

METHODOLOGICAL CHANGES OF AGRICULTURAL STATISTICS FROM THE BEGINNING OF THE 19th CENTURY

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Abstract

Due to the natural conditions agriculture played an important role in the Hungarian economy and the same can be said even today.

The history of independent Hungarian Statistics (including the Hungarian Agricultural Statistics as well) dates back to 1867, while the independent Hungarian Statistical Office was established in 1871 under Karoly Keleti's leadership. Among the first tasks of the independent Hungarian Statistical Office we needed to highlight the importance of surveying, analysing the state of the Hungarian Agricultural Sector, the establishment of the Hungarian Agricultural Statistics.

Over the decades the changing economic, social processes, the development of sciences and technology have been shaped the system of statistics as well as the system of Agricultural Statistics. The statisticians had to follow the changing life, they had to develop, establish new methodologies in Agricultural Statistics decades by decades.

In the case of the more than 150 years old Agricultural Statistics I have defined 5 – more or less homogeneous – periods of time, introducing the main feature of the single periods, introducing the changes of methodology applied in Agricultural Statistics.

Based on the historical experiences I have formulated a few thoughts that might be important even in the case of current Agricultural Statistics.

Key words: agricultural statistics, history, methodology of agricultural statistics, digital era

Összefoglalás

A természeti adottságoknak köszönhetően a mezőgazdaság az évszázadok során mindig fontos szerepet játszott a magyar gazdaság történetében. Ennek köszönhető, hogy az 1867-ben megalapított magyar statisztikai szolgálat az agrárstatisztika kidolgozását az elsők között tűzte zászlajára. Az évtizedek során a gazdasági-, társadalmi folyamatok, a környezet változásai, a tudomány és a technika fejlődése folyamatosan új kihívások elé állította, alakította az agrárstatisztikát. Az agrárstatisztika mintegy 150 éves történetének, módszertanának vizsgálatához öt – többé kevésbé homogén – időszakot különböztettem meg, melyeket az alkalmazott módszertan markáns különbségei különböztettek meg. Míg a kezdetektől az 1867-ig terjedő időszakot (a gyökereket) az államigazgatási adatforrásokból kialakított statisztikák jellemezték, a kiegyezéstől a 19. század végéig tartó időszakot a mai értelemben vett adatgyűjtések, agrárcenzusok megjelenése jellemezte. A 20. század első fele – többnyire a világháborúk miatt – csupán a korábbi gyakorlatok, módszertanok megőrzésére, szerény működtetésre adott lehetőséget. A 20. század második felében váltak rendszeressé a nemzetközi szervezetek (ENSZ, EU) javaslatai, előírásai alapján végrehajtott agrárcenzusok,

de ekkor alakult ki a magyar agrárstatisztika rendszeres adatgyűjtéseinek rendszere is. Az ötvenes, hatvanas, hetvenes évtizedek legfontosabb jellemzője az volt, hogy az adatgyűjtések csak a mezőgazdasági termelésben meghatározottnak tekintett gazdálkodási formákra terjedtek ki. Alapvető változást a kilencvenes évek hoztak, amikor a politikai, gazdasági, társadalmi körülmények változásával az adatgyűjtések egyre inkább kiterjedtek a magán szektorra, az agrárium esetében az egyéni gazdaságokra. Az agrárstatisztika fejlesztésében fontos szerepet játszott az informatika, technika megjelenése, fejlődése is. Az ezredfordulót követően az informatika gazdag eszköztára már nem csak az adatgyűjtések végrehajtásának módját, de az adatok feldolgozását, az adatok kommunikációját is alapjaiban változtatta meg, amiben az agrárstatisztika az esetek többségében élen járt (első reprezentatív összeírás, foltterképek kidolgozása, Egységes Adatfeldolgozási Rendszerbevezetése, térinformatikai ábrázolások alkalmazása, stb.). Vitathatatlan, hogy az agrárstatisztika módszertanának alakításában markáns változásokat hozott az Európai Unió statisztika rendszeréhez történő csatlakozás is.

Introduction

The history of agricultural statistics is the same age as the birth of statistics which aims at observing and presenting numerically the phenomena, processes of the economy and society. Statistics has been present in our everyday life since centuries, it plays an important role in the information activity of the media, serves as the basis of the decisions of decision makers, and there is no science that would not rely on the tools offered by statistics.

The term of statistics was first used in the publications of *Gottfried Achenwall* (1719-1772), German philosopher, historian, economist, jurist for the purpose of analysing the information,

data related to the activity of the state. Researches revealed nevertheless that the word was originally due to his professor, *Martin Schmeizel*, but it was Achenwall who used and published it for the first time. *Martin Schmeizel* (1679-1747) from Transylvania, of Hungarian origin had used the word for the first time in his paper presented at the University of Jena (*Collegium politico-statisticum*, 1723).

Statistics has changed during the decades, adapting itself to the changes of the phenomena, processes, the development of techniques and sciences. The second half of the 19th century was characterized by the emergence of the methodology of descriptive statistics, the propagation of branch statistics. The methodology of statistics in the current sense (micro-, macro- statistics) was developed in the first half of the 20th century. The introduction of the methodology of sample surveys (Andres Kiaer, Arthur Bowley), of the confidence interval (Jerzy Neyman) took also place in that period. The elaboration of the methodological manual of national accounts (System of National Accounts – SNA) corresponded also to that period. In the second half of the 20th century, information technology influenced fundamentally the functioning of statistics in the seventies, IT supported surveys were carried out, increasing number of registers for statistical purposes were developed from administrative registers. More decisive changes occurred in the past decade, the digital world, information boom, globalisation, the accelerated way of life posed new challenges to statistics, with all their advantages and disadvantages.

In the world of information technology, the role of statistics increases considerably, statisticians must help users of statistics to understand properly the data, to be aware of the possibilities and ways of using statistical data. Statistical data misused by the lack of knowledge, or intentionally can cause serious misunderstandings and damage.

Hungarian Agricultural Statistics

In the case of Hungary agriculture – due to the natural characteristics of the country – has always played an important role during the past centuries, and this is the case nowadays as well. Currently agriculture represents 3-4 per cent of GDP, which corresponds to the ratio of developed countries. On the other hand, nearly half of Hungarian households carry out some sort of agricultural activity, which has economic and social implications as well.

The independent Hungarian statistical service was created in 1867, followed by the establishment of the Hungarian Statistical Office in 1871. The Statistical Office lead by Károly Keleti was among the firsts to put on its agenda the elaboration of the system of agricultural statistics. The history of the more than 150 years old Hungarian agricultural statistics is the history of changes. If we examine carefully the history of Hungarian agricultural statistics, we can distinguish 5 – more or less homogeneous – periods, each having its own lessons, messages, even for today.

Milestones of independent Hungarian statistics

Birth of the independent Hungarian Statistical Service

The Hungarian statistical service was founded in 1867, the legal predecessor of the current statistical office was established at that time in the form of the Statistical Department of a Ministry. The Department was led by Károly Keleti, first president of the Hungarian Statistical Office. The Statistical Office established in 1871 was among the firsts to put on its agenda the development of the system of agricultural statistics. The Statistical Office contributed actively to international statistical work as well. Already in the first years of the operation of the Statistical Office, Károly Keleti worked on the elaboration of the European

methodology of vineyard and wine statistics, which served as the basis for the vineyard and wine census conducted in Hungary in 1872. The publication presenting and analysing the results of the census is still available to the readers in the Library of the Statistical Office, the abundance of information and data, the splendid language of the publication fascinate the reader (Keleti, 1875).

The periods of Hungarian Agricultural Statistics

On the basis of my assessments I have distinguished five periods related to the history of agricultural statistics, taking as guiding principle the changes of the methodologies applied.

- Roots of agricultural statistics (from the beginning to 1867)
- Birth of independent Hungarian agricultural statistics (from 1867 to the end of the 19th century)
- Further on the beaten path (first half of the 20th century)
- Changes in agricultural policy and the answers of Hungarian agricultural statistics (second half of the 20th century)
- Accession to the Statistical System of the European Union and the period following it (from 2000 till today)

Roots of agricultural statistics (from the beginning to 1867)

Users interested in data, information in agricultural statistics are in a better position than users dealing with the data of other branches. Surveys on crops – due to the recovery of tithes – had been carried out already in the 11th and 13th century. From the 16th century, when the state took on lease the tithe from the church, the royal chamber introduced – for taxation purposes -

accurate crop surveys, which later were complemented by national censuses. The surveys of the beginning of the 18th century which covered already the production area, the quantity of crop, livestock, and were supplemented in some cases with information on agricultural prices foreshadowed already the outline of a system of agricultural statistics. Although the lands (not being subject to any feudal duty) of the nobility were not included in the surveys mentioned, the problem was alleviated by the fact that at that time great part of agricultural production was carried out in the form of tenure.

The establishment of the Austrian Official Statistics in 1829 was a turning point, followed by the establishment in 1840 of the Austrian Administrative Statistical Directorate. The series of publications entitled „Tafeln zur Statistik der Österreichischen Monarchie” edited by the Austrian Statistical Office contained already data on agricultural production in Hungary (based on the estimates of Hungarian agricultural authorities).

The short period when the Statistical department created under the leadership of Károly Keleti in 1848 functioned allowed only the elaboration of the plans concerning the development of agricultural statistics. After some months of work, the collection of agricultural data was once again taken over by the Administrative Statistical Directorate in Vienna according to the previously established practice.

The most valuable data collection of the epoch was the temporary cadastre of 1850 which aimed at determining the net income per land use categories serving as the basis of land tax. The great merit of the survey was that it covered all the holdings of the country, but the data were based on estimations which was a shortcoming, although the accuracy of the data was far much better than that of previous data. The method of surveying the quantity of crop was also very interesting. The quantity of crop production was determined in the villages by an expert committee. While in the committee the board of the village aimed to define the lowest

possible crop production (yield) averages, the commissioner representing the interests of the treasury in charge of the estimation tried to define higher yields. According to the opinion of the experts of the epoch – due to the different interests reflected in the composition of the committee – the crop yields estimated were mostly near to reality.

From 1860, the Austrian Administrative Ministry ordered the preparation of two annual reports on the situation of the crop production. The data collected were compared with the data of the cadastre, and the corrected data were published in the series of publications „Tafeln zur Statistik der Österreichischen Monarchie”. The data published in the series „Tafeln zur Statistik der Österreichischen Monarchie” had nevertheless the weakness to correspond less and less to reality because of the significant changes occurred in the agriculture of the country (Konkoly Thege, 1927).

The period was characterized by the fact that data collections were carried out by local agricultural authorities, data collected were fundamentally based on expert estimations, meaning that the data were not always accurate, in many cases they must be taken with reservation.

Birth of independent Hungarian agricultural statistics (from 1867 to the end of the 19th century)

The independent Hungarian Statistical Service dates back to 1867, when a Statistical Department was created in the Ministry of Agriculture, Trade and Industry. The Statistical department – through the local authorities – partly continued the data collections launched previously by the Austrians, but it also introduced new data collections. The Department put great emphasis on the establishment of international relations as well. It was a recognition of the work of the emerging independent Hungarian Statistical Service, that the statistical

congress held in Hague in 1869 mandated it to elaborate the methodology of European vineyard and vine statistics. (Kokoly Thege, 1927). It was also due to external support that in 1871 the Statistical department of the Ministry was transformed into the National Royal Statistical Office.

At the beginning the aim of the Statistical Office was not to increase the number of data collections, but to improve the quality of statistical data (the number of data collections raised only after 1880). At that time agricultural statistics collected only data on the sown area of holdings of 100 Hungarian acres or bigger. The surface of the sown area of smaller holdings was estimated by the village prefecture, the quantity of crop production was calculated on the basis of the crop yields provided by economic correspondents.

The first Agricultural Census of 1895

The Statistical Office had elaborated the programme of the first full scope agricultural census with the personal guidance of Károly Keleti, but – due to the lack of resources – the implementation of the census took place only after Károly Keleti's death. The great merit of the census was that it covered all the holdings. The questionnaires collected data on all the fields of agricultural production. It was a serious progress that the consistency checking, control figures incorporated in the system of questionnaires contributed considerably to the improvement of data quality. With a little exaggeration we can say that it foreshadowed the outline of a system of quality control. The data collection was performed by the enumerators – under the supervision of the officials of the municipality, - their work was controlled and assessed by the committees of the municipality.

Hungarian Agricultural Statistics have been modernized on the basis of the results of the Agricultural Census conducted in 1895. The law on the Agricultural Census stipulated also

the introduction of the annual livestock counting in spring, though at that time cattle counting was still based on estimations (Konkoly Thege, 1927, Oros, 1999).

Further on the beaten path (first half of the 20th century)

From the turn of the century to the outbreak of the 1st World War, the implementation of agricultural data collections did not undergo substantial changes, the outstanding event of the period was the livestock counting of 1911.

During the World War agricultural statistics faced also serious problems, the number of data collections decreased, the reliability of data deteriorated, the activity of the Statistical department of the Ministry decreased also to the minimum. 1919 was the worst year when the Statistical Office did not conduct any agricultural survey.

The „revival” of agricultural statistics took place in 1921 only, when the conduct of an Agricultural Census was also planned. Due to the limited resources – as in so many occasions – only the previous annual agricultural surveys were implemented.

Statisticians made efforts to decrease the number of estimations, they urged instead the implementation of questionnaire-based surveys. In 1921-1922 the data of holdings of 20 Hungarian acres and bigger were already collected with questionnaires, the data on smaller holdings were collected on registers.

Data on yields were collected twice a year, preliminary data were estimated at harvest time (by the agricultural supervisors). The final data on yields related to holdings of 20 Hungarian acres or bigger were also collected via questionnaires. Data on smaller holdings were still based on estimations. Statistics on thrashing were introduced among others for controlling the yields of cereals. The implementation of data collections, the preliminary data processing continued to be the task of the local agricultural authorities (Konkoly Thege, 1927).

Agricultural Census of 1935

At the beginning of the 20th century, a new Agricultural Census should already have been implemented decades ago, in fact the second full scope census was conducted in 1935 only. Hungary carried out the census upon the recommendation of the International Agricultural Institute of Rome, predecessor of the Food and Agricultural Organization of the United Nations (FAO). Although the implementation of the Agricultural Census was not as successful as the full scope Agricultural Census of 1895, nevertheless the results were useful in many respects. The census showed that between 1895 and 1935 agricultural production hardly developed (we could even say that it stagnated), basically due to the half feudal system of holdings.

Beyond the regular agricultural surveys, there was an attempt in 1942 to conduct a full scope survey on agricultural production (including the agriculture of the re-annexed areas), but even the most important results of the survey could only be published by the Statistical Office in the Statistical Yearbook of 1948 (Oros, 1999).

Changes in agricultural policy and answers of Hungarian agricultural statistics (second half of the 20th century)

The tasks and activity of the Statistical Office changed radically after the 2nd World War. The competence, tasks, staff number of the Hungarian Central Statistical Office (HCSO) increased with the introduction of the so called “planned economy”. In 1952, the creation of the regional offices of the HCSO brought changes, the implementation of data collections became the task of the HCSO. Within the county directorates of the HCSO, local offices were established in each district. They had the task to implement data collections, agricultural

surveys, including the annual compilation of the farmers' register, the full scope livestock counting, survey' implementation on sown areas, crop estimation and the determination of yields.

In parallel with the Office, the Ministry of Agriculture collected also data on the state and cooperative sector (the surveys, data collections performed by the Ministry were mainly oversized and inaccurate). There was a year when state farms had to fill in and send to the Ministry of Agriculture a questionnaire containing 40 thousand data, 50 thousand in the case of forestry.

As Hungary joined FAO in 1945, the idea of conducting a full scope Agricultural Census emerged the same year, but the planning of the census ended when Hungary left the FAO in 1953. In the following years the Statistical Office carried out instead of the Agricultural Census a countrywide Orchard survey in 1959, a countrywide Vineyard survey, and the survey on machinery in 1960.

The 1960ies brought again significant changes. Domestic agricultural production began to spread among the population of the villages. While detailed and abundant information was available on big farms (state farms and cooperatives of production), hardly any data, information were available on the households' agricultural activities, on the small scale production that represented 30-35 per cent of agricultural production. [Oros, 1999, Laczka, 2004].

Agricultural Census of 1972

In the seventies, as a result of national and international requirements Hungary joined the World Agricultural Census of FAO in 1970, the first Agricultural Census in the current sense took place in 1972. For developing countries FAO recommended the implementation of a

minimum programme and for developed countries that of a maximum programme. In 1972 Hungary implemented the maximum programme. As for the big holdings the majority of the requested data were available (from the state reporting system and official statistics), the HCSO collected only supplementary data in their respect. On the other hand, basic production data had to be collected on the agricultural activity of households. A full scope survey and 8 representative surveys based on the full scope census were implemented concerning agricultural activity of households.

As the task was to assess the total output of Hungarian agriculture, Hungarian statisticians defined for the first time the holding concept (threshold) related to households (private holdings). The agricultural census of 1972 produced a lot of information that had been totally unknown previously. It revealed that nearly half of the population of the country participated in agricultural production, nearly all social strata were represented among small farmers (Oros, 1999). In the Hungarian agricultural profession, the notion of „small-scale production” was introduced by statisticians.

Agricultural Census of 1981

In 1980 Hungary joined the decennial World Census round of FAO without prior discussion (the census was implemented in 1981), striving nevertheless to implement a more cost-efficient, but limited census programme than in 1972. Beyond the survey on big holdings supplementing the state reporting system, a full scope survey and 5 representative surveys were carried out concerning small producers, households' agricultural activities. The fact that the time-use survey conducted in 1982 observed already the social characteristics of “small producers” illustrates the good professional cooperation that existed between the departments of the HCSO. It was also an important achievement that the office opted for conducting

quinquennial sample surveys (in 1976 and 1986) to follow the structural changes of small scale farming (Oros, 1999). With the purpose of ensuring the international comparability of time series, statisticians continued to use the definition of private holdings (threshold) defined in 1972.

Agricultural Census of 1991

Land privatisation following the change of the political, economic and social system caused structural changes for the third time, which were among the biggest changes occurred in fifty years in Hungarian agriculture. Many households acquired lands, but many of them did not endeavour or – in the lack of the necessary skills – could not undertake to cultivate the lands, thus important areas were not cultivated. Property and land use conditions changed, the structure of production and resources were transformed, which meant that Hungary took part in the 1990 World Agricultural Census of FAO without hesitation.

The objectives of 1991 agricultural census were realized with the coordinated implementation of several surveys. In 1991 the Agricultural Census used and complemented the state reporting system and the surveys of the HCSO for the data needs on big holdings. One full scope and 2 sample data collections were implemented for households dealing with small scale production (Oros, 1999). The concept of private holdings (their threshold) remained unchanged.

Agricultural Census of 1994

The agricultural census of 1991 could report only on the initial stage of the process of transformation, it was not yet possible to reflect structural changes. In 1994 the HCSO

attempted to present the changes in their complexity, but the census failed to achieve its goals as it did not cover the holdings of the (new) farmers living in towns. [Laczka, 2010].

Regular annual surveys in Agricultural Statistics (from 1950 to 2000)

Beyond full scope census, regular annual data collections must be mentioned as well. The annual, regular data collections were in each case based on the results of the previous census. Their most important characteristic was that the surveys covered only the forms of farming that were considered as decisive from the point of view of agricultural production. Accordingly, in the fifties, sixties, seventies only state farms and cooperatives of production were obliged to provide data on a regular basis. During these years, the holdings with small scale production provided data in the case of the Agricultural Census only, although data provided by the big farms contained some information related to small scale production as well.

As contrary to land use, animal husbandry was not limited at that time either, the increasing livestock of households has been included in the statistical surveys since 1950. In the initial stage data on livestock were collected annually in the form of full scope surveys. It was in the middle of the fifties (1957) that sample livestock surveys were introduced and became regular in relation to the livestock of small holdings as well.

Fundamental changes appeared in the nineties. The work of the statisticians working at that time deserves to be praised, as they were able to react quite quickly to social and economic changes. The sample surveys concerning private farms were gradually extended to crop production and later to land use (Oros, 1954, 1999).

Accession to the Statistical System of the European Union and the period following it (from 2000 till today)

Preparation for the Statistical System of the European Union

Negotiations for EU-accession began in the middle of the nineties, giving quite a lot of tasks to statisticians dealing with agricultural statistics (at that time, the expected date of accession was the turn of the millennium). In the case of agricultural statistics, the work accelerated at the end of the nineties. The EU legislation in vigour at the epoch represented 1200 pages, this huge amount of legal texts had to be compared with the practice of Hungarian Agricultural Statistics.

Statisticians examined all the legal texts related to the different fields of agricultural statistics in the light of the Hungarian practice and classified the fields into three groups. There were statistical fields where the Hungarian practice was fully compliant with the corresponding *Acquis Communautaire*. The second group contained statistics that needed modification and the third group covered tasks that were considered new tasks for Hungary. With some simplification we can say that in 1999 each group corresponded respectively to one third of Hungarian agricultural statistics. The examination of all the items made also possible for statisticians to define in detail the respective tasks of the Ministry of Agriculture and its background institutions, and those of the HCSO, which resulted in the signing of a cooperation agreement. The agreement of cooperation put an end to the previous discussions, tensions. The division of labour was based on the “concept” that estimations, and similar tasks belonged to the competence of the ministry, while the HCSO was responsible for the areas of Agricultural Statistics covered by statistical data collections (Laczka, 2010).

In the following part of the paper, I would like to present briefly some important tasks in agricultural statistics without being exhaustive.

Agricultural Census of 2000

The agricultural census 2000 had the peculiarity of being conform to FAO recommendations, but it also fulfilled the requirements of the European Union. The full scope survey (census) of the output of the Hungarian Agriculture and the conduct of a full scope Vineyard and Orchard survey were in a certain sense a condition for accession.

The Agricultural Census 2000 (AC 2000) covered natural and legal persons engaged in agricultural activity on the territory of Hungary and holdings without legal personality. According to the law holdings with legal personality and without legal personality performing agricultural activity were obliged to provide data independently of their branch classification. Holdings realizing agricultural activity fulfilled their obligation to provide data on the basis of the National Statistical Data Collection Programme (OSAP). In the case of natural persons, the basic unit of the survey was the household.

The census was implemented with the reference date of the 31st of March 2000, the HCSO collected data on demography, employment, land use, livestock, machinery and assets. The census served as the basis for the sample surveys carried out in August and December 2000 which focused on the yields of crop production, livestock, livestock production statistics and the important parameters of machinery. The Agricultural Census 2000 dealt already with the environmental implications of agricultural production.

The Council regulation (EEC) 571/88 on the organization of Community surveys on the structure of agricultural holdings prescribed a statistical coverage of 99 percent for the output of the agricultural production in the Member States. The threshold value of 1972 satisfied the requirements concerning private holdings. In order to inform users the earliest possible – in 2000 – the HCSO compiled and published the preliminary data of the census within six

months after census taking, on the basis of a 1% sample. This solution has become a tradition in the case of censuses. (Laczka, 2010).

Agricultural Census of 2010

At the beginning of 2010 a broad debate developed in the European Union concerning the Common Agricultural Policy (CAP). Three-four meetings about agricultural policy were held in Brussels every week. It was obvious for statisticians as well that the CAP reform would affect the information system of the European Union, the new agricultural policy generated new information needs. Regulation (EC) No 1166/2008 of the European Parliament and of the Council on farm structure surveys and the survey on agricultural production methods was adopted after two years of preparatory work. According to the new regulation the EU all Member States are obliged to carry out in 2010 a survey in the form of a census, and in 2013 and 2016 sample surveys, it also stipulated that data had to be provided on the location of the farm with geographical latitude and longitude coordinates. The regulation stipulated also that the statistical surveys had to cover 99 percent of the agricultural area and livestock of the country. The threshold value defined in 1972 proved to be acceptable this time also – with some minor modifications.

The questionnaire of some eight pages of the Agricultural Census 2010 made also possible for the HCSO to retrieve certain data (data on organic farming, production of quality wine, subsidies) from administrative sources. Data, information on environmental impacts were covered by the sample survey on agricultural production methods. In 2010, the HCSO made possible for the farmers of the bigger private holdings to provide data via the post office (instead of a personal interview at the holding). (Laczka, 2010).

The Vineyard and Orchards Census of 2001

Due to its climate conditions, in Europe Vineyard and Orchard plantations cover a greater proportion of agricultural area than in other parts of the world. The situation in Hungary is similar to that of the Mediterranean countries where compared to the size of the population a much greater quantity of grape is produced than in the countries in the Northern part of Europe. The difference in relation to other fruits (mainly apple) is not so significant. For this reason, around the turn of the millennium Mediterranean countries considered the Central European countries before EU accession as competitors, and consequently they were expected to provide a new, reliable picture, statistical data on the situation.

Due to the structural changes that had occurred in Hungary in the sectors of vine and fruit production, the conduct of the plantation census was a timely task to satisfy national needs as well (the previous plantations censuses had been carried out at the end of the 1950-ies and the beginning of the 1960-ies).

The two basic observation units of the plantation census of 2001 were the users of the vineyards and orchard plantations and the plantations themselves. During the first phase of the census, enumerators collected the data on users of plantations, in the second phase they surveyed (on the spot) plantation characteristics. The multi-level organisation of survey implementation made possible the linking of quality control tasks, the operation of a unified system ensuring statistical and professional data quality.

One of the peculiarities of the plantation census was the design and use of „spot maps” prepared by the Institute of Geodesy Cartography and Remote Sensing (FÖMI). On the basis of remote sensing data, the experts of the Institute marked on a topographical map the presumed location and size of holdings. The supplemented topographical maps prepared with a new technology supported the design, organisation, implementation of the survey, but also

the validation of the data collected. This was especially important, because at the turn of the millennium there were no updated vineyard and orchard registers. It was for the first time that geo-coordinates were used to present the data of the Vineyard and Orchards 2001, which has been called „ÜST”. (Laczka, 2002).

Economic Accounts for Agriculture (EAA)

The purpose of the Economic Accounts for Agriculture (EAA) is to analyse the process of agricultural production and the primary income generated by it. The EAA are a satellite account of national accounts.

The legal basis for the annual compilation of the EEA is Regulation (EC) 138/2004 of the European Parliament and of the Council, the methodology has been developed by Eurostat, data are published since 1964. Concerning Hungary, data from 1998 are available. The EEA are composed of production, income and capital accounts, which allow to assess, present the internal relations of the agricultural sector, and prepare sectoral models. EEA accounts are compiled three times a year by the HCSO and the Research Institute of Agricultural Economics (AKI) jointly. The first estimates are calculated in November of the reporting year, the second estimates in January after the reporting year, the final, complete accounts are compiled by the HCSO and the Research Institute of Agricultural Economics in September after the reporting year. It is obvious that before the end of the reporting year (in November), only very few statistical data are available, the first, preliminary results of the EAA are essentially based on estimates. The situation is only slightly different in the case of the second preliminary results (in January after the reporting year), when estimates are still prevailing. This is the reason why the first and second estimates are the main responsibility of the Research Institute (AKI), while the compilation of the final data (in September after the

reporting year), are of the responsibility of the HCSO. In autumn after the reporting year, statistical data necessary for the compilation of the EAA are already fully available. The joint compilation of the EAA introduced during the first years of the new millennium is one of the most meaningful examples of the cooperation between the HCSO and the Research Institute (AKI) and of professional cooperation in general.

HOMBÁR and the Unified Data Processing System (EAR)

Finally, I would like to mention among methodological developments an innovation that data users perceive only indirectly. These are two systems of statistical data processing (HOMBÁR and the Unified Data Processing System – EAR). The concept of data processing is fundamentally different from the previous practice. The basic idea of HOMBÁR and EAR can be compared to the use of LEGO bricks. IT experts program „mathematical operations” according to the requirements of the statisticians, who use and reorder them during data processing which is led and managed by statisticians. The HOMBÁR concept was elaborated and introduced between 2000 and 2005 as a result of the dreams of agricultural statisticians. After 2010 - based on the good experiences of HOMBÁR – the HCSO extended the system to nearly all the fields of official statistics. The great advantage of HOMBÁR and EAR is that they provide statisticians with a new IT tool. The processing of statistical data is under the direct control of the statisticians, the system integrates statistical and IT work in line with the requirements of our epoch.

The contribution of Agricultural Statistics to the Hungarian Statistics

Agricultural statistics are one of the most multifaceted fields of statistics. On the one hand because from the use of administrative data, registers to traditional data collections and macro

statistics (satellite and national accounts), everything can be found in the agricultural system, and this applies to the use of the methodological tools as well. Due to the complexity of agricultural statistics we can say – with some exaggeration – that agricultural statistics reflect the statistical tasks of official statistics.

This should explain that during the decades, agricultural statistics have always been one of the flagships of statistical developments. The livestock counting in the form of a sample survey (1957) was one of the first sample surveys in the Statistical Office, the use of the concept „small scale production” was introduced in the agricultural literature by the Agricultural Census 1972. The solution elaborated at the time of the Agricultural Census 2000 ensuring the quick production and publication of preliminary data (processed and produced on one percent sample) is still applied. The „spot maps” elaborated and used during the Vineyard and Orchards Census 2001 were original and new, modern tools, similarly to the GIS application of the census results. The first census when two third of the data were based of administrative data sources (the Vineyard Census 2009) was also the result of the developments in agricultural statistics.

The HOMBÁR system elaborated 2000-2005 by the staff of the Department of Agricultural and Environmental Statistics (with the support of an EU project) was also the merit of agricultural statisticians.

Agricultural Statistics nowadays

The decade after the millennium brought again significant changes in the life of statisticians. Changes occurred again in land use, land ownership, it became indispensable to observe these changes. It is not an easy task neither for the owners of registers nor for statisticians to reflect (update) these changes, and it is not easy either to define accurately agricultural production,

the population of producers. The task is all the more challenging that the structure of Hungarian agriculture resembles in many respect that of the Mediterranean countries. There are many small production units engaged in agricultural activities, but due to their high number, the quantity of agricultural products they produce, the role of producers in the production of agricultural products cannot be neglected. The products produced can on the one hand influence the market, but it is also indispensable to examine the social conditions of producers. Consequently, statisticians have to determine the population observed in the more accurate way. It is necessary to differentiate the units of production considered as holdings „only” from the point of view of statistics and those which can be considered holdings in an economic sense. Numerous publications have been published since the millennium concerning the concept of holding in statistical and economic sense, calling the attention to the phenomenon and the usability of data.

It is the task of agricultural statistician to decide which data sources, which data collection methods should be used to observe the different economic groups. Obviously different data sources, different statistical procedures, methods should be used in the case of small and big units of production. It is also obvious that in the case of small units, estimations, modelling are more practical and cost efficient. Thanks to technical development, information explosion, the elaboration of new solutions is an exciting challenge for statisticians, good quality estimations should not be a problem nowadays at all.

Conclusion

Nowadays the life of statisticians is determined by the influence, the advantages and disadvantages of the digital world, information boom and globalisation. Changes are more

significant than ever, today it is not possible to give traditional answers to challenges, to use traditional solutions. In this situation statisticians can learn from the history of agricultural statistics as well, including the failures and successes. Let us just consider that – similarly to agricultural statistics in other countries too – agricultural statistics started with the use for statistical purposes of data collected by the state for taxation purposes. Huge amount of estimations used in agricultural statistics were later gradually replaced by (factual) data collected via questionnaires. Thanks to technical, IT, scientific development, IT has become in the seventies one of the most important tools in statistics, administrative and statistical registers have become part of the life of statisticians. The digital world requires once again a paradigm shift. Today the mass of data, information existing in official statistics, in the research and private spheres must be used for statistical purposes, they must be integrated and standardized. The role of estimations increases again in the work of statisticians, but nowadays estimations should be based on mathematical, statistical methods which together with modelling gain weight and their application requires a deeper, more thorough knowledge than before.

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