooperated with the union of Prague Czech Technique (see also Šauer, 1958). The statistic courses were lectured by one of our most

important statistics, doc. Josef Mráz (1882–1934)¹. Mráz's lectures included both the statistical theory (engineering surveys, analysis of the data - e.g. the description and the introduction to regression and correlation), and the foundation of economic and demographic statistics. Worthy successor to the doc. Mráz became after his death Leopold Šauer (1901–1983, professor since 1946), the author of remarkable works in which he developed the economic statistics using advanced statistical methods. The education in national economic and financial theory gained in our country traditionally the listeners at law faculties. At Charles University lectured statistics throughout the all interwar period prof. Vilibald Mildschuh (1878–1939), the economist and statistician. At the Masaryk University in Brno lectured the founder of the State Statistical Office – “The Father of Czechoslovak statistics” Dobroslav Krejčí (1869–1936), known for his aversion to modern statistical methods.

The direct predecessor of the statistical study program at University of Economics was the Statistical-insurance study field, grown at the University of Special Sciences². An excellent representative of this field was prof. Jaroslav Janko (1893–1965), who in his lectures and publications used both actuarial mathematics and mathematical statistics, but also the application of modern statistical methods in demography and economy. He also had a significant share in the transformation of the traditional two-year degree at a four-year degree of the Statistical-insurance engineering in 1946 (see e.g. Závodský, 2002).

The advent of the Communist regime in 1948 marked the beginning about ten years of constant changes in the organization of higher education institutions, that have been stripped of their centuries-old autonomy and subordinated to the absolute control (Závodský, 1999a). The procedure was often managed by trial and error, because neither the association with the Soviet models did not lead to a clear solution, regardless of the disagreements between the communist authorities and officials. Many students at that time were excluded during the purges. The College of Business as a representative of the “bourgeois” education institution (although it has been renamed and reformed) was cancelled (since 1949 did not accept new students). The law faculties after the restrictions and reform of studies have ceased to be centres of national economic sciences.

For the education of “elite communist cadres” was established from the study year 1949–1950 The University of Political and Economic Sciences (Vysoká škola politických a hospodářských věd – VŠPHV), the largest of its three faculties was the Faculty of Economics.

¹ Josef Mráz was one of the leaders of the State Statistical Office. His publications and participation in the translation of large textbooks of G. U. Yule: “Introduction to the Theory of Statistics” (1926) significantly contributed to the Czech statistical terminology.

² The university also cooperated as a part of the Prague Czech Technique.

Before than the first students of the University of Political and Economic Sciences graduated, the school have been already cancelled. The Governmental Decree from 19th August 1952 decided to establish the University of Economics on 1st September 1953 by extending the current Economic faculty. One of the five new faculties became the Faculty of Statistics³, which was established from the model of Moscow Economics and Statistics Institute (MESI), (e.g. Egermayer, 1957).

The study of statistical-insurance engineering at the University of Special Sciences passed since the 1949 by radical changes. The study field was divided into Mathematical-statistical and Economical-statistical specialization. In 1952 the University of Special Sciences was cancelled, the Mathematical-statistical specialization (prof. Janko) was transferred into the newly established Faculty of Mathematics and Physics at Charles University. Graduates of the first year of Economical-statistical specialization moved to the Economic faculty of the University of Political and Economic Sciences, which acquired two grades of statistical field from the academic year 1952–1953⁴.

2 Faculty of Statistics at the University of Economics

During the academic year 1952–1953 there was prepared the establishment of the faculties at the University of Economics (see e.g. Herbst, Hlaváček, 1952), there were accepted tens of new employees, with few exceptions only young graduates of universities. One of the first new departments were created (since 1st August 1952) the Department of Statistics under the leadership of an external Ing. František Herbst⁵. The only members were initially Augustin Hlaváček and Ing. Lubomír Cyhelský (* 1929). In the coming months the labour force of the Department of Statistics was strengthened with graduates of statistical studies at University of Special Sciences: Ing. Benedikt Korda (1914–2010) and Ing. Jaromír Walter (1923–2001), from the Ministry of Internal Trade came Ing. Eduard Link (1907–1970) and became the head of the department and also Vice-Rector of the University of Economics (see e.g. Cyhelský. 1992). Also Ing. Ilja Novák (1927–2009) and Ing. Vladimír Roubíček (1930–2005), who came to the department at the beginning of the academic year 1953–1954, studied statistics at University of Special Sciences. At the teaching process were also involved the external persons, of which we can mention especially the famous mathematical statistics Dr. techn.

³ At the beginning of the 50's predominated in our country the tendency to establish highly specialized universities and faculties accordance with the model of Soviet institutions.

⁴ A total of 110 students in daily and 13 in distance education.

⁵ F. Herbst (1909–1977) was at the time the deputy chairman of the State Statistical Office.

Jaroslav Hájek, who published at the University of Economics his first textbook about *Theory of sample surveys* (see Hájek, 1955).

The Faculty of Statistics consisted of only two departments (Department of Mathematics and Department of Statistics), initially employed a total of 16 teachers, none of whom was professor (prof.) or associate professor (doc.). For the listeners of daily and distance learning at the Faculty existed the only one study program – “Statistics”. It was considered with subsequent specializations: “Statistics of industry”, “Statistics in commerce”, “Statistics in agriculture” and “Mechanization evidence”. The study program was initially assembled according to the model of Moscow Economics and Statistics Institute and Soviet textbooks of statistics theory and economic statistics that were quickly translated into Czech by members at the department. In the Union of Soviet Socialist Republics (USSR) at that time (since the 40’s), there was a discussion about the “essence of statistics”, which resulted in a binding resolution, that the statistic = “socio-economic statistics”, which is a social science and therefore the “class science” – the “Marxist science”. In practice this meant the exclusion of “bourgeois pseudo-sciences”, in which were marked e.g. econometrics, biometrics, etc., and also the suppression of “mathematical formalisms” in statistics (it can be e.g. probabilistic methods, regression, but also the harmonic mean, etc.)⁶. What was the structure of the course of Statistics for Economists in the first half of the 50’s, shows the outline of 1951:

*“Statistics as a social science. Political economy and historical materialism – the scientific basis of statistics. Method of statistics. Organization of statistics. Statistical investigation as a starting point of knowledge of social phenomena. The importance of Lenin’s work in statistics. Main methods of analysis of statistical data. Criticism of bourgeois statistics. Statistics as a science of history, of class and of party.”*⁷

The members of the Department of Statistics just in the mid-fifties were gradually replacing the translations of Soviet textbooks by own scripts and left the principles of statistics mentioned above. In reading texts of the theory of statistics, the authors focused on an overview of methods, applicable when examining the economic and social phenomena and processes, while the remarks of Marx and just as of Lenin and Stalin gradually disappeared. The official university textbook: *General methods of statistics*, textbook of 1959 (editorial Ilja

⁶ The theory of probability and mathematical statistics was separated from statistics and assigned to mathematics to the natural sciences.

⁷ The Materials to reorganize the University of 1951. Prague City Archives - The Fund of University of Political and Economic Sciences, carton 15th.

Novák) contains only the explanation of quite extended range of statistical methods⁸ and completely omitted the Marxist introduction or interpretation framework. In the introduction is even advocated the methodological concepts of statistics as one of the possible and reasonable. As the inspiration for authors from the University of Economics for writing “textbooks of statistical theory for economists” was used the first (and for the next two decades the only one) Czech writing textbook of statistical methods, which was written in 1929 by Stanislav Kohn⁹: *The Fundamentals of theory of statistical methods*.

More complicated situation was in teaching of economic statistics, which was at first totally took over the Soviet model, the teaching often slipped to describing the contents of statements, to reading the measured indicators without verifying the overall focuses and interdependencies. In the subsequent years, the lessons gradually got into the more “general” level. Representatives of the economic statistics at the Department were in the 50’s doc. Benedikt Korda (since 1955 the Head of Department), later doc. Josef Kašpar (1928–1968) and prof. Jaroslav Jílek (1931–2007). Under the guidance of prof. Korda, published the team of members of the Department in 1960 the first textbook of economic statistics.

At that time the initial optimistic ideas about the development of the Faculty of Statistics shown like unrealistic. Obligatory “target numbers” for the reception of students at the statistical studies were set as “low” and the next activities of the faculty, consisting of two departments and one study programme were evaluated by management of the University of Economics as uneconomical. The Department of Statistics with its study programme was transferred to the Faculty of General Economics, the Faculty of Statistics was formally cancelled during the reorganization of the University of Economics in 1959.

3 Statistics at the Faculty of Economics

By the Government Decree from August 1959 was the Faculty of General Economics, Faculty of Finance and Credit and Faculty of Statistics merged into the Faculty of Political Economy (in 1968 was named the Faculty of Economics). From the Department of Statistics, (which since the beginning of the existence of the University of Economics provided the teaching of computer science), was separated from the academic year 1959–1960 under the direction of doc. Eduard Link the separate Department of Computer and Organizational techniques, the

⁸ The textbooks on 375 pages deals with methods of sorting, mean values and characteristics of variability, regression and correlation, indexes, time series, sampling methods, tables and graphs, as well as the organization of statistical work and the sources of publications.

⁹ Stanislav Kohn (1888–1933), one of the leaders of the modern Russian statistical school A. A. Čuprov (Polish-Jewish origin), worked in Prague from 1923 to 1933. With textbook and especially with the Czech terminology helped to Stanislav Kohn Josef Mráz (see note 1).

predecessor of today's informatics departments. The following year was the use of computer technology promoted to a separate study field called "Mechanization of national economic evidence", while the statistics became temporarily only one of the specializations in this field.

At the beginning of the academic year 1959–1960 was from the Department of Statistics separated other new department – the Department of Scientific Programming, mainly engaged in econometrics and operations research¹⁰, led by doc. Korda. From the academic year 1961–1962 was opened the new study field of "Economics and Mathematical calculations", the listeners specialized on statistics and on mathematical methods in economics during the study¹¹. After leaving doc. Korda, there was the Department of Statistics led by doc. Jaromír Walter in the years 1959–1961. Later, when he went to Korda's department, became the Head of the Department of Statistics doc. Josef Kašpar. Since 1962, the development of the Department of Statistics is connected throughout the 28 years with the name Lubomír Cyhelský (in 1968 received professorial title, DrSc. degree received in 1981). He is the author or co-author (often with Ilja Novák and Jara Kaňoková¹²) of many textbooks and lecture notes of basic statistics and descriptive statistics, used (not only at the University of Economics) from 50's to 90's (see also Kejkula, Žváček, 1968).

Specialized lectures on Statistical field from the theory of probability and mathematical statistics increased its quality in 60's with the arrival of Ing. Jiří Likeš (1929–1994) and Ing. Jaroslav Hátle (1928-1987)¹³. Ing. Josef Kozák (1931–2005, since 1986 professor) introduced and taught at the Department the time series analysis and forecasting methods, Ing. Václav Čermák (* 1932, since 1986 professor) has successfully dealt with the selection methods. Specializing of Vladimír Roubíček became demographics, on the spring of 1968, he managed to establish the Laboratory of demographics at the University of Economics¹⁴ (see also e.g. Langhamrová, 2007).

The advent of normalization since 1969 affected the whole University very hard, Department of Statistics was one of the less affected workplace. Emerged contacts with statistics in developed countries, however, were subdued, many workers were during two decades prevented to finish the habilitation or professorship, etc. Global fight against revisionism in economics has largely avoided to the teaching of statistics. In the academic

¹⁰ Because the econometrics was still in the memory of comrades officers considered as the "bourgeois pseudoscience", the Department could get the name of today's Department of Econometrics up in 1966.

¹¹ The number of students was around 50 in 60's, on the statistics were generally focused only a small part of them.

¹² Jara Kaňoková (1932–2006), professor since 1987, worked at the Department from 1954 to 1999.

¹³ Both graduates of mathematical-statistical engineering at the University of Special Sciences.

¹⁴ The contribution obviously cannot cover all the important activities of statisticians at the University of Economics.

year 1974–1975, there was due to prof. Cyhelský restored the independent study field called “Economic statistics”, annually in subsequent years was accepted for study usually from 50 to 100 students. The study was (generally at University of Economics) reduced to four years, teaching of statistics was continuously coordinated with the partner department at the University of Economics in Bratislava.

Teaching of the basic statistics courses since the end of 50’s gradually upgraded, but a revolutionary changes occurred. A significant emphasis was placed on the methods of descriptive statistics, regression and correlation was also learned descriptive. Only since the 80’s it could be at least partly possible to use the computers during the teaching. The former practice with schedules allow to match the exercise to lecture, so that the individual speakers have some freedom in teaching (and their students were also subjected to the examination).

4 Faculty of Informatics and Statistics

The whole University of Economics went through radical reform and reorganization in 1990–1991. The new Head of the Department of Statistics has become Ing. Petr Hebák (* 1940)¹⁵, on the spring of 1990 there were promoted professors (prof.) and associate professors (doc.) the “cadre unsatisfactory” teachers. Within the reorganization of the University of Economics, the Department of Statistics was cancelled and since the beginning of the academic year 1990–1991 there were established three new departments (all staff passed the attestation procedure): the Department of Statistics and Probability (head doc. Petr Hebák, from 1992 Ing. Richard Hindls¹⁶), the Department of Economic statistics (head doc. Eduard Souček, then prof. Jan Seger, now doc. Jakub Fischer) and the Department of Demographics (head prof. Vladimír Roubíček, then doc. Felix Koschin, now doc. Jitka Langhamrová), (see also Langhamrová, 2009). All three departments’ help out in teaching and in many ways cooperate in scientific activities.

From 1st August 1991, the University of Economics consisted of five new faculties, as F4 was known the Faculty of Informatics and Statistics, to which they were transferred three statistical departments, Mathematics and Econometrics from the Faculty of Economics, and three computer science departments from the former Faculty of Management. The first dean was voted prof. Jiří Likeš (in 1994 and for the next period), an internationally recognized mathematical statistician (see Závodský, 1999b). University of Economics introduced thanks

¹⁵ Petr Hebák the worked at the Department from 1962–2012 (currently as an external), since 1997 professor.

¹⁶ Richard Hindls (* 1950, professor since 1999), from 2001–2006 Dean of the Faculty of Informatics and Statistics, since 2006 Rector of the University of Economics.

to doc. Jiří Žváček¹⁷ a pioneering “credit system of study” and gradually the three step study system¹⁸. Teaching was significantly expanded by the mathematical and statistical methods in insurance. The main specialization of statistical-insurance engineering was first opened in the academic year 1996–1997, exactly 50 years after the establishment of the same field at the University of Special Sciences. Currently the statistical departments teach at three Bachelor study fields within the study program of “Quantitative Methods in Economics”: “Statistical methods in economics”, “Statistics and econometrics”, and “Socio-economic demographics”. Within the following Master study fields include: “Statistical-insurance engineering” and “Economic demography” (see also Závodský, 2009 and Závodský, 2011). For students from other fields, there are the minor specializations: “Insurance engineering” and “Analysis of socio-economic data”. In PhD study field of Statistics is currently (on 1st March, 2013) 43 registered students.

Conclusion

Since 1998, the part of the University of Economics is also the Faculty of Management in Jindřichův Hradec. Teaching Statistics is there provided by the local Department of Exact methods.

Teaching of compulsory basic statistics course for economists were generally reduced to one semester. Since the beginning of the 90’s, the exercises take place in computer classrooms, the teaching is gradually modernized and partly adapted to applications and software. Substantial changes occurred after 1989, especially in teaching of economic statistics in line with the overall transition of state statistical service to the standards, which are commonly used in developed countries with a market economy (Bartošová, Želinský, 2013). The pioneer in the introduction of the system of national accounting at the University of Economics (also in the Czech Republic) became prof. Stanislava Hronová¹⁹, the author of the first monograph on the subject - together with prof. Richard Hindls - *National Accounting* (1997), (see e.g. Hronová, Hindls, 2010 or Závodský, 2011).

We apologize to all statisticians from the University of Economics, whose scientific and pedagogical activity could not be sufficiently appreciated due to lack of space in the article.

¹⁷ Jiří Žváček (* 1943) was elected to the office of Vice-Rector of the University of Economics in 1991.

¹⁸ The development did not go clearly, for long time coexisted Bachelor study, following Master study and five-year Master study.

¹⁹ Stanislava Hronová (* 1954) works at the University of Economics since 1978, (professor since 2001), currently holds the position of Vice-Rector for Science and Research.

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