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# LECTORI SALUTEM!

*One of the oldest tradition of the 130 year old official statistics from the "founder father" Károly Keleti is the openness towards the foreign countries, its connections with the international organisations of statistics and foreign statistical offices and its active participation in the work of various forums of the official and scientific statistical life.*

*The participation and co-operation had taken part in the last century chiefly on the occasion of International Statistical Congresses as later on within the International Statistical Institution and its sections and after the II World War – from the middle of the century – the same is going on on the professional forums of the UNO.*

*Nowadays, at the time of strengthening the European integration and the establishment of the European Union becomes definitive the co-operation with the EUROSTAT and the Hungarian statistics plays an important role in the preparatory work of joining the Union.*

*Although the working relationships are stable and continuous, it is of prime importance for us to introduce the results of the research work, analysing and serving the economic transition both on the field of the economic and social statistics, to the international professional public too.*

*The opportunity was given by the occasion of publishing the 75th volume of the Statistical Review the journal of the Central Statistical Office. The editors wish to make this significant by a special number publishing in English the studies of determinant personalities of the Hungarian statistical life.*

president
of the Hungarian Central Statistical Office

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# NEW TASKS OF HUNGARIAN STATISTICS – ON THE WAY TO THE EUROPEAN UNION

TAMÁS KATONA

The development of Hungarian statistics has been characterized by continuing revivals since its birth, i.e. since the beginning of *Károly Keleti's* activity. In the course of this, several factors have always been taken into consideration:

– the formation of the requirements of domestic users,
– the international development and new tendencies of statistics.

As early as the end of the last century Hungarian statistics, as regards the requirements of domestic users, laid equal stress on the demands for information of the decision-makers, on the necessity of the development of statistics serving science, and, at the same time, on informing the wide strata of Hungary's population about the economic and social situation of Hungary. It is very important to emphasize that, as there are several countries in the world where statistics used to be strongly subject to decision-makers, in many cases the scientific demands were considered as being of secondary importance and the comprehensive domestic information was often communicated to organizations other than statistical ones.

As regards international outlook, however, I could mention a series of examples in this respect, for Károly Keleti himself put it down that Hungary's small size, geographical position and development made a ground for us to learn from the methods which had been acquired by the statisticians of the richer and more advanced countries than Hungary which had wider outlook than Hungary had, and at the same time to adapt these methods in a creative way.

In these days, with the millenary turn drawing near which means at the same time the realization of our full EU-membership and in a world of globalization it is inevitable that the factors listed above and having several decades of tradition in Hungary should get along but, at the same time, the emphases of the individual elements should be revised and duly modified.

The statistics of Hungary has connections with the international statistical life through several channels. On the one hand we are members of all those official statistical organizations that are making the most important decisions and recommendations relating to the development of statistics, and, on the other hand we are taking part in

bilateral and multilateral comparisons in several fields which can be a lesson to us in defining those spheres of statistics that should faster be developed for the proper preparation of our admission to the European Union.

Reference should be made on what EU-membership means in fact from the point of view of Hungarian statistics. I could also express it so that I have an easy job because, as it is known, the EU has issued questionnaires for almost every field of the economy and society, among them for statistics as well. By these questionnaires it has been recorded how far we have got in the individual spheres, in which tasks we have reached (and I can say it without presumption that in some cases we have exceeded) the level of EU statistics and where it is necessary to accelerate the pace of our closing-up. This, however, would be an approach of the task which simplifies the problem as in this way we formulate the task in a conception expressing what we should do to meet the requirements of the statistical system of the EU. Hungarian statistics, however, has not become accustomed to working exclusively on international order though in this world of globalization this is a quite significant issue. On the basis of many years of experience Hungarian statistics has always adapted the statistical systems corresponding to international requirements so that at the same time it could better serve the domestic data users, therefore it also included initiative research and development work in several fields and we do not wish to give it up either on the approach of the millenary turn.

This paper is to discuss some more details of the following issues:

– priorities of the development of our statistical system,
– short-term tasks,
– further-development of sectoral statistics and the problems thereof,
– the increasing role of functional statistics,
– increased integration in statistics,
– modern instruments of meeting the requirements of domestic and international users,
– increasing the role of statistical science and education.

The first thing that needs to be mentioned is that we consider it a primary task to develop Hungarian statistics in a user-oriented way. At the same time, just as it was also done by our foregoers, we would also like to anticipate the demands by raising issues which make our main users, among them the decision-makers and the scientists to realize what the opportunities are for the facilitation of their work provided by the rich information background of statistics.

*Priorities of the development of our statistical system*

Following the completion of the EU questionnaires the leading organs and boards of the Central Statistical Office have considered the areas and the methods of examination and analysis on which should be laid greater stress than before in order to further develop statistics, as well as the methods to which less importance might be attached as compared to the former situation. There is no doubt that among the priorities it stands first that the detailed and manifold survey of the Hungarian economy, the exploration of its tendencies, the underlining of the factors having effect on them as well as the analysis of their role are tasks of decisive importance in the present economic situation.

Consequently, the highest priority in economic statistics is the exploration of the tendencies of both the middle-term and the long-term processes as it is the only way to create a reliable basis for the prognoses.

On the other hand one cannot neglect the fact that economy and society develop in a correlated way, in our days it is just this correlation which strikes the Hungarian society most painfully. The economic changes have namely winners and losers, as it is said. Statistics show that the number of the losers has been increasing in the recent period. Consequently, our task is not only to focus interest from various points of view on the examination of the society but to pre-estimate also the effects of the economic changes on the different strata of society based on the tendencies of the former periods. Here emerges another priority to which less importance has been attached in the recent decades of Hungarian statistics. This is the pre-indication (forecast) of the processes. By now a possibility for this has been provided by the fact that the Institute of Economic Analyses and Informatics has been placed under the supervision of the HCSO. By its access to the widest scope of the database this institute has the opportunity to elaborate short-term prognoses and to indicate, besides the effective factors, the tendencies and their expected progress.

Speaking about priorities there are some subjects to which special attention should be paid in this world of globalization. Such areas are the following, only to mention some of them:

– survey of the environmental conditions, development of environmental statistics,

– manifold and detailed external trade analysis,

– more detailed and reliably-based examination than before on the situation and role of the small and medium size enterprises having an increasing importance in the economy,

– besides observing the social situation on the basis of routin indicators, from time to time placing the different strata into limelight. Such strata are young people just starting their career, people leaving work, registered and already unregistered unemployed persons, old-age pensioners, pauperized households.

In addition to the priorities listed above and in the short run prior to them it is needed to elaborate financial statistics in detail in close co-operation with the Ministry of Finance and the National Bank of Hungary. This is necessary not only because of the assumption of international commitments (such data are, namely, regularly collected by the IMF, the OECD and the World Bank) but also because of the fact that it is indispensable for the up-to-date economic management to show the financial situation of our country in detail and from several aspects combined with the examination of the effective factors. This process has already started, the system of financial accounts is compiled on the basis of EU-conform solutions, though in this field there are still new tasks concerning the banking information. These elements are supplemented by the HCSO which provides the data and information needed for the financial accounts and balance sheets of the sector of enterprises. One of the very important elements of the financial information system is the compilation of the financial accounts of the government sector which is for the decision-makers so to say inevitable. I wish to emphasize the close co-operation, the division of labour (not rivalry) between the three organizations concerned: the Central Statistical Office, the Ministry of Finances and the National Bank of Hungary. It is a fact that the National Bank is responsible for monetary

and banking statistics both at international and national level. The contribution of the Central Statistical Office is, however, essential to make the methods formed in this way comply with the data obtained from other sources.

It is well-known that one of the important elements of modern statistics is the balance sheet. In the Hungarian decision-making its inadequacy has led to a series of justified criticism. In respect of the balance sheet the Central Statistical Office has the main role in the formulation of its methodology (based on the demands of the EU, the World Bank and the IMF), for its compilation the Ministry of Finances is responsible. A close co-operation is essential here again because this balance sheet has to be in connection with other elements of economic statistics in order that the tendencies, the changes and the effective factors could be analysed. This is why this task which is by no means a short-term one, is prepared by expert work teams.

Within the priorities mentioned above, special attention should be paid to the information system of the small enterprises. It is generally known that the considerable restructuring of the organization of the economy has gone together with the fact that in the recent 7 to 8 years the number of the small and medium size enterprises has suddenly increased, their performance considerably improved which cannot be shown in reality by the data submitted to the tax office. There is no doubt that the best assistance in this field is supplied by the definition adopted by the EU on 9th February, 1996 which determines the scope of the terminology of small and medium size enterprises. At the same time, besides the EU-definition, we have to take into consideration also the domestic specialities during the further-development of the system of the small enterprises. A "several-legged" information system is needed where the method of enumeration of the organizations with under 10 employees is separated from the survey of organizations with 11 or more employees that can be considered partly small, partly medium size enterprises. In this scope the sampling survey is essential as in a full-scope survey only a few data can be collected on the very large-numbered small and medium size enterprises. At sampling surveys, however, special care must be paid to the supplementing of the data obtained from the database being available in the frame of state administrative procedures, to the authentication of their coverage of reality or, if it is not realized, to the questioning of them, i.e. to their correction.

The other priority whose role has increased in the recent years, though whose content is differing from the previous ones, is the consideration for international migration. Due to its geographical position, now Hungary is already bordering upon the EU and this in itself is attractive for foreign workers while a member-country of the EU bordering upon Hungary is attractive for Hungarian workers. The relating full-scope data, however, cannot be collected even in the legally existing sphere as the available data sources are quite dismembered as regards their structure. This issue is of special importance as in the 1996 demographic surveys of the UN, the exploration of the tendencies of international migration is a high priority. Consequently, our task is to organize the statistics on international migration having a safer basis than the present one to comply with the requirements of both the UN, the EU and the domestic users as well. New tendencies can also be observed in the migration within the country and we have to count on the fact that due to differences between the level of economic and social development of the two areas, labour force is attracted to the western part of the country from the eastern regions.

Thus, the observation of the migration within the country may provide a more reliable basis for the start of the territorial equalization process and for the decision-making which is in this field by all means essential and, at the same time, it shows also the areas of the country in which labour force is to that extent available the utilization of which is necessary from the point of view of the whole society and economy. In fact, it is not only a task of statistics, since the present home address registration system does not ensure adequate data for the reliable further-development of migration statistics.

Within our priority tasks there are already some solved. I would only mention one of them, namely the question of statistical calculableness. In our case it means that the users of our data and information have to know for sure when and which data are available for them so that they could adjust their own work to them. We have made a progress in this respect already this year when we published a calendar schedule from which each data user can get to know at what time and which statistical information is available for him (her) on what he (she) can count later on. The experience of the first some months shows that this work of ours has had a favourable reception.

*Short-term tasks*

While having taken into consideration which of our new tasks will come into the limelight and will be emphasized during the development process we also formulated on the basis of the comprehensive work of the HCSO's management what short-term problems would be necessary to solve and which the ones are that we are able to solve. I would like to mention the most important ones of them only.

– Further-development of short-term trend indicators. It is generally known that in the EU-member countries the short-term trend indicators have been playing a decisive role for a long time and that other international organizations also build on them. In this respect we have thus a wide range of commitments. Basically, in the short-term trend indicators the most important kinds of data used in the exploration of the macro-economic correlations are included. Such are the indices of national accounts, especially the GDP broken down by quarters and regions. The monetary and fiscal information/data, i.e. those elements of financial statistics that are available on short term constitute another group of the important short-term trend indicators. Like in former years the mid-year data on sales and on the order-book are further on considerable in various sectors of production. In respect of market trends the indicators of employment and unemployment are also decisive. As regards short-term trend indicators, the monthly reports of the HCSO and the new monitoring publications of the HCSO's Institute of Economic Analyses and Informatics play a considerable role in 1997, the most important short-term trends are included in them. It is one of our tasks to improve and, if necessary, to supplement the scope and the content of these indicators, based on the experiences of the first year and on the back-report of the data-users.

– Statistical register and a wider scope thereof: the register of economic organizations is a basic recording which makes possible to ensure the basis for the database of representative surveys. This task again is to be solved in short term, it is in progress at present and it requires quite a lot of work from the staff of the regional offices of the HCSO. Later on it will be possible to initiate data collections of various purposes and cross-sections on the basis of these registers. This, however, requires that we should not only carry out single censuses which is the case at present, but we should also be able to ensure their being up-to-date. The first phase of the task will have been solved by the end of 1997, the provision of their being up-to-date is a continuing task of the next period.

– In recent years the revision and, where needed, the supplementing of external trade statistics have become an emphasized task. It is not mainly about the requirements of the international organizations, though they also lay great stress on its harmony, but it is about our being able to reflect the formation of exports and imports as well as their various factors for the domestic decision-makers. In this field we have traditionally well-solved spheres such as

the examination of the structure of exports and imports by country and by group of countries, the distribution by products and by product groups; the analysis of time series measured in physical measurement and value as well as the analysis of volume data. The new element is, however, the extension of the coverage scope, namely the consideration of the industrial duty free areas which have been observed in external trade statistics not in full scope and not in a harmonized way in recent years. In this field we have had considerable progress already in 1997 but its full harmony with customs statistics is a task to be solved in our days. At the same time it has to be taken into account that the standardization in the EU requires the solution of a new-type task in external trade statistics. The international turnover in the EU member-countries will namely be observed by the INTRASTAT monitoring system. It will be a topical task for us when we already know the exact date of the accession. This is a new type of data collection commitment requiring quite a lot of costs and work but it will have an extremely great number of users thus it will have to meet the requirements of both reliability and accuracy from the very beginning just as it is the case in other fields of statistics. Statistics on external commodity turnover have to be further developed by ensuring the harmony between the national accounts and the balance of payments. This partly brings in spotlight the consideration of freight charges data, partly requires also the consideration of the transactions which cannot be observed in customs statistics. As to the external trade statistical methodology of services we still have tasks which are to be harmonized with the requirements of the European Union.

– Another short-term task is the harmonization of agricultural statistics with the statistical system of such type of the EU. This is the sphere where measures for development have to be taken in several fields in the near future. In respect of the natural data of production Hungarian agricultural statistics can meet 75 to 80 per cent of the data demand of the EU, there are still differences/deviations in the classification system, in statistics reflecting the input and output rates, the costs and income rates of commodities as well as in the agricultural input and output price statistics. Therefore in this sphere we can comply with both the requirements of the EU-conformity and the increasing demands of the domestic users only if we update and supplement the economic register created on the basis of the latest survey carried out in 1994 on the economic structure of agriculture. This work will naturally be done by involving the experts of the Ministry concerned. At the same time, it is an important task to be solved already in 1998 to state the normative gross value added at commodity and activity level in the agriculture for which the application of the agricultural information system of accountancy known in the EU member-countries is needed. The domestic network for this purpose is being created whose results we can only show for the first time next year. In order to disclose the situation, the role, the present and future importance of the agriculture in Hungary for the decision-makers in a more detailed way it is indispensable to create the system of agricultural accounts.

– In the short-term tasks the further-development of the consumer price statistics having a tradition in Hungary and a good reputation abroad is also included. The methodological supervision of the consumer price index is a regular task of the Hungarian Central Statistical Office, its harmonization with the EU and with the preparation of the Monetary Union has started this year. In this respect it is the most important thing to calculate compatible indices relating to an optional period starting from the representative items and their detailed aggregated groups. For this we have to change-over to the practice of fix-base index calculation which better complies with the new requirements. It is another significant task to establish an adequate method for the handling of prices missing from those recorded, i.e. the replacement of the missing price data should be regular and systematic. We have to further-develop the methodology of the consumer price index in harmony with household statistics: on one hand the number of representative items should be reduced, on the other hand the coverage scope should be enlarged, the estimation of weight should be updated. In view of this work we will use the data of the retail trade census as well.

All these tasks which I call “short-term tasks” naturally require continuous updating and, if necessary, modernization.

### *Further-development of sectoral statistics and its related problems*

I have already mentioned previously the development of agricultural statistics which is one of the high-priority elements of EU-harmonization and, at the same time, of the compliance with the increasing requirements of the domestic agricultural statistics.

Besides the traditional methods of industrial statistics we have tasks for further development in this field as well: these serve first of all the adaptation to the statistical

requirements of the EU. The scope of indicators needed for the full harmonization should already be created this year including the adequate integrated questionnaires, the establishments should be selected and the pilot survey prepared whose execution takes place in the next year. New elements are needed to be applied in the calculation of the volume index of industrial production and of the industrial producer price index, first of all on the basis of EUROSTAT requirements.

In industrial commodity statistics the modification of the unit of observation is the main task. In this field a pilot survey will be carried out to lay the foundation of the examination of establishments and activities in 1997. The EU-regulations, the so-called PRODCOM have specified different indicators for the measurement of production by commodity, namely in respect of the realized production, the full cross-section production and the production for realization, respectively. The Hungarian annual commodity statistics complies with these requirements but, in the case of mid-year statistics, modifications are needed, it will partly be a task to solve them this year, partly in the next year. The coverage scope should also be adapted to EUROSTAT requirements according to which the data of all organizations with more than 20 employees should be enumerated and data should be collected on the enterprises representing 90 per cent of the extent of the national production. The present Hungarian industrial commodity statistics comply only partly with this requirement. An important factor of the further-development of industrial statistics is the renewal of the examination of productivity and its effective factors which has been a neglected task in the recent years though in Hungary it has several decades of tradition. In order that the domestic industrial statistics should ever better comply with European requirements, it is reasonable to carry out international comparisons in this field as well.

In construction statistics again the mid-year indicator system has to be adjusted to the EU-requirements in fact on similar principle as in the case of industrial statistics. In this field, however, there are other factors as well such as the organization of collection of construction permits from the local governments and the ensurance of the infor-mation relating to the costs of new dwellings. These are tasks for this year and for 1998. Within sectoral statistics the enumeration of services has an increasing role because in our days an ever growing proportion of the GDP is produced by the service sector 0and the statistical observation of this field does not cover yet the whole activity. Though this is the case in the majority of other countries, too, we must not resign ourselves to this because in this relation there are a lot of estimations within the frame of the System of National Accounts (SNA). Therefore we have to consider on which type of statistical observations we could base the future data relating to services. It is necessary for example to modernize the mid-year observation of road transport e.g. it is necessary as we are a transit country and this is why the role of this activity cannot be neglected. The first phase of this work will be finished in the autumn of 1997. The new method will already comply with EUROSTAT's "Harmonized Road Transport Statistics" project.

*Increasing role of functional statistics*

The globalization of the world and the economy in it is by no means banality but it needs a new-type approach of the tasks of statistical services. The System of National

Accounts has had a considerable integrating role in statistics for decades, this role, however, is suddenly growing just because of the world`s globalization. The increase does not only mean at all that new type indicators should be calculated but it means first of all that within the frame of the system of national accounts the sectoral and thematical statistics should be developed in harmony and, which is very important, in the national economic surveys the importance of the satellite balances is growing. It is true that in this field we have some decades of advantages as compared to the transition countries similar to us, but as compared to the developed regions of the world we have arrears as well.

The above-mentioned development of macro-statistical systems, among others the renewal of the information systems of the state household, the further-development of the methods of the international balance of payments require the national accounts being adjusted to these. Besides these, perhaps still prior to these, it is extremely important that the results of the economic activities should be presented by the method of the GDP for the total of the country annually and quarterly as well as by territories. We have successes in this respect but the further-development is just as much important. The formation of real flows has to be equally shown by detailed analysis of the individual activities and commodity groups from the side of the relations in the utilization of resources that has to strengthen the integrating role of the System of National Accounts. It might seem to the reader that I speak about the internal tasks of the HCSO because it is unquestionable that this is of primary importance. Sectoral statistics, often developing independently, run parallel, side by side and they do not always comply with the requirements of the development of the System of National Accounts. No matter how much we appreciate the fact that there are new elements in the individual sectoral statistics, compliance with the System of National Accounts is an absolutly necessary task.

For this purpose we intend to compile the new input-output table for 1998 which will be built up partly on the former basis (i.e. the analysis of time series can be continued), partly by using the methods complying with international experiences. This work will be started in 1999 and the new table will probably be issued by the millenary turn.

Within the main items of the SNA the further-development of the information system of foreign investments is of great importance which is mainly a task of the banks but it can hardly be solved without the assistance of the HCSO. It is of the same importance to build in the data of statistics on securities to the balance of payments which imposes again a primary commitment on the National Bank of Hungary but on the HCSO as well in its capacity of a “co-author”.

In the System of National Accounts the accounts of financial operations, the account of reappraisal and the financial stock accounts have an important role. They require an extensive participation of all the three institutions concerned and a considerable compliance with the international requirements, first of all to those of the IMF.

At the functional classification of the consumption of households it is very important to apply international recommendations. We will start it already in 1997 and we wish to change over continuously to the system applied in the international practice.

In all countries, in the transition countries just like in Hungary as well, the proportion of informal activities is considerable. Their estimation in the frame of the GDP cannot be solved by the usual statistical methods thus here it is necessary to use new methods. In

1997-1998 we wish to try several methods, among them also the Italian method, for the modernization of the estimation of the hidden economy.

Within the framework of the SNA it is an important task to make preparations for the various satellite balance sheets. Within these, the balance sheets of environmental statistics, health and education may have a decisive role. In this respect we are still in the preparatory-experimental phase. We have to see, however, that the evaluation of the SNA, the compliance with the requirements of the data-users, among them mainly the prognosticators and scientific researchers allot the Hungarian statistical service enormous tasks in this field as well. I would like to make it perfectly clear that this is not a partial task of a single department of the HCSO but it is the task of the entire statistical service also including the regional apparatus/staff of the HCSO which acts partly as outside workers partly as data-users and analysers.

Environmental statistics can be classified as functional statistics which equally has economic statistical elements and social statistical elements. We started to create the elements of environmental statistics in Hungary in the 1980s, among the first ones in Europe. Thus the foundations exist. Data collections are carried out within various frames partly by the HCSO, partly by the Ministries concerned. Therefore the first step towards the establishment of an EU-conform environmental information system also respecting the domestic requirements is the auditing of the data collections and registers originating from different sources in respect of the fact to what extent they correspond to the requirements of the harmonized environmental statistics. Within the framework of this auditing we wish to point out the methodological differences between the various data sources within the country and their extent of compliance with the OECD and EU system of requirements. The scope of data sources originating from the HCSO and from outside of it which is needed for the operation of a suitable database can be stated, the methodology integrated and, in individual cases, elaborated only after this full auditing.

In connection with the up-to-date development of environmental statistics the Statistical Committee of the Hungarian Academy of Sciences will hold an international conference in 1998 in order to learn the related experiences of the most developed areas and best experts of the world and to compare them with the situation analysis. As the situation analysis will be completed at the end of 1997, the 1998 conference will enable the experts of the statistical service to take the opinion of the foreign experts into consideration at the formation of the new methods and at the standardization of the existing ones. The final goal is the creation of an environmental statistical satellite balance sheet, perhaps balance sheets conforming with the System of National Accounts. It can be started, however, only in the possession of an adequate database.

Another very important field of the development of Hungarian statistics is the further-development of the information basis and analysis of regional statistics on a modern basis. This requires that besides the existing regular regional publications, the data supply of regional statistics and the settlement statistical database system of the HCSO, within the frame of non-regular dissemination we should publish analyses concerning settlement networks, small-areas or dealing with factual subjects and also methodological studies, if necessary.

The co-operation between the border regions is a task of the near future for which we also have former background materials. It is an important task of Hungarian statistics to strengthen this co-operation and to adjust it to the relation system of the Euro-regions. Our initiatives in this field seem to have a favourable reception on the other side of the border.

The HCSO has made the first steps also towards the application of the geographical informatics system, and together with several external firms, we have also created an administrative database for the geographical informatics system.

In the regional data collection the representative sampling methods have a considerable part. On regional level the data collection network and the circle of the observers are also available. It is unquestionable, however, that reliable regional data can only be obtained if the representative survey consists of suitably selected samples of acceptable size that in many cases requires the increase of the sampling unit (e.g. in family budget statistics or in consumption statistics).

It is our important task to organize regular up-to-date labour cost surveys in relation to which the 1992 EUROSTAT recommendations serve as a starting point. The work has started, the first questionnaire was successful. We have taken over the methods of updating from our Dutch colleagues. We apply these methods in the annual calculation of labour costs.

*Increased integration in statistics*

In this paper I have mentioned several times the necessity of integration in statistics indicating that it is the integrating function of the System of National Accounts that has to prevail. In this chapter I am going to deal with the conditions thereof.

The System of National Accounts seemingly has only to integrate the value data and the volume data calculated from them by using the corresponding price indices. In reality, however, it is about much more than that, because for the information of value data it is also by all means necessary that the harmony in contents, classification and methodology should exist even between the data indicated in physical unit of measure. In the overwhelming majority of cases, Hungarian statistics comply with this requirement now, but there are still some “blank spots”.

I deem it very important that integration should prevail not only separately within economic statistics and within social statistics but also between these seemingly separating statistical information groups. Only a single example for this is the following: labour productivity data are calculated, analysed in time series and compared internationally everywhere in the world. The minimal requirement is only the harmony of the input-output volume data indicated in the numerator and the data of employment or time of input indicated in the denominator, they should relate to identical scope, to enterprises of identically defined sizes, and the period and method of the observation has to be identical. Today this needs some kind of “soft tuning”, especially if we wish to compare not only the temporal changes and regional deviations in the labour productivity but we also wish to examine in detail the factors influencing the formation of labour productivity.

I have chosen this example because in recent years in Hungarian economy the labour productivity has considerably increased in the industry and construction. In our days,

however, we hardly examine their effective factors because it still requires the above-mentioned soft-tuning.

The increased integration has also a part in the fact that the time series disclosed in the HCSO's publications should generally relate to identical periods, in case of retrospection there should only be deviances that are due to and motivated by the character of the given area and which are not autotelic. Let us have an example also for this: in case of the regular monthly or quarterly data collections it is not the same where we draw the line of the enterprises observed, at which staff number category, shall we say at 20 employees, at 50 or just at 10. In this respect the EU regulations prevail but I think that the domestic specialities should also be taken into account if we decide to harmonize the staff number limit of the economic units observed.

Integration also means that the representative surveys have to take place harmonized with each other i.e. in a way that the representative samples of the different scopes of activity and sectors could be analysed together and that all important statistical conditions of harmonizability should be ensured (not neglecting the methodological conditions of sampling).

Integration within statistics, however, does not remain inside the buildings of the HCSO, it reaches far beyond them, it includes the statistical surveys as a whole carried out in Hungary. This complies with the provisions of the Act of Statistics as well as with the practice pursued by the National Statistical Council. I think this is the very organization perhaps one of the most important tasks of which is to exercise control on integration, including exploration of probable impediments and the ensuring of their removal.

It is to be taken into consideration, however, that there are conflicting interests here which often appear in form of ministerial lobbies but in some cases they represent the presumptive or real interests of the individual expert groups within the "family of statistics". The integrator function requires consistent activity of the management of the HCSO, consequently it is an integral part of my work as well.

*Up-to-date means in compliance with foreign users' requirements*

Nowadays, when electronics gains ground extremely fast in every field of the economic, the social and the every-day life, statistics must not lag behind either. It is generally known that a considerable part of our data has appeared in Internet in this way becoming available quite fast for a relatively large number of the users. This process has to be improved in the future, as the network itself will be enlarged and the number of users increased and not only with governmental organizations but also with scientific institutions, moreover with individual researchers as well. To the supply of such services statistics has to be adapted and prepared very fast, moreover I would say that in some cases it has also to create demands for them. Consequently, we have to reconsider what proportion of the statistical data, analyses and data publication should be supplied in computerized form for which circles the overwhelming majority of the aggregated data can be available on-line, (it cannot be about individual data, because they are limited by law) and which is the circle that further needs the traditional printed and multiplied publications.

Nowadays we cannot use exclusively one of the means but these have to be operated parallelly as the users's demands undergo a change and the professional background of the users is not identical either.

If, however, we wish to have a leading role even in this field, we have to make preparations for the fact that the statistical information system should be competitive within the country; it should be available for all those who have no access to individual data but who can obtain them in some kind of an aggregated form; it should meet the demands of the various research institutes (not depending on the fact if these operate under the supervision of the HCSO or other ministries) and, at the same time, it has to meet the demands of the media, i.e. those of the written and electronic press as well both on-line and in the traditional way. The HCSO has started this work in due time, we have no delay but there are a lot of things we should learn from our more advanced and often wealthier partners. There is no doubt that in the transition period when two kinds of ways of publication exist beside each other, these mean additional work for the staff of the HCSO but we have to accept it, however, in order to be able to meet the requirements of the most different strata of data-users.

In respect of modern informatics the HCSO is not only a server (supplier) but it is also a user. On the one hand, it can obtain data from international databases, its access to these is ensured, on the other hand it is reasonable for the HCSO to call in data by means of computers from the databases of the various offices and institutions as it is faster and cheaper than the former methods of data supply. In this respect the HCSO has still a lot to do while respecting the restrictions of the Act of Statistics for there are still a lot of data to be found with several organizations of many of the basic data of which the HCSO could make use by direct contact in its own work, naturally in favour of the Hungarian national economy and society as a whole.

*Increasing the role of statistical science and education*

In this paper I last mention one of the most important questions as regards our future, namely the consideration and increase of the role of statistical education and science. Our history goes back in this field again to Károly Keleti who went in for the science of statistics and who inspired statistical education. It is unquestionable that during the decades which have passed since then a considerable progress could be observed in both fields even if it cannot be described by linear trends. Despite this I feel that we have some problems here of which I would mention only a few ones.

As regards statistical education, today this has been built in to the work of the legal and economic university faculties in Hungary. Statistics, accountancy and informatics, moreover in some cases even prognostics are taught in several fields in a concerted way. We cannot expect uniformity from the individual universities because autonomy is ensured for them but some kind of harmonization would be reasonable and necessary in statistical education. A new success of ours is the fact that in public administration an examination in statistics has been introduced and its school-book which has been published recently, is already used in the education.

Numerous schools of several types, among them the so-called business schools are teaching statistics at different levels. We do not have an exact overlook of this but it

would be reasonable if this activity as well were assisted by the HCSO while making use of its experts` network and many decades of knowledge and experience.

There are two areas where I feel considerable insufficiencies.

– In Hungary teaching of statistics starts only at university level though there used to be some periods when it was taught also at secondary schools. Numerous foreign examples show that the planting of statistical way of thinking in the youth is only successful if teaching of statistics appears individually or perhaps as a part of mathematics already in the grammar schools or in specialized secondary schools. The Finnish, French or English practice are good examples for this. I think that in the not too far future it will be worth putting this question on the agenda of the education as nowadays it is inconceivable that the majority of physicians does not know those statistical concepts that are indispensable for their work (such as sampling, analysis of distributions, trend analysis etc.). It is also generally known that at some universities statistics is partly taught within the frame of other subjects, in many cases, however, this type of education appears only in form of personnel training courses.

– The organizations, institutions and instructors are not known enough by the HCSO who deal with statistics, who teach statistics to young people of several ages and it is not always clear either what and on the basis of which sources they teach. I think that the survey of these factors is a task of the HCSO which cannot be neglected.

Even more important than that is the personnel training relating to the science of statistics because at this moment the nationally accepted PhD system does not work yet though all preparations for it have been made and it can be expected that the accreditation process will be finished this year and the degree of PhD of statistical studies will appear in 1998 the latest. I am convinced that this is a primary and indispensable step on the basis of which we should incite the scientific work with those persons who previously attained a candidate`s degree, then a PhD degree or those who will obtain these and who may become Academic Doctors of Statistical Studies in the near future. This is even more necessary because today a relatively small number of scientists exist who obtained the Academic Doctor degree and the majority of them are beyond the retiring age. Last but not least there is no academician who would have had qualifications or occupation as statistician and I think it probable that our prospects will improve by the new PhD system also in this field.

As it appears from the issues briefly described in this paper, today the HCSO is competitive in many fields with the member-countries of the European Union. There are some fields, however, in which we have to make efforts for our closing-up, moreover, if it is possible, for our making steps forward in order to maintain our status among the leading countries also in the future. This is the common aim of the management of the HCSO, of the people who work here and of the society of Hungarian statisticians as well.

# TRANSITION IN STATISTICS – SEVEN YEARS EXPERIENCE

GYÖRGY SZILÁGYI

The manifold process – transition in the statistics of Central and Eastern European Countries – was launched seven years ago, in the year 1990s. This article provides an overview on the development of the statistical services along with this process.

Two major periods of these seven years can be identified, with further breakdown into two subperiods each.

*1*. From 1990 to 1993; the period of early works, up to the multilateral Common Declaration:

the first steps in 1990–1992.
beginning of institutionalization, 1992–1993.

*2*. From 1994 to 1997, when the issues of EU accession became more articulated:

actions in the interest to accession, 1994–1995.
transition to integration support, 1996–1997.

## COVERAGE AND CONCEPTS

The term *"transition countries"* covers a very heterogeneous set, in terms of general economic level, the functioning of the market economy, the institutional set-up etc. Consequently the level of statistical activity substantially differs in the various countries. The success of the transition process, the proper selection of the operations being carried out depends on the recognition of these differences. Two fundamental circumstances may determine the position of a national statistical service.

*a*) The general level of the official statistics at the beginning of the transition process. In this respect three categories of countries can be identified.

– Countries in which the official statistical service was at a relatively high level at the beginning of the transition process. (Example: Hungary)

– Countries with relatively high level in a number of fields of statistics but with little experience in a market-oriented statistical activity. (Example: Bulgaria)

– Countries which just begin the transformation of their statistical systems towards modern statistical service and international standards. (Example: some Republics of the former USSR)

*b*) The time of establishing an independent statehood. Official statistics of those countries that became independent later than 1990 are handicapped as compared to the others. Previously they have had to constitute a region, in terms of statistical organization, in the framework of a larger country; now they are developing a full scale national system.

The present article is focusing on the most developed group of transition countries. Most of them belong to the "CESTAT" group (Central European Co-operation in Statistics).[1]

According to its terms of reference the co-operation takes multiple forms and includes a creation of network of training centres for statistics, organization of seminars, common consultations, exchange of information and experience, publication of a Joint Bulletin of Economic Indicators and other forms that will be considered as beneficial for these statistical offices.

On 16–18 June 1996 CESTAT held a seminar on "Results and prospects of the transition period" in Budapest, in order to provide a forum for an exchange of views on the experience with technical co-operation in transition countries and to consider the ways in which success of future initiatives can be reached.[2] A number of statements of this article are based on the outcome of that seminar.

It should be empahasized however, that Hungarian statistics is an "atypical" one in many respects from the point of view of transition. Hungary differed – apart from the early 1950s – from other countries with central planning. Statistical activity was never fully subordinated to central planning, and constraints of the planning system decreased gradually in the course of time. The role and impact of central plans was reduced almost every year, especially with the deletion of "compulsory variables" stipulations. The Statistical Office did not consider measuring the performance of central plans as its basic tasks.

Application of international standards has belonged traditionally to the strategy of the official statistics in Hungary. In this respect, however, transition has changed the approach to considerable extent: previously, national statistics was linked to international recommendations through various bridges (e.g. conversion keys). The present strategy is the direct adjustment of national practice to international standards. This approach is needed in the interest of accession to international organizations (EU, OECD); but has further advantages: the work needed for conversion is not necessary any longer, and operation of international comparison itself becomes faster and more accurate.[3]

In this article special emphasis is laid on the participation of Hungarian statistics in the transition process.

There is a general agreement regarding *the concept of "transition"* as a process underway in Central and Eastern Europe. From statistical point of view, a more specific

[1] CESTAT was established in 1991 by the National Statistical Institutes of the Czech and the Slovak Federal Republic, Hungary and Poland. At present CESTAT has five members: the Statistical Offices of the Czech Republic, Hungary, Poland, the Slovak Republic and Slovenia.

[2] The seminar was attended by heads or leading officials of the CESTAT countries, of National Statistical Institutes of Canada, Denmark, France, the Netherlands and the United Kingdom; the United Nations Statistical Division, the Statistical Division of UN-ECE, OECD, EUROSTAT, IMF and the Overseas Development Administration (UK).

[3] *Szilágyi, Gy*.: Development program of Hungarian statistics. *Journal of Official Statistics*. 1993. Vol. 9. No.1.

inventory of objectives and measures might be of help. The list below was compiled by *Saunders* in an early phase of the process and proved to be an adequate description.[4]

*a*) Privatization – as perhaps the most essential and also the most complex element of the transition;
*b*) A general abolition of price controls (but possibly retaining some controls, e.g. on "basic necessities" at least temporarily);
*c*) Abolition of subsidies to enterprises (again with qualifications);
*d*) Liberalization of foreign trade;
*e*) A new foreign trade policy, acceptance of realistic exchange rates;
*f*) Reform of the tax system; introduction of V.A.T., wider use of personal income tax and corporate taxes;
*g*) Need to balance state budget;
*h*) Establishment of a Western-type system of commercial and investment banking and a capital market (including the re-establishment of stock exchanges). All these associated with the objective of operating an effective system of monetary and credit policy;
*i*) Abolition of administrative central planning and replacement by monetary and fiscal instruments;
*j*) An updated social security and welfare system to cope with the unemployment and inequalities now emerging;
*k*) Establishment of a soundly based system of collective bargaining between employers' and employees' organizations;
*l*) Restructuring the economy in the sense of modernizing the composition of industry, agriculture and services, combined with technological modernization;
*m*) Construction of a new pattern of saving – by individuals, firms and government – together with mechanisms for the channelling of funds to useful investments;
*n*) Political democracy as a framework for the success of all these measures.

With these aspects in mind, transition for the statistical service can be identified as a development of the statistics with the objective of:

– monitoring the above mentioned processes and their effects on the economy and the society;
– operating the statistical system on new conditions.

## FROM 1990 TO 1993

*1. First steps in the early 90s.* The consultations in the framework of the Conference of European Statisticians held in February 1990 can be regarded as the starting point of transition in statistics and of organized international assistance. This consultation was followed by a number of workshops as well as by the first seminars, etc. It became obvious, that plans and needs of the various countries differed, although similar priority areas and similar problems of statistics were generally identified.

In this early period various actions were initiated and carried out by donor countries/organizations with more emphasis on the assumptions of the donors regarding the necessities of the countries than the actual needs and level in the country concerned. It happened in this period that elementary knowledge was explained to highly qualified (or even internationally acknowledged) statisticians, some topics were considered redundantly and others were not treated at all. It turned out that actions of assistance were in need of co-ordination.

Along this line the Seminar of the Conference of European Statisticians (March 1991) marked a turning point. It was recognized that each statistical office should co-

[4] *Saunders, Ch. T.*: Economics and politics of transition. East–West European economic interaction. Workshop Papers. Vol. 13. The Macmillan Press Ltd. 1992.

ordinate the projects involving its own country and thus maintain authority over the process. From that moment on, actions became "tailor-made" for the recipient countries, needs and wishes of the beneficiaries were taken into account, programs were discussed prior to their implementation, with the respective offices.

*2. Towards institutionalization.* Another step towards co-ordination meant the signature of a bilateral Common Declaration on statistical co-operation between the Hungarian CSO and EUROSTAT (May 1992). This co-operation has been focusing on the data collection system, the business register, the international standards and the computerization. The declaration stated: "In order to achieve these objectives it is essential to ensure a good co-ordination of all the co-operation projects and activities. The purpose of this coordination is to promote an efficient utilization of the resources and effective division of labour between different programmes."

From that moment on, EUROSTAT has played growing role in supporting the transition process. Seminars were concerned (3–4 a year) in the respective countries on various subjects on statistics. Increasing number of statisticians was invited to EUROSTAT training courses (TES). Methodological standards became accessible as basis for the development of the national system towards international uniformity.

This kind of institutionalization of the transition activities lead to the first co-ordination of the assistance of donor countries and of international organizations. Bilateral connections with Statistical Offices were necessary to demonstrate the practical implementation of theoretical frameworks.

*3. An intermediate inventory.* An inventory of the actions made and the necessary improvements were reviewed at a workshop on the results of technical assistance in transition countries.[5] Below are some relevant conclusions of the workshop.

In deciding priorities and making progress in its transition process, each statistical office of transition countries needs to develop a strategy for ensuring that statistics keep pace with the direction and with the political, economic and social changes in their countries. There is no single pattern of technical assistance applicable to all transition countries. In the course of the transition process, the list of the priorities will have to be reviewed and scrutinized in order to reflect the changing needs of transition countries.

The experience of both recipients and donors has shown that focusing on a few statistical subject areas technical assistance is more effective than wide-scope programmes spread over a great number of subject fields.

All countries in transition must adapt their statistical systems to the realities of changing economic conditions, and they need to develop new sources and methods to deal with, for example, the measurement of prices, unemployment, industrial output, money and banking, balance of payment and so on. The limited resources available for technical assistance should therefore be used to assist them to develop these statistics.

The transfer of know-how, not only related to relevant analytical methods but also to the design of statistical projects, seemed to be essential for a number of statistical offices in transition countries. In this respect, the role of international organizations as well as of some donor countries was specially emphasized.

[5] *Szilágyi, Gy.*: Transition and assistance. Paper submitted to Workshop on results of technical assistance in statistics to transition countries. Sinaia. 1993. October.

More frequent, comprehensive and coherent outputs in publishing programmes and dissemination policies of statistical offices were specifically highlighted. Several participants stressed the increasing importance of updated information and data for macro-economic and social policy management and decision-making; as well as the need for better co-ordination between various producers, statistical offices and data-users in transition countries. It was generally observed that some common barriers still impede efficient co-ordination in most of the transition countries, particularly those related to internal co-ordination of tasks and responsibilities within statistical offices and among producers of statistics within the countries. In addition, the human and other resources of the transition offices need to be mobilized and strengthened through planning, identification and implementation of technical assistance.

In order to implement technical assistance programmes successfully and to benefit from the exchange of experiences with recipient experts, the country experts from donor organizations and countries must be well prepared, informed and acquainted with the economic and social realities of the countries they assist.

*4. A "typology" of transition actions.* Before embarking on the next phase of the seven years development, it seems to be useful to overview the various types of actions.

*A)* Operations and results of the transition process are manifold. For a better insight into their structure, they should be classified in terms of the role they play in the development of the national statistical system. Against this background, the following types can be identified.

*a*) Improvement
*b*) Extension
*c*) Adaptation
*d*) Introduction of a new activity.

*a*) Fairly developed national statistical system, close to the international standards, with necessity of improvement in some partial respects. In Hungary, the consumer price statistics is a typical example. In this field, assistance has to be based on dialogue between national statisticians and representatives of donors rather than on "training" in educational sense.

*b*) Existing system which meets international standards, but the transition to market economy necessitates modifications and extension. For Hungary, this is the case of the national accounting system which has been based on SNA standards since the 1970s, but has to be extended now to a fully-fledged SNA in addition to the incorporation of the consequences of the changes in the institutional set-up. Efficient assistance in such cases includes theoretical backgrounds concerning the new areas and practical guidelines with respect of solutions to be followed in market conditions.

*c*) Adaptation of national statistics, as a response to new phenomena. E.g. the introduction of Labour Force Survey has been a direct consequence of the fundamental restructuration of the labour market. Efficient assistance in such field includes theoretical background, social and economic implications and statistical methods.

*d*) Introduction of statistical activities that did not exist before; e. g. regional accounts, commodity flow, etc. They are the fields where full assistance are necessary, including practice-oriented training.

The following matter provides a summary of this part of typology.

*Types of development*

| Action | Assistance |
|---|---|
| IMPROVEMENT of a developed field | Dialogue |
| EXTENSION of an existing area | Guidelines |
| ADAPTATION to new phenomena | Theory and methods |
| INTRODUCTION of new activities | Full assistance |

*B*) Another facet of the co-operation is the form of actions and the benefit to be taken. First of all there are

– actions carried out in the recipient country,
– actions carried out in the donor country,
– in both places (pilot projects).

The advantage of actions carried out in the recipient country is that a large number of the staff can be involved against travel and accommodation costs of one or two experts. In addition, workshops, seminars, consultations, etc., are accessible even for persons lacking the language skills required for training abroad. Subjects can be selected by or in consultation with the beneficiaries and topic selection, types of discussion, etc., can also be fitted to the requirements of the hosts.

The advantage of the actions taking place abroad are the professional and human contacts with a considerable number of statisticians of the visited country. Participants have the opportunity to get acquainted with the environment of the statistical activity in addition to the work in narrow sense. These visits help a lot in developing language skills.

Pilot projects constitute relatively new undertaking. They are joint international actions in well defined statistical field (e. g. road transport), beginning with training, development of common methodology, implementation of surveys, data processing, publication, analysis.

Within each of these basic types of assistance operation, further characteristics can be identified.

From among the actions carried out in the recipient country, the various workshops, seminars, training etc. are of primary importance. Theirs success require adequate topic selection, and information for the lecturers regarding local conditions and problems.

Visits of experts of donor countries proved to be especially useful. Great advantage of these visits is that topic selection could be specified more accurately than in case of workshops. The staff involved is generally smaller, but the topics can be considered in-depth. Distinction has to be made between short (one week) and medium and long term visits. The topic of short visits is relatively narrow (e.g. price statistics in external trade or in construction) and limited to the national practice (or international experience) of the visiting expert. Medium and long term visits mean active participation in the solution of a given set of problems or in the implementation of a project. It is assumed that the visitors become familiar with the given aspect of national statistical system of the visited country.

Coming now to some operations carried out abroad, participation in training courses are designed for statisticians arriving from a number or all of the transition countries, others belong to the overall training scheme of the donor. US Bureau of Labour Statistics and INSEE, for example, established both types of courses, EUROSTAT admitted participants to its normal "TES". Hungarian participants appreciated the level of these courses, the optimal combination of theory and practice orientation and, above all the opportunity to contact statisticians from a broad range of nations. On the other hand, they criticized workshops involving statisticians from a large number of transition countries, because of substantial differences in the level of the participants, to the extent that training level was either too high for one part of them or too low for the other.

Consultation means the visit of individual statisticians in the Statistical Office of a donor country, to study the work actually carried out in the field of one or two, well specified topics. This form yields the consultant insight into the working style and conditions of the donor office in addition to the in-depth study of the subject selected. The efficiency of consultations is increased if the visit is linked with on-the-job training. This is the best way of getting acquainted with the environment of up to date statistical activity.

Participation at international conferences, meetings and Works Party etc. is one of the most efficient forms for orientation of young statisticians in international professional life, for senior statisticians to put forward and check achievements of the national statistical service. Participants obtain first hand information on the envisaged development of statistical methods, assist the "birth" of new statistics.

*Actions and benefits*

| Types of actions | Benefits | | | | | |
|---|---|---|---|---|---|---|
| | Number | Topic | Depth | Contact | Language | Environment |
| | | | In the recipient country | | | |
| Seminars, workshops | FF | FF | | | | |
| Expert visit, short term | | F | | F | | |
| Expert visit, long term | F | FF | FF | F | | |
| | | | Outside | | | |
| Training course | | | F | FF | FF | F |
| Consultation | | F | F | F | F | FF |
| Meeting, Working party | | F | | FF | F | FF |
| | | | Mixed | | | |
| Pilot projects | | | F | F | F | F |

*Note.* The sign "F" means that the given action is favourable in terms of the given criterion. Particularly favourable actions are indicated by a double F ("FF").

As a summary of these considerations, the table gives an overview on the main types of transition actions, evaluating the profit obtained by these actions in terms of the points discussed so far. The summary evaluation is based on the following six criteria.

Number – The number of participants involved;
Topic – Topic selection according to the requirements of the transition country;
Depth – Opportunity for in-depth study of the selected topic;

Contact – Opportunity to establish professional and human contacts with large number of foreign colleagues;
Language – Development of language skill;
Environment – Opportunity to "live" in the environment of the statistical activity of other countries.

## FROM 1993 TO 1997

*1. Towards accession.* The milestone indicating the beginning of a new era was a multilateral Common Declaration of the Statistical Organs of six Central and Eastern European Countries and EUROSTAT in January 1994. In the present context the following stipulations of the Declaration are the most relevant.

– Introduction of statistical standards, classifications and methodologies which are used in the European Communities and internationally;
– Enabling the statistical system at the moment of accession to supply all statistics to the European Commission in the same way as all the other Member States;
– Transmission of the data needed for the accession negotiations.

This Declaration can be considered as the first step to a broad and well organized co-operation between the respective countries and EUROSTAT. The co-operation included bilateral and multilateral training programmes, expert visits, consultation, participation at workshops, working groups, etc. As the realization of the stipulation of the Declaration, the Hungarian Statistical Office set the following general objectives.

– To give a truthful and objective picture about the state of, and changes in the society, economy and environ-ment to the public administration as well as to the organizations and members of the society;
– To produce statistics in an objective, scientific and unbiased manner, free of any pressure, with particular re-gard to the choice of the best-suited scientific methods, definitions and methodologies;
– To develop the statistical system in the sense of full implementation of the Act of Statistics;
– To safeguard the rich and positive traditions of Hungarian Statistics;
– Incorporation of international – in particular Community – know-how into the statistical programs;
– Promotion of convergence of national statistical practices in Hungary to Community standards and practices by means of common training activities.

The Common Declaration constituted the start of a new phase in the transition process, in particular for the official statistics of countries with the "pre-accession" (PAC) status. The objectives, in connection with the development of the statistical system to meet the requirements of market economy, should be realized through the introduction of statistical standards. In that period statisticians were studying these standards, rather than general statistical aspects of the market economies. On the other hand national statistical institutes were still free in selecting priority areas.

A sample of the achievements of the Hungarian statistics as results of these efforts.

– Introduction of a new Domestic Product Classification harmonized with EU system (PRODCOM);
– Completion of first survey of the enterprise panel;
– Completion of a census on the structure of agriculture with focus on land, ownership and livestock;
– Extension of the sample of monthly industrial statistics;
– Improvement of retail trade sample surveys, in terms of application of the new industrial classification system, extension of survey coverage and higher response rate;
– Launching a sub-annual survey on road transport;

– Detailed publication of the Hungarian National Accounts according to the SNA 1993;
– Modification of Family Budget Surveys in order to reflect rapid social and economic changes;
– Introduction of an EURO conform Labour Force Survey.

*2. Transition to integration.* Substantial reorientation occurred in this policy of co-operation in 1996 and 1997, labelled as "transition to integration support". As formulated by EU: there is a change from a demand driven to an accession-driven approach. In this approach all co-operation actions should be designed and implemented so as to facilitate future accession of the candidate countries.

Pre-accession countries are no longer free in selecting the statistical fields to develop; instead, the following four priority areas have been identified by EUROSTAT in which the introduction of EU standards should be accelerated: macro-economic statistics (national accounts, financial statistics, monetary statistics, balance of payments, consumer price indices); agricultural statistics; external trade statistics; statistics of migration. [6]

In addition, national statistical services are expected to accelerate the supply of high quality, EU conform, detailed data.

This stage of the transition was the focal point of the CESTAT seminar "Results and prospects of the transition period" (referred to in the introduction). The discussion revealed a number of inconsistencies between national and international objectives. On one hand there was general agreement on the need of international co-ordination of a strategic plan into which individual projects should be nested. But there was a concern on the part of the recipient countries that their strategic plan was not in necessary harmony with that of donors and in particular with that of the EU. Specifically, concerns were voiced about possible contradictions between national priorities and international prior-ities geared to the adoption of new standards and to the complicance with standards required for admission to the EU. In particular

– the same resources may be assigned to satisfy both national and international (supranational) objectives,
– national users may not recognize any of the outputs required by supranational organizations,
– the introduction of international standards may be incompatible with the abandon of national standards,
– a sharp break with old standards for the sake of instituting new and international standards may result in a double loss of useful information – e.g. break of time series in terms of old standards, lack of backward compilations in terms of new ones.

Participants agreed that one of the most desirable feature of any action was the objective of creating a sustainable legacy. To ensure sustainability, several participants mentioned the need of stronger infrastructure and management capabilities (e.g. through intensive training). Participants also considered that far-seeing assistance should concentrate on the creation of future managers of National Statistical Institutes and that this could only happen through their immediate involvement in the process of determining their institution's strategic approach.

Accelerated adaptation and introduction of EU standards constitute high priority of the development of Hungarian statistical service. Contrary to previous phases, the

[6] Countries can select two other priority areas. In the case of Hungary they are business registers and environmental statistics.

"transition to integration" period is considered as period of implementation rather than learning process. The traditions and international experiences, coupled with the various kinds of training in the previous phases provide the necessary basis for this policy. Development of knowledge is now being shifted into "learning in doing" actions, like participation at the discussion of the working parties devoted to the relevant issues, co-operation in pilot projects with statisticians of the partner countries etc.

Nevertheless, adaptation of European standards is not an overnight process; it has not been even for the member countries. Statisticians should not believe in the existence of a monolithic block of 15 countries, with totally uniform and comparable statistical system. A leading official of EUROSTAT recently revealed a set of substantive inconsistencies as regard European Business Statistics. E.g. in connection of short term indicators the following statements were made: "Coverage does present a number of problems. Firstly, although for the key indicator of production we have data from all Member States, for the other indicators between four and eight countries are missing. Secondly the coverage by industrial sectors differs from those countries that do supply data. The data collected is supposed to be representative of the size of the national sectors, but this means that the Member States adopt different policies in terms of the number and sizes of enterprises covered. There are also considerable problems of completeness. The majority of the indicators are available only for industry. For construction, and particularly for services, far fewer indicators are available. In addition there exist considerable difficulties with the concepts involved in the construction of the indices. A recent EUROSTAT paper reviewing the production index found that there are at least six different methods of calculating this index based on six different sets of basic data, each with its own advantages and disadvantages."[7]

Even more explicit is the authors' final conclusion: "The absence of accuracy evaluation at European level indicates the theoretical difficulty inherent in the system at both National and European level. The complexity of the process of production, the differences of information sources and the variety of collection methods make the task almost impossible, and this may be the explanation of the absence of such evaluations in most of the National Institutes and of course also at the European level. Conscious of this weakness we have introduced in the production regulations the obligation for quality assessment in future European Business Statistics. This is a major challenge for European statisticians, but I am absolutely convinced that statisticians with their capacity for working together at a World scale will come out with excellent solutions."

Statisticians of the transition countries are facing a big challenge. Adaptation of European standards is not merely "copying" instructions worked out by other people. Adaptation means reconciliation with the national environment, traditions, institutional set-up etc. In solving all these problem, those statisticians are making valuable contribution to the development of European statistics. Transition therefore requires initiatives and high level creativity of our statisticians.

[7] *Nanopoulos, Ph.*: Quality of European business statistics. Paper presented at the ISI Special Conference on "Accuracy, timeliness and relevance of economic statistics". Washington D.C. September, 1996.

# FUNDAMENTAL STAGES IN DESIGNING PROCEDURE OF STATISTICAL SURVEY

PÉTER PUKLI

The mission of National Statistics Institutes (NSIs) is to meet the statistical needs of the different user groups. Consequently, NSIs are required to undertake a complex range of operation such as collection, processing, storage and dissemination of statistical data, in other words they organize and controll the production process of statistics. The precondition for an efficient and satisfactory outcome is to design the whole process in advance.

The standard of the survey design procedure ensures that the setting up of new surveys as well as the redesign of existing ones are based on an appropriate professional preparation and at the same time it is a guarantee for the users that they can get reliable and timely information of their interest.

The first stage is the exploration of user needs and the investigation to what extent they can be satisfied. In general, the following main groups of users can be distinguished:

– governmental agencies,
– businesses and associations, foundations and other non-profit institutions,
– research institutions,
– general public,
– international organizations.

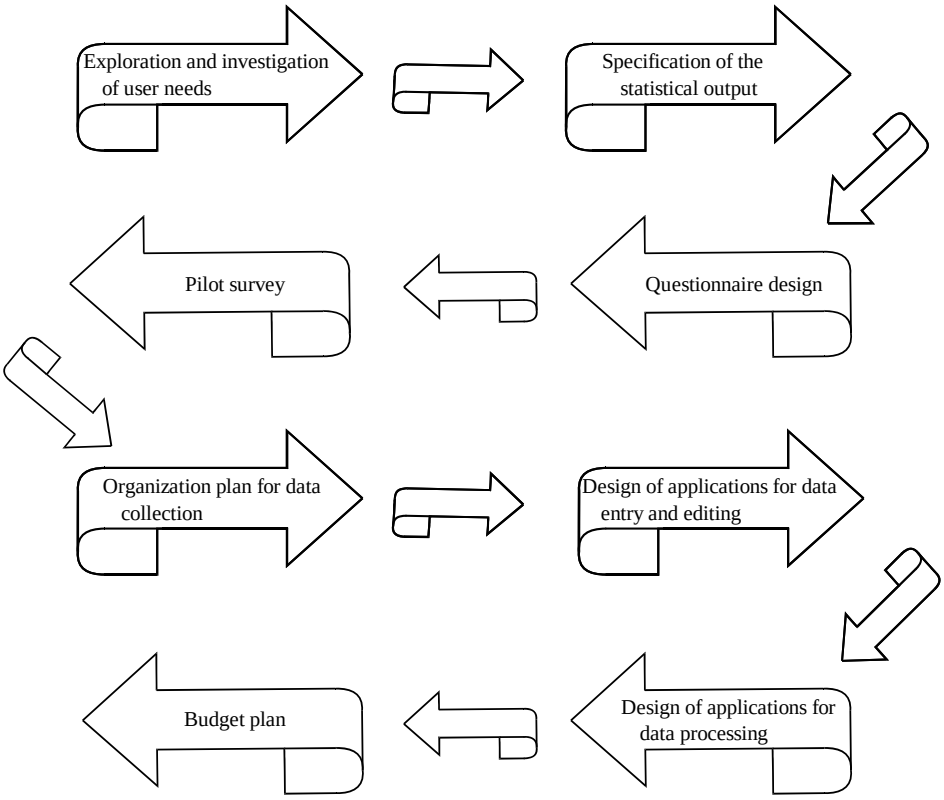
The applied methods for measuring user needs can be diverse relating to the above listed groups, but there are some common characteristics to take into account:

– the statisticians should assist and guide the user to express his needs explicitly and in unambiguous terms;
– to be able to do this the statisticians should be familiar with the intended applications of statistics;
– the users should be introduced to any constraints raising difficulties and additional cost to meet their needs;
– if different user groups indicate deviating needs on a certain issue, the statisticians should try to establish consensus by consultations, during which the users can exchange views;
– the users should be addressed to rank their wishes in order of preference relating to detail, accuracy and quickness.

Besides it is useful to contact the potential data suppliers to examine their full response burden.

Following the measurement and interpretation of user needs, the preparatory work can be started consisting of the following stages presented at the figure.

*Stages of preparatory work for implementing statistical surveys*




*Specification of the statistical output*

The final product of the statistical work is realized by releasing the data. The mode and the tool of dissemination has to be selected by taking the potential user group(s) and the costs into account. The specification of the intended statistical output is a key stage of the statistical work and has a determining effect on its whole process.

Before designing the set of tabulations fitting the user needs the target population has to be delineated. This step has a considerable effect on the whole design process, since it determines the survey method including the selection of the statistical register(s) used and the data collection method. It is followed by the choice and definition of the variables which are suitable for measuring the economic and social flows of interest.

This stage of the design process results in the set of tables, helps the analysing work of the statisticians and satisfies the needs of the final users.

*Questionnaire design*

The well-designed questionnaires – fitting the data collection method and the burden of respondents – can guarantee to meet the survey objectives.

Before starting the questionnaire design, the following things must be determined:

– the scope of the survey,
– the potential data sources of the respondents,
– the method of the data collection (medium and mode),
– the way how to implement the data procession.

For testing and designing the questionnaires it is recommended to establish a working group composed of the questionnaire design experts, the informatics specialists and the representatives of the respondents to attain jointly the optimum version.

The formulation of the questions must be clear and understandable. The unfamiliar phrases, terms, abbreviations must be avoided. In case of questionnaire items the data required are available in the accounting information system of the respondents, the appropriate reference is needed. Also those questions have to be avoided to which various answers can be given simultaneously.

Response burden should be an issue to take into account. In general, the staff for completing the questionnaires is available in the big businesses, while the smaller ones lack of it. The "double-questionnaire-design" (one version for smaller enterprises another for big ones) is the practical way to approach this problem. The questionnaire for smaller ones can be more simple and shorter than the other version. It can improve the response rate.

The sequence of the questions must be developed:

– to guide the respondent from question to question clearly;
– to reveal the respondent the possible information sources;
– to rank the questions in a logical way,
– the questions of similar content to be grouped in a section.

The explanatory notes must be understandable and guide the respondent in filling the form. To enhance the willingness to provide the data, the explanatory material or an introductory letter must inform the respondent about the goals of the survey, the use of the data required and the way how to ensure the confidentiality of data.

*Pilot survey*

Before introducing a new or a renewed survey, a pilot survey must be carried out in order to test the designed survey. It comprises:

– the quality check of the questionnaire including the explanatory notes;
– defining the size of the field work needed;
– testing the editing and processing applications;
– a clear insight in the cost and efforts needed;
– obtaining sufficient information about the expected response rate.

The size of the pilot survey has to be determined with regard to the characteristics of the target population, of which the most important factor is the degree of its homogeneity. The sample, whose number is usual between 100 and 300, must be selected from the target population by specifying some significant criteria from a statistical point of view:

– e. g. kind of activity, size, legal form, accounting system, regional delineation in domain of economic statistics;
– in case of social statistics, type of institutions and settlements, size of regions, social composition of population etc.

The questionnaire including the explanatory notes and other accompanying materials have to be evaluated in the following context:

– the questions are clear and understandable;
– the sequence of the questions promote the questionnaire to be completed in the desired way at a reasonable time and effort;
– the instructions can be interpreted easily;
– the information about the time is needed to complete the separate sections of the questionnaire.

In case of two or more questionnaire versions to find the optimum, the sample can be divided by these versions during the pilot survey. The most practical way to use this method when two versions are available, consequently the respondents are divided half-and-half.

The pilot survey also results in the information about

– whether the respondents' bookkeeping system can support the statistics needed,
– their willingness to provide the data.

As a result of the pilot survey, the statistical staff involved in the design process analyses the items of the questionnaires completed, evaluates the experiences with the field work and reviews whether the method used for the data collection meets the expectations, whether the training of the interviewers were thorough, which questions were typically misunderstood or incorrectly completed, whether the co-operation and the information exchange was sufficient between the management of the field work (regional offices) and the unit(s) of NSI responsible for collecting the statistical data of interest.

The pilot survey provides the opportunity to test computer programs for data processing. In this phase the following things must also be under consideration:

– whether the questionnaires must be revised and coded manually;
– the application for data capture and editing is user-friendly enough;
– the cost and time of the data capture.

Experiences from the pilot survey leads to the modifications in the design process, but they may also lead to a reduction of the level of output, both in terms of contents and scope, and indicates where new approaches and other methods should be applied to achieve the objectives of the survey.

In each stage the time and the cost of the tasks must be counted separately, which can serve as a basis to extend these calculations to the whole survey. It may occur, that the analysis implies the volume scale of the questionnaire or the number of the sampled units should be moderated to ensure the consistence with the available resources.

*Organization plan for data collection*

In this stage the steps of the data collection process have to be defined. It comprises:

– defining the survey frame population, in case of sample survey the sample design, as well as selecting the sampled units;
– specifying the data flows and the management tasks relating to the survey and organizing the field work ( e. g. determining the number of the interviewers needed, elaborating the training program for them);
– preparations for questionnaires dispatch (including the attached materials),
– receiving the questionnaires completed by respondents, completeness check;
– specifying the method in case of non-response.

Ways to define the frame population or the sample frame are the following.

– By using an algorithm for selecting the units observed. The selection process based on the business register parameters ( e. g. sector, size class, legal form, demographical factors etc.) This is the most effective and flexible selection tool, because the changes in units and characteristics over time are also recorded in the frame population (sample frame) automatically;
– On the basis of a former survey, when the criterion of selection can be embodied as an indicator within a maximum and minimum value;
– Individual selection scheme, that means a list of all elements of the frame population (sample frame).

The mode of the data collection (by mail or interview) is already chosen in the earlier stage of the design process, at this point the organizational exercises linked to the dataflows must be worked out to answer

– where the questionnaires are received (regional office, department of NSI);
– where the data entry and editing phase are intended to implement;
– where the data processing are performed.

It is needed to elaborate

– the organization plan for selecting the interviewers, and the mode of their training program;
– the timetable of survey;
– the mailing list (names, addresses and telephone numbers of the reporting units);
– initial contact letter informing respondents in advance about the survey they will be involved in.

At the same time, the statisticians have to specify

– the number of copies of the questionnaire and the other accompanying materials;
– the way how to produce them (printing, copying etc.);
– the schedule of their production and dispatch.

The dispatch can be implemented by

– creation of a dispatch file (from the statistical register) containing the records with each unit surveyed;

– application of a list for mailing purpose which can be compiled by using the outcome of another survey carried out earlier;
– interviewers.

The receiving of the questionnaires completed by the respondents and the completeness check comprise

– collection and registration of the entering questionnaires;
– completeness-check relating to two types of missing information (unit non-response and item non-response);
– determine the reasons of non-response;
– specifying which part of missing information is needed to impute;
– what sort of information are necessary for completeness-check.

### *Design of applications for data entry and editing*

When preparing the data entry and editing process, it must be explored

– which statistical register(s) will be used,
– which nomenclatures, which versions of them are needed for processing the data of the questionnaires,
– whether the metadatabase covers the nomenclatures needed regarding the data collection.

In case if the answer is “no” for the latter question, the metadatabase must be extended to the appropriate version of the nomenclature needed for data collection.

Recommendations for setting up the list of edit rules:

– it is needed to check the correctness and validity of the identification code of the unit observed and to test the relationship between the codes and the respective items,
– it is needed to apply valid values checks and range checks of the data as well as checks taking the form of a ratio between two variables, which should be within specific bounds;
– it is practical to compare the survey data with the same figures at the point of time *t*-1 and with data from other surveys;
– it is needed to apply the arithmetic check based on specifying that the sum of variables should be equal to the total item, if any other relational checks can not be developed;
– each editing rule must be corresponded with an identification code of the error connected with a short message;
– the errors detected must be ranked in the order of significance. For example the following categories can be used: *1*. A warning that the item might be wrong (soft errors). *2*. The erroneous item is revealed and marked, but not corrected. *3*. The error must be corrected.

The following different methods can be applied with respect to the data entering and editing:

– data capture by Optical Character Recognition (OCR) systems, automated editing;
– data capture by OCR systems, correction done by the data typist entering the data form;
– computer assisted data capture and correction by the statisticians, the interviewers or the respondents.

In the specification of editing rules

– an algorithm linked to the different type of errors is needed to provide, when automated correction is used;
– in case of correction by the data typist, the staff has to be instructed the way the correction is implemented;
– a set of tables has to be developed which summarizies the experiences with the data entry and editing.

When setting up the system for the data entry and editing, each application and procedure must be documented, it is the precondition for securing the smooth-running operation.

*Design of applications for data processing*

The result of the data processing is the intended statistical output fitting the survey objectives. This output can be embodied as

– electronic dissemination (diskettes, on line transmission, etc.),
– printed publication.

The activity of data processing comprises

– creation of the output database,
– imputation relating to unit and item non-response,
– the sample estimation,
– aggregation of micro-data,
– retrospective correction.

When elaborating the application of the data processing, the following questions are to be answered:

– is it necessary for the statisticians to be able to reach the individual data on line;
– whether the missing information to be or not to be imputed and what sort of methods for imputation can be employed in case of unit and item non-response;
– is it necessary for the statisticians to be able to reach the micro data of the sample;
– what estimation method should be developed in case of sample survey;
– if the database has to operate on micro data level, should it cover each item of the questionnaire or only a part of it;
– which aggregation levels are the most commonly used and are the nomenclatures relating to these levels available or not in the metadatabase;
– what indicators should be calculated on micro or aggregated level;
– whether the retrospective correction has to be implemented and what rules are connected with it.

The specification of the data processing must be stored in the computer. Here the main aim is to ensure the easy access. In case the specification is altered, the new version of the documentation including the highlighted changes have to be completed. Titling has to refer to the identification code of the subject and the year of starting point when the given specification was applied at the first time.

*Budget plan*

Planning the total cost of the surveys helps the decision-making and provides information for the annual budget plan of the statistical agency.

The survey costs have to be calculated in two forms, accordingly a simple and a detailed versions of budgetary plan are compiled. The simple one is derived from the investigation of user needs to what extent they are proven and can be satisfied,

meanwhile the detailed one is incorporated in the design process and based on the information of each stages.

The survey costs have to be divided into groups as direct costs and indirect costs. Direct costs can be measured and listed in the budgetary plan. These items have to be classified by the place where they incurred (the units of NSI), by the time and by their type (wage and salary as well as other expenditures).

*

Regulations on statistical survey design is an important tool for planning and controlling the survey process. The survey design is a chain of actions aiming at satisfying the user needs and minimizing the burden of the respondents. It is the task of the statistician to find the consensus between these two conflicting interests.

# STABILITY OF COMPOSITE ESTIMATORS: EXPERIMENTS WITH HUNGARIAN LFS DATA*

ÖDÖN ÉLTETŐ – LÁSZLÓ MIHÁLYFFY

Since the establishment of the Central Statistical Office in 1867, the endeavour to keep pace with methodological developments of statistical bureaus and agencies leading the field has been a traditional feature of Hungarian official statistics. Application of survey methodology in social and agricultural statistics in Hungary since the fifties of this century as well as the results of those applications represented a standard which was acknowledged by the international community of official and survey statisticians. It is a commonplace that our period after the enormous changes in Mid-Eastern Europe and in the former Soviet Union in the early nineties unceasingly creates new challenges for official statisticians, especially in the so-called transition countries like Hungary. One way to respond to those challenges is to make no stop in improving and enhancing our methodological tools. The purpose of this paper is to take a step in this direction in the ranks of Hungarian official statistics.

Using composite estimators as a device to reduce the variance of direct sample estimates was introduced in the Current Population Survey (CPS) of the United States, in the beginning of the seventies.[1] The first version of those estimators labelled today as "the simple composite estimator" is basically the same which is considered below as a possible technique to be included in the processing of data of the Hungarian Labour Force Survey (LFS); the difference between estimators reflects that between sample designs. Since the initial "simple" stage, the composite estimator in the CPS has been the subject of many researches resulting in new and more efficient composite estimators.[2] Considering this development of the composite estimator and its possible introduction in the Hungarian LFS, it might seem somewhat odd to use the first generation of the method in this experiment rather than the last. The explanation of this approach is the

* The paper was presented at the IASS/IAOS Satellite Meeting on Longitudinal Studies. Jerusalem. August 27–31. 1997. The research was supported by the Hungarian Scientific Research Fund. No. T 017981.

[1] The Current Population Survey. Design and Methodology. US Bureau of the Census. Technical Papers 40.

[2] *Gurney, M. – Daly, J. F.*: A multivariate approach to estimation in periodic sample surveys. Proceedings of the Social Statistics Section. American Statistical Association. 1965. 242–257. p.; *Wolter, K. M.*: Composite estimation in finite population. *Journal of the American Statistical Association*. 1979. Vol. 74. 604–613. p.; *Breau, P. – Ernst, L. R.*: Alternative estimators to the current composite estimator. Proceedings of the Section on Survey Research Methods. American Statistical Association. 1983. 397–402. p.; *Cantwell, Patrick J.*: Variance formulae for composite estimation in rotation designs. Survey Methodology. Vol. 16. 153–163. p.

following. On the one hand, the simple composite estimator fits well in the current conditions of the Hungarian LFS; on the other hand, without certain modifications of the current practice of collecting and processing data of the LFS, the implementation of a sophisticated composite estimator would be meaningless, since the conditions of its efficiency are not fulfilled.

*Some properties of the Hungarian Labour Force Survey*

As was mentioned above, our purpose is to examine the conditions of possible introduction of a simple composite estimator in the Hungarian Labour Force Survey (LFS). To this end it is useful to have a brief review of the survey to see if it meets some basic conditions which are inevitable to define a composite estimator.

The LFS is a quarterly survey of households, which is based on a stratified probability sample of dwellings. The sample consists of a self-representing and a non-self-representing part, which were selected by a two-stage and a three-stage design, respectively. The dwellings or rather the addresses in the working sample are selected from the stock of addresses of 8272 enumeration districts (ED's) of the 1990 population census; this collection of ED's is called master sample and was designed to provide a sufficient number of addresses for the LFS in the period January 1992 – December 2001. The current practice of data collection is as follows:

– data are collected monthly, in each month one-third of the sample ED's are visited by the interviewers;
– in each month, one-sixth of the dwellings is replaced in the ED's pertainig to the month in consideration;
– any household entering the sample at some time is expected to provide labour market information on six consecutive occasions, then leaves the sample for ever;
– depending on earlier information on non-response rates, three or four addresses are selected from each ED visited in a given month;
– all individuals to be interviewed in the three or four dwellings within an ED visited currently have participated in the survey the same number of times (including non-responses), which means that they had entered the working sample at the same time, and will leave it together, too;
– in sampled dwellings, all persons aged 15–74 are eligible for the LFS.

The following remarks are in order here:

– while the above scheme is obviously complex, it guarantees that in principle there is an overlap of 5/6 between the samples of two consecutive quarters, an overlap of 2/3 between consecutive half-years, and 1/3 between same quarters of consecutive years;
– the complexity has resulted from exogeneous factors such as budget cuts and not from some extravagant new tendencies in sampling techniques;
– while it is possible to identify rotation groups in the system given, owing to the different number of dwellings selected from different ED's (three in some cases and four in others), there may be significant differences among rotation groups, indicating that composite estimators based heavily on them may be not very successful;
– a new redesign is underway to remove the asymetry among rotation groups.

By the sample design, the Horvitz–Thompson estimator is the natural tool to estimate levels or totals from the LFS. Since dwellings are the ultimate units of selection in the sample, primary sample weights are expressed as ratios of total number of dwellings in a given geographical unit to that in the sample. To reduce non-response bias, final value of

sample weights is obtained by adjustment with the method of generalized iterative scaling.[3]

This method ensures that adjusted estimates for totals of age-sex groups and dwellings in geographical breakdown agree with the corresponding updated census counts. For further details on LFS design, see the following articles.[4]

*The simple composite estimator and its stability*

Composite estimators can be defined in different ways. Our interest is focused on such estimators which need for their definition sample data from at least two periods of time, say $t$ and $t$+1, requiring also that the samples at those periods may have a non-empty overlap. If this is the case, the definition is as follows:

$$\hat{Y}^c_{t+1} = (1-\alpha_t)\hat{Y}_{t+1} + \alpha_t \hat{Y}^c_t + \alpha_t \Delta \hat{Y}'_t, \qquad /1/$$

where

$\hat{Y}_t$ – is the direct sample estimate of some total $Y$ at period $t$,
$\hat{Y}^c_t$ – is the corresponding composite estimate,

$\hat{Y}'_t$ and $\hat{Y}'_{t+1}$ – are direct sample estimates at periods $t$ and $t$+1, respectively, estimated on the overlap of the samples used at those periods,

$\Delta \hat{Y}'_t = \hat{Y}'_{t+1} - \hat{Y}'_t$,

$0 \le \alpha_t \le 1$.

With reference to the previous section, it is easily seen that the conditions of introducing this estimator in the Hungarian LFS are met; recall in particular that the overlap of the samples between two consecuitve periods, i.e. quarters amounts to approximately 5/6.

In the first applications of estimator /1/ in the American CPS , the weight $\alpha_t$ was chosen as 0.5 for each period, which was month in that case, and for all variables of interest. The latter were totals of employment (E), unemployment (UE) and civilian labour force (CLF) at national level as well as in certain breakdowns such as e.g. by race. Experience showed that that choice of $\alpha_t$ reduced the variance of the variables, without destroying their consistency; e. g. levels of (E) and (UE) totalled the level of (CLF), no matter if simple direct or composite estimates were considered. *Breau* and *Ernst*, studying the so-called generalized composite estimate, have determined the coefficients – that correspond to the weight $\alpha_t$ in the case of estimator /1/ – so that the variance of the composite estimate may be minimal. While to minimize variances is very attractive, and application of this principle to simple composite estimators is particularly simple, this approach involves considerable

[3] *Darroch, J. N. – Ratcliff, D.*: Generalized iterative scaling for log-linear models. Annals of Mathematical Statistics. 1972. Vol. 43. 1470–1480. p.; *Zaslavsky, A. M.*: Representing local area adjustment by reweighing of households. Survey Methodology. 1988. Vol. 14. 265–286. p.; *Zieschang, K. D.*: Sample weighing methods and estimation of totals in the consumer expenditure survey. *Journal of the American Statistical Association*. 1990. Vol. 85. 986–1001. p.

[4] *Éltető, Ö.*: The unified system of Household Surveys in Hungary. Paper presented at the seminar "International Comparison of Survey Methodologies". Athens. 30 March–1 April 1992.; *Mihályffy, L.*: The Unified System of Household Surveys in the decade 1992–2001. Statistics in Transition. 1994. Vol. 1. 443–462. p.

complexities. With this method, obviously different values are obtained for $\alpha_t$ if the variance of different characteristics, e.g. level of (E) and (UE) are minimized. Though individual composite estimates would be of minimal variance in this way, their consistency in terms of additivity would be lost. An alternative approach to this would be to optimize only for one variable, probably for level of (UE), and to use $\alpha_t$ determined in that way for all other variables (levels) involved. However, even this method may lead to undesirable consequences; this can be illustrated by a comment of some US Bureau of Labor Force officials, who claimed that they would refuse a set of estimates if the price of reducing variance of level of (UE) were accepting an increase in the variance of total (CLF).

In the history of composite estimates, little attention has been devoted to the issue of stability. By this we mean the following. Suppose we consider a not too long time horizon, e.g. eight consecutive quarters in the Hungarian LFS. In the first period, the composite estimate is set equal to the current direct sample estimate, and in periods 2–8 the definition /1/ is used. The weight $\alpha_t$ is determined by minimizing $\mathrm{var}\left(\hat{Y}^c_{t+1}\right)$, the estimated variance of the composite estimate. The latter is a quadratic function of $\alpha_t$, thus minimization is done by differentiating with respect to $\alpha_t$, and setting the derivative equal to 0. We shall call the composite estimate stable over the given time horizon if the sequence

$$\alpha_1, \alpha_2, \ldots, \alpha_7$$

shows the pattern of the sum of a constant mean and a random disturbance. If stability were found for some variable, e.g. for level of (UE), the average of the $\alpha_t$ 's would probably yield a variance close to its minimum and could be used as a constant for some periods in the future. There is obviously no guarantee that this kind of stability, if once established, would last for ever; in any case, the method described in the following enables the user to monitor the behaviour of $\alpha_t$ over time.

*The method of examining stability*

Stability of the simple composite estimate will be examined below with Hungarian LFS data, beginning with the first quarter of 1995 and completing with the fourth quarter of 1996, thus a time horizon of eight consecutive periods will be considered. The reader may observe that the method can easily be extended to the case where the number $T$ of periods involved is different from 8. Note that the lengthy technical derivations below serve as the documentation of our experimental computations, hence readers with less interest in such details may skip to the next section on results.

Because of the recurrent relation /1/, the simple composite estimator can be re-written as follows:

$$\hat{Y}^c_{t+1} = a_{t+1,1}\hat{Y}_1 + \ldots + a_{t+1,t+1}\hat{Y}_{t+1} + b_{t+1,1}\Delta\hat{Y}'_1 + b_{t+1,2}\Delta\hat{Y}'_2 + \ldots + b_{t+1,t}\Delta\hat{Y}'_t \qquad /2/$$

where $\hat{Y}^c_1 = \hat{Y}_1$, and

$$a_{t+1,1} = \prod_{\ell=1}^{t}\alpha_\ell, \quad a_{t+1,t+1} = (1-\alpha_t), \quad t = 1,2,\ldots,7 \qquad /3a/$$

$$a_{t+1,s} = (1-\alpha_{s-1})\prod_{\ell=s}^{t}\alpha_\ell, \quad t = 1,2,...,7, \quad s = 2,3,...,t \qquad /3b/$$

$$b_{t+1,s} = \prod_{\ell=s}^{t}\alpha_\ell, \quad t = 1,2,...,7, \quad s = 1,2,...,t \qquad /3c/$$

These relations can be verified by some algebra and induction. In what follows the above notations will be simplified, some additional notations will be introduced, and then an algorithm for the computation of the composite estimates in the periods 2, 3, ..., 8 will be given. Let

$$a_{11} = 1, \quad a_{12} = a_{13} = \ldots = a_{1,,15} = 0, \qquad /3d/$$

furthermore

$$\Delta\hat{Y}_t' = \hat{Y}_{t+8}, \quad t = 1,2,...,7,$$

$$a_{t+1,9} = b_{t+1,1}, \quad a_{t+1,10} = b_{t+1,2}, \quad \ldots, a_{t+1,t+8} = b_{t+1,t} \qquad /3e/$$

Finally, set $a_{ts} = 0$ for all $(t, s)$ not occurring in relations /3a/–/3e/. Since $\hat{Y}_1^c = \hat{Y}_1$, with these notations we have

$$\hat{Y}_t^c = a_{t1}\hat{Y}_1 + ... + a_{tt}\hat{Y}_t + ... + a_{t,15}\hat{Y}_{15}, \qquad /4/$$

for $t = 1, 2, ..., 8$, or, in vector-matrix form,

$$\hat{Y}_\bullet^c = A\hat{Y}_\bullet \qquad /4'/$$

where the dot represents the subscript ranging from 1 to 8 in the case of the composite estimate and from 1 to 15 in the case of the variable $\hat{Y}_t$. $A$ is the 8×15 matrix of the coefficients $a_{ts}$. If

$$C = (c_{ij}) = \begin{pmatrix} \mathrm{var}\hat{Y}_1 & \mathrm{cov}(\hat{Y}_1,\hat{Y}_2) & \ldots & \mathrm{cov}(\hat{Y}_1,\hat{Y}_{15}) \\ \mathrm{cov}(\hat{Y}_1,\hat{Y}_2) & \mathrm{var}\hat{Y}_2 & \ldots & \mathrm{cov}(\hat{Y}_2,\hat{Y}_{15}) \\ \vdots & & & \\ \mathrm{cov}(\hat{Y}_1,\hat{Y}_{15}) & \mathrm{cov}(\hat{Y}_2,\hat{Y}_{15}) & & \mathrm{var}\hat{Y}_{15} \end{pmatrix} \qquad /5/$$

is the covariance matrix of the variables $\hat{Y}_t$, /4/ or /4'/ implies the following useful relations for $t = 1, 2, ..., 8$:

$$\mathrm{cov}(\hat{Y}_t^c, \hat{Y}_s) = a_{t1}c_{1s} + ... + a_{tt}c_{ts} + ... + a_{t,15}c_{15,s} \qquad /6/$$

for $s = 1, 2, ..., 15$, and

$$\mathrm{var}\hat{Y}_t^c = \sum_{i=1}^{15}\sum_{j=1}^{15} c_{ij}a_{ti}a_{tj} \qquad /7/$$

On the basis of /3a/–/3e/, /5/, /6/ and /7/, the following algorithm can be given for computing composite estimates and their variance. Note that $\alpha_1$ in Step 1 and $\alpha_t$ in Step 4 are determined by the requirement that the composite estimate may have minimal variance at periods 2 and $t$+1, respectively.

Algorithm

*1*. $\alpha_1 = \dfrac{c_{22} - c_{12} - c_{29}}{c_{22} + c_{11} + c_{99} - 2c_{12} - 2c_{29} + 2c_{19}}$

*2*. $t = 2, \quad a_{t1} = a_1, \quad a_{t2} = 1 - \alpha_1, \quad a_{t9} = \alpha_1$

*3*. Using /6/ and /7/, compute $\hat{Y}_t^c$, $\operatorname{cov}\left(\hat{Y}_t^c, \hat{Y}_{t+1}\right)$ and $\operatorname{cov}\left(\hat{Y}_t^c, \hat{Y}_{t+8}\right)$

*4*. $\alpha_t = \dfrac{c_{t+1,t+1} - \operatorname{cov}\left(\hat{Y}_t^c, \hat{Y}_{t+1}\right) - c_{t+1,t+8}}{c_{t+1,t+1} + \operatorname{var}\hat{Y}_t^c + c_{t+8,t+8} - 2\operatorname{cov}\left(\hat{Y}_t^c, \hat{Y}_{t+1}\right) - 2c_{t+1,t+8} + 2\operatorname{cov}\left(\hat{Y}_t^c, \hat{Y}_{t+8}\right)}$

*5*. Using /3a/–/3c/ and /3e/, compute the coefficients $a_{t+1,1}, a_{t+1,2}, \ldots, a_{t+1,15}$. Set the coefficients $a_{t+1,s}$ not defined in this way equal to 0.

*6*. If $t < 7$, increase $t$ by 1, and go back to step 3.

*Results and some conclusions*

Under the assumption that eight consecutive quarters of the LFS are considered, the following relation was derived in the preceding section for composite estimates of some level or total:

$$\hat{Y}_\bullet^c = A\hat{Y}_\bullet \qquad /4'/$$

where

$\hat{Y}_\bullet^c$ – is a column vector consisting of the composite estimates in the 8 quarters in consideration,

$\hat{Y}_\bullet$ – is a column vector consisting of direct sample estimates in the 8 quarters plus the 7 estimates of changes in level between consecutive quarters,

$A$ – is a 8×15 coefficient matrix transforming $\hat{Y}_\bullet$ into $\hat{Y}_\bullet^c$.

The matrix $A$ was determined by the requirement that variance of the composite estimate may be minimal in each quarter except for the first. This requirement implied that, except for the first row, each entry of $A$ became a function of the covariance matrix $C$ defined by /5/ of the variable of interest. It is worth while to point out that /4'/ does work even if $A$ is not related to the variable $Y$ of interest through this optimality criterion. For instance, if someone decides on minimizing the variance of the level of unemployment (UE) and on using the same weights in the composite estimates for the employed (E) as for the (UE), he/she may proceed as follows. First, using data of the (UE) and the algorithm of the preceding section, the matrix $A$ and by /4'/ the composite estimates of (UE) are computed. Next, using /4'/ with $A$ obtained as optimal for the (UE) and with data of the (E), composite estimates of (E) are determined. The latter will be consistent with composite estimates of (UE), but their variance may not be minimal; under unfavourable conditions, it can be even higher than that of the corresponding

direct sample estimate. Eq. /7/ of the preceding section may be used to estimate the variance of composite estimates in this situation, too, however, special care should be taken of the fact that the coefficient matrix $A$ comes from optimizing for the (UE). while the covariance matrix $C$ belongs to the (E).

In the following, details and results of our actual computations are presented. The first set of computations related to quarterly estimates of level of unemployment, from the first quarter of 1995 to the fourth quarter of 1996.

Table 1 shows the covariance matrix $C$ for the (UE). Because of the complexity of direct sample estimates in the LFS, variances and covariances were estimated by the stratified jackknife option of the VPLX software developed by Robert E. Fay at the US Bureau of the Census. The VPLX is a software product specifically designed for complex surveys in which variance estimation with traditional analytic methods is infeasible.

Table 1

*Covariance matrix of the variables for unemployed (all entries scaled by $10^{-6}$)*

| Direct sample estimates* | | | | | | | | Quarterly changes in level** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\hat{Y}_1$ | $\hat{Y}_2$ | $\hat{Y}_3$ | $\hat{Y}_4$ | $\hat{Y}_5$ | $\hat{Y}_6$ | $\hat{Y}_7$ | $\hat{Y}_8$ | $\Delta\hat{Y}_1'$ | $\Delta\hat{Y}_2'$ | $\Delta\hat{Y}_3'$ | $\Delta\hat{Y}_4'$ | $\Delta\hat{Y}_5'$ | $\Delta\hat{Y}_6'$ | $\Delta\hat{Y}_7'$ |
| 153.6 | 104.1 | 74.8 | 50.2 | 31.4 | 15.6 | 0.0 | 0.0 | 19.5 | 8.0 | 5.9 | 0.9 | 2.7 | 0.0 | 0.0 |
| 104.1 | 143.2 | 103.5 | 71.2 | 47.6 | 25.7 | 4.9 | 0.0 | 9.1 | 14.5 | 9.3 | 2.9 | 3.7 | 0.3 | 0.0 |
| 74.8 | 103.5 | 153.4 | 105.5 | 73.8 | 47.6 | 15.7 | 5.4 | 3.9 | 19.2 | 16.3 | 5.5 | 4.8 | 0.9 | 1.0 |
| 50.2 | 71.2 | 105.5 | 151.6 | 107.0 | 73.5 | 29.6 | 14.4 | 2.5 | 5.9 | 17.5 | 14.8 | 7.1 | 4.7 | 1.9 |
| 31.4 | 47.6 | 73.8 | 107.0 | 173.9 | 119.0 | 55.2 | 29.3 | 1.6 | 1.8 | 9.5 | 32.2 | 15.9 | 13.3 | 5.0 |
| 15.6 | 25.7 | 47.6 | 73.5 | 119.0 | 164.7 | 85.7 | 50.5 | 0.2 | 1.5 | 7.4 | 16.0 | 11.2 | 19.9 | 9.3 |
| 0.0 | 4.9 | 15.7 | 29.6 | 55.2 | 85.7 | 158.8 | 101.1 | 0.0 | 1.0 | 1.3 | 6.7 | 6.2 | 9.0 | 22.4 |
| 0.0 | 0.0 | 5.4 | 14.4 | 29.3 | 50.5 | 101.1 | 143.0 | 0.0 | 0.0 | 0.9 | 1.9 | 2.8 | 1.8 | 14.2 |
| 19.5 | 9.1 | 3.9 | 2.5 | 1.6 | 0.2 | 0.0 | 0.0 | 35.5 | 4.4 | 1.0 | 0.3 | 0.4 | 0.0 | 0.0 |
| 8.0 | 14.5 | 19.2 | 5.9 | 1.8 | 1.5 | 1.0 | 0.0 | 4.4 | 42.1 | 5.7 | 3.4 | 0.2 | 0.2 | 0.0 |
| 5.9 | 9.3 | 16.3 | 17.5 | 9.5 | 7.4 | 1.3 | 0.9 | 1.0 | 5.7 | 40.9 | 5.7 | 0.4 | 0.8 | 0.4 |
| 0.9 | 2.9 | 5.5 | 14.8 | 32.2 | 16.0 | 6.7 | 1.9 | 0.3 | 3.4 | 5.7 | 58.1 | 8.3 | 4.0 | 1.3 |
| 2.7 | 3.7 | 4.8 | 7.1 | 15.9 | 11.2 | 6.2 | 2.8 | 0.4 | 0.2 | 0.4 | 8.3 | 32.9 | 2.1 | 1.9 |
| 0.0 | 0.3 | 0.9 | 4.7 | 13.3 | 19.9 | 9.0 | 1.8 | 0.0 | 0.2 | 0.8 | 4.0 | 2.1 | 42.3 | 6.5 |
| 0.0 | 0.0 | 1.0 | 1.9 | 5.0 | 9.3 | 22.4 | 14.2 | 0.0 | 0.0 | 0.4 | 1.3 | 1.9 | 6.5 | 46.1 |

* Subscripts 1, 2, ..., 8 refer to the quarters 1/1995 to 4/1996, respectively.

** $\Delta\hat{Y}_1' = \hat{Y}_2' - \hat{Y}_1'$, subscripts 1 and 2 refer to the first and second quarters of 1995, etc.

It is important to have some evidence on reliability of covariance estimates, and this is accomplished in Table 2, which contains size of the samples used to estimate the covariances. It is useful to note here that the entry $c_{ij}$ of $C$ is estimated on a sample which is the overlap of the samples used to estimate the variables $\hat{Y}_i$ and $\hat{Y}_j$ repectively. Empty cells in Table 2 refer to cases where the corresponding samples have no overlap. Considering that the smallest entry in the table is 5.9 and this corresponds to 5900 persons, we may assume that on the basis of our samples reliable covariance estimates can be computed. We also note that determining the data sets representing the overlaps of samples used in covariance estimates needed considerable amount of computer time and tremendous space on the hard disk. Table 3 shows the coefficient

matrix *A* transforming direct sample estimates into composite estimates; it is probably the structure which may deserve attention here.

The matrix consists of two blocks which are lower tiangular matrices, and the subdiagonal of the second block contains the weight $\alpha_t$ in the composite estimate in the consecutive quarters.

Table 2

*Size of intersections of samples used in variance-covariance computations*
(in thousands)

| Quarters 1995 | | | | Quarters 1996 | | | | Quarters 1995 | | | 1995 | Quarters 1996 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1–2 | 2–3 | 3–4 | 4–1 | 1–2 | 2–3 | 3–4 |
| **51.9** | 43.3 | 35.4 | 27.9 | 19.9 | 13.0 | | | 43.3 | 35.1 | 27.6 | 19.6 | 12.8 | | |
| 43.3 | **51.1** | 42.5 | 34.8 | 26.6 | 19.5 | 6.0 | | 43.3 | 42.6 | 34.5 | 26.1 | 19.3 | 6.0 | |
| 35.4 | 42.5 | **50.4** | 42.1 | 33.5 | 26.3 | 12.5 | 5.9 | 35.1 | 42.5 | 42.1 | 32.9 | 26.1 | 12.4 | 5.9 |
| 27.9 | 34.8 | 42.1 | **49.9** | 40.7 | 33.4 | 19.2 | 12.3 | 27.6 | 34.5 | 42.1 | 40.2 | 33.1 | 19.1 | 12.3 |
| 19.9 | 26.6 | 33.5 | 40.7 | **49.7** | 41.8 | 27.1 | 19.7 | 19.8 | 26.3 | 33.3 | 40.9 | 41.8 | 27.0 | 19.7 |
| 13.0 | 19.5 | 26.3 | 33.4 | 41.8 | **49.9** | 34.8 | 27.1 | 12.8 | 19.3 | 26.2 | 33.3 | 41.8 | 34.8 | 27.0 |
| | 6.0 | 12.5 | 19.2 | 27.1 | 34.8 | **49.6** | 41.4 | | 5.9 | 12.4 | 19.2 | 27.0 | 34.8 | 41.5 |
| | | 5.9 | 12.3 | 19.7 | 27.1 | 41.4 | **49.5** | | | 5.9 | 12.4 | 19.6 | 27.0 | 41.4 |
| 43.3 | 43.3 | 35.1 | 27.6 | 19.8 | 12.8 | | | *43.3* | 35.1 | 27.3 | 19.4 | 12.7 | | |
| 35.1 | 42.6 | 42.5 | 34.5 | 26.3 | 19.3 | 5.9 | | 35.1 | *42.6* | 34.5 | 25.9 | 19.1 | 5.9 | |
| 27.6 | 34.5 | 42.1 | 42.1 | 33.3 | 26.2 | 12.4 | 5.9 | 27.3 | 34.5 | *42.1* | 32.9 | 26.0 | 12.4 | 5.9 |
| 19.6 | 26.1 | 32.9 | 40.2 | 40.9 | 33.3 | 19.2 | 12.4 | 19.4 | 25.9 | 32.9 | *40.9* | 33.3 | 19.2 | 12.3 |
| 12.8 | 19.3 | 26.1 | 33.1 | 41.8 | 41.8 | 27.0 | 19.6 | 12.7 | 19.1 | 26.0 | 33.3 | *41.8* | 27.0 | 19.6 |
| | 6.0 | 12.4 | 19.1 | 27.0 | 34.8 | 34.8 | 27.0 | | 5.9 | 12.4 | 19.2 | 27.0 | *34.8* | 27.0 |
| | | 5.9 | 12.3 | 19.7 | 27.0 | 41.5 | 41.4 | | | 5.9 | 12.3 | 19.6 | 27.0 | *41.5* |

Table 3

*The Matrix A*
*Transforming direct sample estimates and quarterly changes pertainig to unemployed to composite estimates*

| Direct sample estimates* | | | | | | | | Quarterly changes in level** | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\hat{Y}_1$ | $\hat{Y}_2$ | $\hat{Y}_3$ | $\hat{Y}_4$ | $\hat{Y}_5$ | $\hat{Y}_6$ | $\hat{Y}_7$ | $\hat{Y}_8$ | $\Delta\hat{Y}_1'$ | $\Delta\hat{Y}_2'$ | $\Delta\hat{Y}_3'$ | $\Delta\hat{Y}_4'$ | $\Delta\hat{Y}_5'$ | $\Delta\hat{Y}_6'$ | $\Delta\hat{Y}_7'$ |
| 1.0000 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| .2073 | .7927 | .0 | .0 | .0 | .0 | .0 | .0 | .2073 | .0 | .0 | .0 | .0 | .0 | .0 |
| .0593 | .2268 | .7139 | .0 | .0 | .0 | .0 | .0 | .0593 | .2861 | .0 | .0 | .0 | .0 | .0 |
| .0161 | .0614 | .1933 | .7292 | .0 | .0 | .0 | .0 | .0161 | .0775 | .2708 | .0 | .0 | .0 | .0 |
| .0050 | .0190 | .0598 | .2254 | .6908 | .0 | .0 | .0 | .0050 | .0240 | .0837 | .3092 | .0 | .0 | .0 |
| .0015 | .0057 | .0181 | .0681 | .2088 | .6978 | .0 | .0 | .0015 | .0072 | .0253 | .0934 | .3022 | .0 | .0 |
| .0005 | .0019 | .0061 | .0230 | .0706 | .2360 | .6618 | .0 | .0005 | .0024 | .0086 | .0316 | .1022 | .3382 | .0 |
| .0001 | .0005 | .0017 | .0063 | .0194 | .0647 | .1814 | .7259 | .0001 | .0007 | .0023 | .0087 | .0280 | .0927 | .2741 |

*Note*. The rows correspond to composite estimates $\hat{Y}_1^c, \hat{Y}_2^c, ..., \hat{Y}_8^c$.

* Subscripts 1, 2, ..., 8 refer to the quarters 1/1995 to 4/1996, respectively.

** $\Delta\hat{Y}_1' = \hat{Y}_2' - \hat{Y}_1'$, subscripts 1 and 2 refer to the first and second quarters of 1995, etc.

The results – direct sample and composite estimates and standard errors for the level of unemployment in the quarters 1995–1996 – can be found in Table 4. While there is definite decrease in the value of standard error as the result of compositing, the extent of improvement is rather modest.

Table 4

*Estimates of the level of unemployment from the Hungarian LFS*

| Period (Quarters) | Direct sample estimate | | Composite estimate | |
|---|---|---|---|---|
| | Data | Standard Error | Data | Standard Error |
| | | 1995 | | |
| First | 435 948 | 12 395 | 435 948 | 12 395 |
| Second | 413 304 | 11 966 | 413 398 | 11 703 |
| Third | 416 895 | 12 387 | 414 747 | 11 965 |
| Fourth | 410 960 | 12 313 | 409 432 | 11 890 |
| | | 1996 | | |
| First | 425 420 | 13 186 | 42 5981 | 12 669 |
| Second | 399 701 | 12 833 | 398 666 | 12 283 |
| Third | 404 828 | 12 602 | 397 639 | 11 572 |
| Fourth | 375 627 | 11 959 | 376 161 | 11 413 |

The behaviour of the weight $\alpha_t$ showed the following pattern over time:

2d Quarter 1995 $\longrightarrow$ 4th Quarter 1996

0.2073 0.2861 0.2708 0.3092 0.3022 0.3382 0.2741

thus it may be regarded as stable. Over a period of moderate length in the future, the use of $\alpha_t = 0.3$ may be recommended. This choice would probably result in a value close to the minimum of the variance in the case of composite estimate of the level of unemployment.

Table 5

*Estimates of the level of employment from the Hungarian LFS*

| Period (Quarters) | Direct sample estimate | | Composite estimate | |
|---|---|---|---|---|
| | Data | Standard Error | Data | Standard Error |
| | | 1995 | | |
| First | 3 600 001 | 49 701 | 3 600 001 | 49 701 |
| Second | 3 625 227 | 50 930 | 3 628 048 | 48 028 |
| Third | 3 656 034 | 53 025 | 3 660 898 | 47 102 |
| Fourth | 3 675 000 | 53 517 | 3 672 254 | 46 279 |
| | | 1996 | | |
| First | 3 578 796 | 50 999 | 3 598 358 | 45 718 |
| Second | 3 615 967 | 51 315 | 3 623 733 | 45 009 |
| Third | 3 648 239 | 51 323 | 3 652 138 | 41 042 |
| Fourth | 3 702 475 | 51 735 | 3 698 408 | 41 360 |

Of the computations concerning level of employment, only the results are reproduced here, since there is nothing new in the properties of the matrices $A$ and $C$ in comparison with the previous case. It is remarkable that the variance-reducing effect of compositing is far more relevant here than in the case of level of unemployment. (See Table 5.) Unfortunately, the weight $\alpha_t$ seems to be far from being stable in this case, as is shown by the pattern of its varying over time:

| 2d Quarter 1995 | | | ⟶ | | 4th Quarter 1996 | |
|---|---|---|---|---|---|---|
| 0.4924 | 0.6200 | 0.6302 | 0.4442 | 0.6180 | 0.5523 | 0.7035 |

A possible reason for this phenomenon is some imperfection in the current practice of processing the data of the LFS. There is some evidence that stability would be found here too, if that imperfection were eliminated; hopefully, this improvement would not destroy the stability found in the previous case.

# CHANGES IN SOCIAL MOBILITY BETWEEN 1973 AND 1992*

RUDOLF ANDORKA

The new survey carried out in the autumn of 1992 on social mobility offers opportunity not only for analyzing the present state of mobility processes in Hungary and, by comparing it with the previous surveys, for the demonstration of the changes but also for the examination of some fundamental issues of the international special literature on mobility and for the control of its hypotheses/assumptions by empirical data. These issues and hypotheses are as follows:

– what are the effects of the slowdown of the structural changes in the society of the 1980s and the alteration of their direction in the recent years on mobility processes?

– what are the effects of the revolutionary[1] changes in the political system on mobility?

– is the so-called "F-J-H-hypothesis" – formulated by *D. L. Featherman – E. L. Jones* and *K. M. Hauser* almost twenty years ago – correct according to which the inflow and outflow mobility rates observed in different countries and periods are differing from each other, although, the inequalities of mobility chances are practically the same in every highly-developed country[2] in every period, consequently the mobility processes might be different at a "genotypical level" but they are entirely the same at the "geotypical level"?[3]

– or is it the hypothesis, formulated by *D. J. Treiman* and *H. B.Ganzeboom*, which rather corresponds to the facts, according to which the advanced societies are more open than the less advanced ones, thus at the higher levels of the economic development the inequalities in mobility chances are decreasing?

Formerly I have also tried to utilize the exceptional possibility offered by the series of the Hungarian data collections on mobility (nowhere in the world were there so many mobility surveys carried out), for the analysis of the temporal changes in mobility and by this the macro-social conditions influencing mobility, so I compared the mobility of 1983

* *Rudolf Andorka* intended to write a summary of social mobility surveys in Hungary for our special issue but he was prevented doing it because of his passing away after a long illness. The translation of his study published in *Statistical Review* (1995. No. 2. 101–120. p.) being his last work disclosed in our review has been published here according to his last wish.

[1] The changes in the spring of 1992 culminating in the multiparty-system general elections and in the formation of the coalition-government may well be called a revolution if one accepts the definition of the revolution according to which the revolution is the quick and very radical changing of the social and political structures and institutions.

[2] *Featherman, D. L., Jones, F. L.* and *Hauser, K. M.* added by way of precaution that their hypothesis, i. e. the same inequality of mobility chances is valid in the societies based on market economy and nuclear family system but later on they interpreted it so that it relates to all societies being economically highly-developed or at least medium-developed, including the European socialist societies as well.

[3] *Erikson, R.* and *Goldthorpe, H.* have seen the "F-J-H-hypothesis" to be proved by their inter-country comparison covering 12 countries, though, at the beginning of the survey, they wanted to deny it. More than one and a half decade before Feathermans, *Lipset, S. M* and *Bendix, R.* also formulated a similar hypothesis, however, not on the basis of the mobility chances but simply on the basis of the outflow mobility rates.

with that of 1973 and 1962 to 1964 as well as the mobility of 1973 with that of 1962 to 1964 and with the mobility conditions having taken shape on the basis of the population censuses of 1949 and 1930. For the analysis of the temporal changes another possibility was offered by comparing the mobilities observed at the same age of the generations succeeding each other.

## METHODOLOGICAL PROBLEMS

In this study I compare the social mobility between the generations of the years of 1973, 1983 and 1992,[4] so I disregard the surveys of 1962 to 1964 and the data of the former population censuses. The methodological reason of this decision is the fact that at the processing of the data of the three recent mobility surveys, identical social categories (strata) were observed, so the comparison is, in the strict sense of the word, fully allowable. The same, however, does not hold true of the surveys of 1962 to 1964 and still less of the data publications of the population censuses.

In the mobility tables compared I deal with the following seven social strata[5]:

*1*. managers and intellectuals: persons who hold a leading post (except for shop-foremen and other similar lower leaders) and who pursue a profession requiring a higher grade of education and who are in the possession of such education;

*2*. office-clerks: all the other intellectual employees;

*3*. artisans and retail dealers: self-employed artisans (craftsmen), merchants and others of non-agricultural profession (except for self-employed intellectuals who are included in the intellectuals);

*4*. skilled workers: non-agricultural manual workers whose staff-group is “skilled worker”;

*5*. semi-skilled workers: non-agricultural manual workers whose staff-group is “semi-skilled worker”;

*6*. unskilled workers: non-agricultural manual workers whose staff-group is “unskilled worker”;

*7*. agricultural workers: persons whose profession is of agricultural-manual character disregarding their occupational status (employee, member of cooperative or self-employed and unpaid family worker) and their staff-group (skilled worker, semi-skilled worker or unskilled worker).

This seven-stratum social structure model may naturally be disputable. *Antal Örkény* is of the opinion that the comparison of the eastern and western (European) stratified models is false, this is why a model other than that used for the observation of the North American and West European mobility should have been used for the examination of the Hungarian mobility processes. He also criticized the fact that “the inner stratification of the intellectuals and the various elite groups had totally got lost”. *István Harcsa*, too, criticized that the managers had not been separated from the intellectuals on the one hand and the fact, on the other hand, that the large strata as e.g. the stratum of the skilled workers had not been broken down to sub-strata and to various professional groups.

It is obvious that a more precise and delicate picture can be obtained on the Hungarian society if several social strata are distinguished and it is even more obvious that on the basis of theoretical considerations the leaders (managers) possessing power,

[4] Because of the limited volume of this study, here I only set out the tables originating from the survey of 1992 (see Tables 1 and 2). Other tables used here can be found in the author`s works entitled: Log-linear Analysis of Social Mobility (A társadalmi mobilitás loglineáris elemzése), 1962–1983 (*Statistical Review*. 1988. No. 2. l5l–l73. p.); Changes in Social Mobility in Hungary (A társadalmi mobilitás változásai Magyarországon) Gondolat. Budapest. 1982. 327. p. and Changes in Social Mobility in Hungary, 1962–1983. *Sociological Review*. 1991. No. 2. 5–29. p.

[5] From every table compared, I have omitted the persons observed who themselves or whose fathers belong to the categories “other” or “unknown”.

in other words the "powerful elite" should be separated from the intellectuals having no power. The increase of the number of the distinguished social strata is, however, delimited by the case number of those observed. Each cell of a 30 x 30 mobility table includes an average of a little over 10 cases even if the case number is 10,000, consequently many cells will inevitably be empty and this makes the deducible conclusions very questionable. It is, however, very difficult to separate the powerful elite and the intellectuals in the practice of the empirical surveys even if it is theoretically justified, among others because of the fact that the number of the members of the powerful elite was not over 10,000 from which only 50 persons were included in the sample in case of a 0.5 per cent sampling. From such a little case number, however, one must not draw all-embracing conclusions. In this way the data based on the sample taken from the whole population are not suitable for the examination of the mobility of the powerful elite.

As to the issue of the fact that the structures of the capitalist and socialist societies have differed from each other so much that they cannot be analyzed by the same concepts and stratum categories, it can only be stated that the related special literature could fill a library and there is not in the least any mutual agreement in this issue. However, the fact that in the international comparisons of social mobility the same social categories were used for the analysis of the mobility of the capitalist and the socialist societies, makes the conclusion justified according to which it is allowable to observe the temporal changes of mobility in Hungary,[6] at least in the first approach, on the basis of these seven strata.

At the former analysis of the temporal changes in social mobility in Hungary, according to my experience the mobility of the young adult earners (between 25 to 29 years) shows much greater changes than that in the total of the earners. This is why, besides the tables relating to the total of the earners, I analyze the data of the earners between 25 to 29 years separately this time as well. But at the conclusion drawn, the fact forewarns that in these surveys the effective case number is about 1,000.

In addition to the comparison of the so-called global mobility rates i. e. the inflow and outflow mobility rates, similarly to my former study, I have also utilized the method of the log-linear analysis. From the international special literature the conclusion can be drawn that this mathematical statistical method, with some improvements, has been the distinguished or at least one of the distinguished methods of the temporal and international comparisons of social mobility since the mid-1970s. It is suitable principally for the examination of the changes in the chances or inequality of chances of the relative mobility. This is usually denominated in the special literature by the pair of concepts "openness–closeness". (The essence of the log-linear method has been described in one of my former works so I do not repeat it at this place.)

For the analysis of the inequality of chances I am going to use the association and dissociation indices widely applied in the 1950s. These indices have been defined mathematically in one of my former volumes.

[6] *Erikson, R.* and *Goldthorpe, H.* have used a model very similar to the Hungarian one in the comparison of mobility in which beside the West-European countries two socialist countries (Hungary and Poland) took part. The used classification is: *1*. top and middle-ranking managers and intellectuals (brain-workers); *2*. routine intellectuals; *3*. artisans and merchants; *4*. individual peasants; *5*. skilled-workers; *6*. workers without qualification (semi-skilled workers and unskilled workers); *7*. agricultural workers.

Table 1

*Intergeneration social mobility of male and female earners*

| The father at the age of 14-18 of the person enumerated | The earner in 1992 | | | | | | | | N (person) |
|---|---|---|---|---|---|---|---|---|---|
| | Manager and intellectual | Office clerk | Artisan | Skilled worker | Semi-skilled worker | Unskilled worker | Agricultural worker | Total | |
| | Males (Index: all males interviewed = 100.0) | | | | | | | | |
| Manager and intellectual | 41.2 | 19.8 | 7.2 | 19.7 | 6.7 | 2.2 | 2.7 | 100.0 | 415 |
| Office clerk | 25.6 | 24.0 | 5.6 | 32.6 | 6.3 | 2.6 | 3.3 | 100.0 | 583 |
| Artisan and retail trader | 13.7 | 13.7 | 10.8 | 36.6 | 14.1 | 5.4 | 5.7 | 100.0 | 612 |
| Skilled worker | 9.6 | 13.2 | 7.3 | 50.8 | 10.7 | 4.6 | 3.8 | 100.0 | 1735 |
| Semi-skilled worker | 6.3 | 10.0 | 4.8 | 45.2 | 20.1 | 6.0 | 7.6 | 100.0 | 1656 |
| Unskilled worker | 4.6 | 8.5 | 6.3 | 40.9 | 17.2 | 13.9 | 8.5 | 100.0 | 611 |
| Agricultural worker | 4.1 | 6.8 | 3.4 | 31.6 | 19.2 | 9.3 | 25.6 | 100.0 | 4121 |
| *Total* | *9.0* | *10.6* | *5.3* | *37.7* | *16.1* | *7.3* | *14.0* | *100.0* | *9733* |
| | Males (Index: males of identical social status = 100.0) | | | | | | | | |
| Manager and intellectual | 19.6 | 7.9 | 5.8 | 2.2 | 1.8 | 1.5 | 0.8 | 4.3 | |
| Office clerk | 17.0 | 13.5 | 6.4 | 5.2 | 2.3 | 2.1 | 1.4 | 6.0 | |
| Artisan and retail trader | 9.6 | 8.1 | 12.8 | 6.1 | 5.5 | 4.7 | 2.6 | 6.3 | |
| Skilled worker | 19.1 | 22.2 | 24.6 | 24.0 | 11.9 | 11.2 | 4.8 | 17.8 | |
| Semi-skilled worker | 12.0 | 16.0 | 15.5 | 20.3 | 21.2 | 14.1 | 9.3 | 17.0 | |
| Unskilled worker | 3.2 | 5.0 | 7.6 | 6.8 | 6.7 | 12.0 | 3.8 | 6.3 | |
| Agricultural worker | 19.5 | 27.3 | 27.3 | 35.4 | 50.6 | 54.4 | 77.3 | 42.3 | |
| *Total* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | |
| | Females (Index: all females interviewed = 100.0) | | | | | | | | |
| Manager and intellectual | 40.6 | 39.2 | 2.7 | 7.8 | 5.2 | 3.3 | 1.2 | 100.0 | 485 |
| Office clerk | 19.0 | 46.8 | 4.7 | 12.6 | 10.8 | 4.6 | 1.5 | 100.0 | 657 |
| Artisan and retail trader | 6.8 | 31.1 | 6.8 | 13.4 | 20.5 | 14.7 | 6.8 | 100.0 | 614 |
| Skilled worker | 8.3 | 36.0 | 3.8 | 22.3 | 19.2 | 8.6 | 1.8 | 100.0 | 1985 |
| Semi-skilled worker | 5.1 | 25.6 | 3.1 | 14.2 | 28.3 | 16.6 | 7.1 | 100.0 | 1759 |
| Unskilled worker | 4.0 | 21.7 | 3.6 | 15.5 | 28.1 | 20.0 | 7.1 | 100.0 | 605 |
| Agricultural worker | 3.0 | 14.6 | 2.7 | 9.7 | 27.2 | 19.1 | 23.7 | 100.0 | 4139 |
| *Total* | *7.5* | *25.3* | *3.4* | *13.6* | *23.4* | *14.7* | *12.1* | *100.0* | *10244* |
| | Females (Index: females of identical social status = 100.0) | | | | | | | | |
| Manager and intellectual | 25.8 | 7.3 | 3.7 | 2.7 | 1.0 | 1.1 | 0.5 | 4.7 | |
| Office clerk | 16.3 | 11.9 | 8.9 | 6.0 | 3.0 | 2.0 | 0.8 | 6.4 | |
| Artisan and retail trader | 5.4 | 7.4 | 12.0 | 5.9 | 5.3 | 6.0 | 3.4 | 6.0 | |
| Skilled worker | 21.6 | 27.6 | 21.4 | 31.7 | 15.9 | 11.3 | 2.9 | 19.4 | |
| Semi-skilled worker | 11.8 | 11.7 | 16.0 | 18.0 | 20.7 | 19.3 | 10.0 | 17.2 | |
| Unskilled worker | 3.1 | 5.1 | 6.3 | 6.8 | 7.1 | 8.0 | 3.4 | 5.9 | |
| Agricultural worker | 16.0 | 23.3 | 31.7 | 28.1 | 47.0 | 52.3 | 79.0 | 40.4 | |
| *Total* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | |

Table 2

*Intergeneration social mobility of all male and female earners aged 25-29 years*

| The father at the age of 14-18 of the person enumerated | The earner aged 25-29 years in 1992 | | | | | | | | N (person) |
|---|---|---|---|---|---|---|---|---|---|
| | Manager and intellectual | Office clerk | Artisan | Skilled worker | Semi skilled worker | Unskilled worker | Agricultural worker | Total | |
| | Males (Index: males between 25-29 years interviewed = 100.0) | | | | | | | | |
| Manager and intellectual | 44.4 | 15.9 | 7.9 | 25.4 | 4.8 | 1.6 | – | 100.0 | 63 |
| Office clerk | 17.6 | 20.3 | 10.8 | 37.8 | 6.7 | 4.1 | 2.7 | 100.0 | 14 |
| Artisan and retail trader | – | 3.0 | 27.3 | 36.4 | 27.3 | 6.0 | – | 100.0 | 33 |
| Skilled worker | 7.0 | 11.2 | 10.2 | 54.0 | 8.8 | 5.6 | 3.2 | 100.0 | 215 |
| Semi-skilled worker | 2.8 | 7.0 | 4.9 | 54.5 | 19.6 | 6.3 | 4.9 | 100.0 | 143 |
| Unskilled worker | 1.7 | 3.4 | 5.1 | 42.3 | 20.3 | 13.6 | 13.6 | 100.0 | 59 |
| Agricultural worker | 4.8 | 5.5 | 8.2 | 45.9 | 12.3 | 6.2 | 17.1 | 100.0 | 146 |
| *Total* | *9.3* | *9.5* | *46.7* | *12.8* | *6.0* | *6.7* | *6.7* | *100.0* | *733* |
| | Males (Index: males of identical social status = 100.0) | | | | | | | | |
| Manager and intellectual | 41.1 | 14.3 | 7.6 | 4.7 | 3.2 | 2.3 | – | 8.6 | |
| Office clerk | 19.1 | 21.4 | 12.1 | 8.2 | 5.3 | 6.8 | 4.1 | 10.1 | |
| Artisan and retail trader | – | 1.4 | 13.6 | 3.5 | 9.6 | 4.5 | – | 4.5 | |
| Skilled worker | 22.1 | 34.3 | 33.4 | 33.9 | 20.2 | 27.3 | 14.3 | 29.3 | |
| Semi-skilled worker | 5.9 | 14.3 | 10.6 | 22.8 | 29.8 | 20.5 | 14.3 | 19.5 | |
| Unskilled worker | 1.5 | 2.9 | 4.5 | 7.3 | 12.8 | 18.2 | 16.3 | 8.1 | |
| Agricultural worker | 10.3 | 11.4 | 18.2 | 19.6 | 19.1 | 20.4 | 51.0 | 19.9 | |
| *Total* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | |
| | Females (Index: females between 25-29 years interviewed = 100.0) | | | | | | | | |
| Manager and intellectual | 50.0 | 26.6 | 5.0 | 11.7 | 6.7 | – | – | 100.0 | 60 |
| Office clerk | 27.0 | 41.8 | 4.1 | 17.6 | 5.4 | 4.1 | – | 100.0 | 74 |
| Artisan and retail trader | – | 45.0 | 15.0 | 20.0 | 15.0 | 5.0 | – | 100.0 | 20 |
| Skilled worker | 11.8 | 35.3 | 2.7 | 25.9 | 16.1 | 5.5 | 2.7 | 100.0 | 255 |
| Semi-skilled worker | 4.6 | 25.4 | 3.1 | 26.1 | 29.2 | 8.5 | 3.1 | 100.0 | 130 |
| Unskilled worker | 9.0 | 20.4 | 3.0 | 28.3 | 22.4 | 13.4 | 3.0 | 100.0 | 67 |
| Agricultural worker | 5.7 | 24.0 | 1.9 | 20.9 | 31.0 | 8.9 | 7.6 | 100.0 | 158 |
| *Total* | *13.2* | *30.2* | *3.4* | *23.0* | *20.1* | *6.8* | *3.3* | *100.0* | *764* |
| | Females (Index: females of identical social status = 100.0) | | | | | | | | |
| Manager and intellectual | 29.7 | 6.9 | 12.0 | 4.0 | 2.6 | – | – | 7.9 | |
| Office clerk | 19.8 | 13.4 | 12.0 | 7.4 | 2.6 | 5.8 | – | 9.7 | |
| Artisan and retail trader | – | 3.9 | 2.3 | 1.9 | 1.9 | 1.9 | – | 2.6 | |
| Skilled worker | 29.7 | 39.0 | 28.0 | 37.5 | 26.6 | 26.9 | 28.4 | 33.4 | |
| Semi-skilled worker | 6.0 | 14.3 | 16.0 | 19.3 | 24.7 | 21.1 | 16.0 | 17.0 | |
| Unskilled worker | 6.0 | 6.1 | 8.0 | 10.8 | 9.8 | 17.3 | 8.0 | 8.7 | |
| Agricultural worker | 8.8 | 16.4 | 12.0 | 18.7 | 31.8 | 26.9 | 48.0 | 20.7 | |
| *Total* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | |

The association and dissociation indices have often been criticized, principally because the maximal value of the index depends on the percentage of the social category in question (in other words in smaller social strata the maximum of the association index is higher). This is why the association index cannot be used for the comparison of the closeness degrees of the individual strata. In my opinion, however, it is suitable to indicate if the closeness of a given social stratum changed as regards time and, together with the dissociation indices, if it can be used for examining if the distance between the individual strata has changed as regards mobility, respectively.

## CHANGES IN GLOBAL MOBILITY INDICES

According to the 7 x 7 social mobility tables underlying this study, the proportion of all mobile males and females hardly changed among the interviewed between 1983 and 1992. The same is true in respect of the earners between 25-29 years. While the total mobility of all earners increased to a considerable extent between 1973 and 1983 there was no change in it between 1983 and 1992. Among the young earners, however, there was hardly any increase already between 1973 and 1983. Consequently, the increase observed among all earners in 1983 as compared to 1973 was a result of the fact that in 1973 the older generations of that time were still more immobile. The larger mobility got across so that the mobility was larger in the younger generations and through the demographic processes they gradually replaced the more immobile aged people (see Table 3). Considering the slowdown of the structural changes in the 1980s on the one hand and the change of regime in 1990 on the other, the constancy in the proportion of the mobiles might seem to be strange.

Table 3

*Total mobility, minimally necessary structural and other mobility between 1973 and 1992*

| Year | Total | | Minimally necessary structural | | Other | |
|---|---|---|---|---|---|---|
| | mobility (per cent) of | | | | | |
| | males | females | males | females | males | females |
| | All earners | | | | | |
| 1973 | 64 | 63 | 29 | 31 | 35 | 32 |
| 1983 | 72 | 74 | 33 | 37 | 39 | 37 |
| 1992 | 72 | 75 | 30 | 37 | 42 | 37 |
| | Earners between 25-29 years | | | | | |
| 1973 | 65 | 75 | 25 | 34 | 40 | 41 |
| 1983 | 69 | 76 | 26 | 29 | 43 | 47 |
| 1992 | 69 | 75 | 23 | 30 | 46 | 45 |

The constancy, however, disappears immediately if the formation of the minimally necessary structural mobility (or structural mobility, for short) and the other mobility (or to be not quite precise: the circular or place interchanging mobility) are observed within total mobility. Namely, the structural mobility of males has declined while their circular

mobility increased. It deserves attention that the structural mobility of both male and female persons between 25-29 years is smaller and their circular mobility greater than those of all earners. The background of the decrease in structural mobility is the gradual slowdown of the structural change in the society[7] (see Table 4 and the figure). The differences between the seven-stratum social structures calculated on the basis of the data collected in the last five population censuses are as follows: between 1949 and 1960 the percentage is 21.0, between 1960 and 1970 16.6, between 1970 and 1980 12.4, between 1980 and 1990 8.4.[8]

Table 4

*Composition of active earners by social stratum according to population census data of 1949-1990*

| Social Stratum | In the year of | | | | |
|---|---|---|---|---|---|
| | 1949 | 1960 | 1970 | 1980 | 1990 |
| Manager and intellectual | 1.8 | 3.0 | 5.1 | 7.8 | 11.0 |
| Office clerk | 8.0 | 13.7 | 20.7 | 22.5 | 22.4 |
| Artisan and retail trader | 8.1 | 2.4 | 1.6 | 1.5 | 4.2 |
| Skilled worker | 11.2 | 15.5 | 19.5 | 23.2 | 25.7 |
| Semi-skilled worker | 5.2 | 13.1 | 16.6 | 20.8 | 18.0 |
| Unskilled worker | 12.1 | 14.0 | 13.0 | 7.7 | 6.6 |
| Agricultural worker | 53.6 | 38.3 | 23.5 | 16.5 | 12.7 |
| *Total* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* |
| Active earners (1000 persons) | 4085 | 4760 | 4989 | 5069 | 4527 |
| Of which females (per cent) | 29.2 | 35.5 | 41.2 | 43.4 | 44.5 |

From January, 1990 to December, 1992 (till the date of the survey) the structural change has accelerated in two respects: *1*. the number of the individual artisans and retail dealers has considerably increased (it probably reaches 7 per cent); *2*. the decrease in the number of those belonging to the agricultural stratum (active earners) has been accelerated.

At the intervals of all the four population censuses the proportion of managers and intellectuals, office clerks and skilled workers has been increasing but that of the agricultural stratum has been decreasing. As contrasted to this the ratio of the strata of the semi-skilled workers and the unskilled workers has initially increased but that of the unskilled workers since 1960 and that of the semi-skilled workers since 1980 has decreased. The proportion of the artisan and retail dealer stratum, however, had decreased till 1980 then it increased rather quickly. The structural and circular mobility phenomena at global level exert very different effects on the level of the individuals.

[7] Naturally, the change in the social structure stated during the population censuses and the intergeneration structural mobility do not simply correspond to each other. The intergeneration mobility data do not compare the social statuses in two calendar years but the social statuses of the earners interviewed in one calendar year and those of their fathers which used to be characteristic in the childhood of those interviewed. The matter is further complicated by the fact that in the wage earner population as a whole, several sons or daughters of a father may live, other fathers may not have children. Still, the structural changes in the society in the interval of the years of population censuses illustrate the quickness and direction of the structural change influencing the intergeneration mobility.

[8] Subtracting the percentages from each other, the sum of the percentage changes with positive (or negative) signs will be the index of the structures indicated here.

Structural mobility means in modern societies that, influenced by it, all the persons becoming mobile move in the main direction and it means in most cases the improvement of their social status. In the case of circular mobility only a half of the participants moves in the main direction, the remaining half of them shifts in the opposite one. So for the half of those who change place under the effect of circular mobility this means the worsening of their social status.

This is why the decrease of structural mobility and the increase of circular mobility among the males[9] must have had essential social–psychological effects, decreasing contentment and by this, decreasing the legitimacy of the economic–social–political system which might have contributed to the decay of the socialist system.[10]

## CHANGES IN THE INEQUALITY OF CHANCES

As it expresses the volume of place interchanging mobility, circular mobility has formerly been considered by the researchers as an index number of equality and inequality of mobility chances, respectively.

Later on it has been clarified that circular mobility (to be more precise the other mobility which remains after the subtraction of the minimally necessary structural mobility from the total mobility) does not by far exactly measure the inequality of chances i.e. the openness of the society. According to the conception dominating at present in the technical literature, for the measuring of the openness of a society the log-linear analysis can be used. Namely, the interactions measure the degree of the inequality of mobility chances in relation to each other. If in two tables the totals of the interactions are equal, the two tables express an inequality of chances of identical degree. If the totals of the interactions have been modified, the inequality of chances have changed. Let us see what the log-linear analysis of the mobility tables shows.

The results of the log-linear analysis[11] of the four series of tables carried out separately and summarized in Table 5 show that

*1*. the inequality of chances has changed in case of all male earners, namely from 1973 to 1983 it changed, from 1983 to 1992 it was unchanged;

*2*. in case of all female earners the inequality of chances did not change from 1973 to 1992;[12]

*3*. in case of both the male and female earners between 25-29 years the inequality of chances has considerably changed, namely both between 1973–1983 and between 1983–1992.

Hereinafter I will set forth how the inequality of chances changed between 1983-1992 according to the log-linear analysis. I have examined the change between 1973 and 1983 in my former study. (*Statistical Review*. 1988. No. 2. pp. 151–173.).

[9] It is more difficult to state the social–psychological effects of structural and circular mobility in case of females because the daughters together with their brothers are very likely to compare their own social status reached not only with that of their father but also with that of their mother, therefore reaching an identical social status does not necessarily mean that they, similarly to their brothers, consider it as a "rise" or a "come-down".

[10] *Adamski, W.* already saw one of the causes of the political crisis in Poland in 1980-1981 in the fact that the opportunities of mobility with an upward trend of the second-generation male workers (especially in the Baltic towns) had narrowed down.

[11] At 1 per thousand level, in case of a degree of freedom (df)=72 an $X^2$ likelihood rate exceeding 100, in case of a df=36, an $X^2$ likelihood rate exceeding 67 means that our hypothesis has been contravened that is it is "not true" according to the text of Table 5.

[12] As in case of all female earners the hypothesis proved to be true that in 1973, 1983 and 1992 the inequality of chances was identical, we did not continue the examination of the fact if there was a change from 1973 to 1983 and from 1983 to 1993. This is why I did not indicate the lines representing these hypotheses.

Table 5

*Results of the log-linear analysis*

| Population observed | Model | Degree of freedom (df) | Likelihood ratio $X^2$ | Conclusion at one per thousand likelihood level |
|---|---|---|---|---|
| All males | The interactions are identical in 1973, 1983 and 1992 | 72 | 155 | not true |
| | The interactions changed from 1973 to 1983, they did not change from 1983 to 1992 | 36 | 63 | true |
| | The interactions did not change from 1973 to 1983, they changed from 1983 to 1992 | 36 | 90 | not true |
| All females | The interactions are identical in 1973, 1983 and 1992 | 72 | 100 | true |
| Males between 25-29 years | The interactions are identical in 1973, 1983 and 1992 | 72 | 781 | not true |
| | The interactions changed from 1973 to 1983, they did not change from 1983 to 1992 | 36 | 325 | not true |
| | The interactions changed from 1973 to 1992 | 36 | 476 | not true |
| Females between 25-29 years | The interactions are identical in 1973, 1983 and 1992 | 72 | 757 | not true |
| | The interactions changed from 1973 to 1983, they did not change from 1983 to 1992 | 36 | 411 | not true |
| | The interactions did not change from 1973 to 1983, they changed from 1983 to 1992 | 36 | 360 | not true |

The simplest way of the global examination of the inequality of chances is to compare the effective total mobility rates of the mobility tables and the hypothetical mobility rate which is calculated by the programme of the log-linear analysis assuming that in the observed years all interactions were identical, to be more precise, that in all given years they were identical with the average interaction of the three years. The results show that among all males and among the males between 25-29 years the proportion of the mobile ones was effectively slightly higher (72 or rather 69 per cent) than it would have been if the inequality of chances had remained unchanged (71 or rather 68 per cent); among females between 25-29 years the effective mobility was to some extent smaller than the mobility to be expected in case of unchanged inequality of chances (75, respectively 76 per cent); among all females, however, the two mobility rates are identical (75%). The conclusion can be drawn that the inequality of chances has globally changed to a small extent, but among males some shift can be observed towards the chances becoming more equal. Thus, between 1983 and 1992 the Hungarian society became to some extent more open.

The formation of inequality of chances can be examined individually with the help of standardized residuals determined for the individual cells of the mobility tables.

Accordingly, the standardized residual expresses how much the difference is between the effectively observed case number and the case number which would come to being in case of unchanged inequality of chances (or using the terms of the log-linear analysis: in case of unchanged interaction).[13]

In case of all male earners the value of the standardized residual is significant in one cell only, in none of them in case of all female earners, therefore I do not set out these tables here. It is strange that the only cell which shows a significant standardized residual (-2.1) in case of males, is just relating to the artisan sons of artisan fathers. With moderate evaluation this could be considered so that the sons of the artisans and retail dealers have not got into the suddenly increased stratum of the individual enterpreneurs as favourably as they did into the stratum of the much less artisans and retail dealers in the 1970s and 1980s. In other words: it is not the traditional petty burgeoisie which is reborn, not their descendants become again individual enter-preneurs, but rather a new stratum of enterpreneurs is taking shape which does not have such traditions.

Table 6

*Intergeneration social mobility of males and females between 25-29 years*
(standardized residuals between case numbers calculated by hypothesis of interactions effectively observed and assumed to be unchanged from 1973 to 1992)

| The father at the age of 14-18 of the person enumerated | The earner between 25-29 years in 1992 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Manager and intellectual | Office clerk | Artisan and retail dealer | Skilled worker | Semi-skilled worker | Unskilled worker | Agricultural worker |
| | | | | Males | | | |
| Manager and intellectual | -0.2 | 0.1 | -0.3 | 1.9 | -0.4 | -0.6 | -4.1 |
| Office clerk | 2.4 | -0.9 | 1.1 | -1.7 | 1.4 | 0.6 | -1.2 |
| Artisan and retail dealer | -3.6 | -1.6 | -1.0 | -0.2 | 4.9 | -0.0 | -2.7 |
| Skilled worker | -1.4 | 0.7 | 1.7 | -0.3 | -2.0 | 2.1 | 0.0 |
| Semi-skilled worker | -1.1 | 1.4 | -1.5 | 0.3 | -0.6 | 0.5 | 0.5 |
| Unskilled worker | -2.0 | -2.7 | -1.9 | -0.4 | 1.0 | -0.8 | 6.1 |
| Agricultural worker | 3.1 | 1.2 | 0.4 | 0.7 | -1.1 | -1.8 | -1.7 |
| | | | | Females | | | |
| Manager and intellectual | 1.5 | -1.7 | -1.3 | -0.3 | 3.6 | -2.7 | -1.6 |
| Office clerk | 1.4 | 0.2 | 1.9 | -0.3 | -4.4 | 3.2 | -2.2 |
| Artisan and retail dealer | -3.7 | 4.9 | -0.7 | -1.0 | -0.5 | -2.3 | -1.2 |
| Skilled worker | -0.1 | -1.3 | 0.9 | -0.6 | -0.2 | 2.0 | 4.9 |
| Semi-skilled worker | -5.1 | 0.1 | -0.7 | -1.6 | 4.3 | 1.1 | 0.0 |
| Unskilled worker | 5.1 | -0.7 | 0.0 | 1.3 | -2.8 | 0.2 | -0.6 |
| Agricultural worker | 0.7 | 1.6 | 0.1 | 2.4 | -0.5 | -2.4 | -1.8 |

In case of the male earners between 25-29 years and the female earners between 25-29 years much more significant standardized residuals can even be observed (see Table

[13] The standardized residual is the quotient of the difference between the observed and the assumed case number, and the square root of the assumed case number. If the value of the standardized residual in 1992 is larger than 1.96 or smaller than -1.96 then it can be assumed that the effective interaction parameter or the mobility directed to the given cell is to all probability larger and smaller, respectively than it would be in case if the interaction or the inequality of chances were identical with that of 1983 and 1973.

6). This is naturally in close connection with the fact that at the analysis of these tables we have got a much larger $X^2$ likelihood ratio in case of the model assuming unchanged interaction, than at the analysis of the results of all male and female earners shown in Table 5.

On the basis of the significant standardized residuals the following conclusions can be drawn:

– among the sons of manager and intellectual fathers there are less agricultural workers, among their daughters there are more semi-skilled workers and less unskilled workers;

– among the sons of office clerk fathers there are more managers and intellectuals, among their daughters there are more unskilled workers and less semi-skilled workers and agricultural workers;

– among the sons of artisan fathers there are more semi-skilled workers and less managers and intellectuals as well as agricultural workers, among their daughters there are more office clerks and less managers and intellectuals as well as unskilled workers;

– among the sons of skilled worker fathers there are less semi-skilled workers and more unskilled workers, among their daughters there are more unskilled workers and agricultural workers;

– among the sons of semi-skilled worker fathers there is no significant deviation, among their daughters there are more semi-skilled workers and less managers and intellectuals;

– among the sons of unskilled worker fathers there are more agricultural workers and less managers and intellectuals and office clerks, among their daughters there are more managers and intellectuals and less semi-skilled workers;

– among the sons of agricultural worker fathers there are more agricultural workers, among their daughters there are more skilled workers and less unskilled workers than there would be in case of unchanged interaction, i.e. unchanged inequality of chances.

Should the readers arrive at the conclusion that on the basis of the above statements there are no definite samples in the change of inequality of chances I hasten to reassure them that it is not their fault: there is no consequent changing tendency in it, indeed.

We can reason out some more on the basis of the values of the standardized residuals seen in the main diagonal line. Though in case of males none of them is significant but all of them are negative so the immobile were some less in every stratum of origin than they would be if the inequality of chances had not changed at all. This confirms the above very moderate conclusion that the mobility of the males between 25-29 years shifted to a small extent towards the larger inequality of chances. Such change cannot be observed in case of the females between 25-29 years because from the standardized residuals seen in the main diagonal line only three are negative but four are positive, of which one is significant.

## CHANGES IN MOBILITY RATES OF PROMINENT SOCIAL STRATA

The mobility conditions of the manager and intellectual stratum situated on the top of social hierarchy are in the centre of interest of not only the sociologists but also the public opinion. Who climbs the top of the social ladder and who shins down it? How much advantage do those have who were born on the top as compared to those who come from below? What do the inequalities of chances depend on and how can they be influenced and moderated? These questions have drawn the attention of the sociologists since the beginning of mobility researches. They are, however, especially timely in

contemporary Hungary because they are raised in a way asking if the inequalities of chances are different in the initial "classic" period and the later "soft" period of socialism, after the transition to market economy and democracy as well as if the change of regime which can be called revolutionary but at the same time, peaceful, has had any influence on the mobility proceeding on the top of the society.

The data shown here are not suitable for the examination of the "exchange of the elite". I refer, however, to the fact that *Iván Szelényi* and his co-authors have analyzed the exchange of the elite and their staying in position, respectively on the basis of special samples, and they have arrived at the conclusion that in Hungary a rather considerable exchange took place between the second half of the 1980s and 1993, namely the exchange was of the largest degree in the political elite, it was of a lower degree in the business (economic) elite and it was the most unchanged in the cultural elite.

The outflow mobility rates of the manager and intellectual stratum being much wider than the stratum of the elite, show that fewer and fewer males and more and more females of this stratum have become managers or intellectuals (see Table 7). The reason for it is that among all males, and especially among the males between 25-29 years the proportion of managers and intellectuals did not increase but it decreased owing to the fact that in the 80s the higher grade schooling rate of males between 20–24 did not increase. At the same time, the proportion of managers and intellectuals among the fathers steadily increased. This is why more and more young males of manager and intellectual origin "competed" for the manager and intellectual positions the number of which was decreasing to some extent. Among the females, however, the proportion of those being in manager and intellectual positions grew quickly till 1983 and it has not even decreased since then, so the proportion of the sexes in this stratum, especially that of the young has shifted towards the direction of the females. To sum up, it can be stated that among the earners there are yet some more male managers and intellectuals than females, but among the female earners between 25-29 years there are more managers and intellectuals than among the male earners of the same age. The people, the parents probably assess the formation of mobility rather on the basis of the effective chances of the boys than on that of the girls therefore in the intellectual families the little worsening of the males' chances for becoming intellectuals has presumably created a feeling as if the career possibilities had narrowed down which might soon lead to the formation of discontentment.

Table 7

*Managers and intellectuals at the time of the survey among the earner sons of manager and intellectual fathers*
(per cent)

| Year | Total | | Between 25-29 years | |
|---|---|---|---|---|
| | male | female | male | female |
| 1973 | 46 | 28 | 52 | 31 |
| 1983 | 46 | 37 | 45 | 48 |
| 1992 | 41 | 41 | 44 | 50 |

The worsening of the chances of males of manager and intellectual origin does not go, however, with the improvement of the mobility chances of the persons originating from other strata, on the contrary: only the chances of the males originating from the office clerk stratum have improved to a little extent, the chances of the sons of other strata seem to be decreasing.[14] The worsening of the chances in some categories is larger, in other categories smaller than that observed by the persons of manager and intellectual origin.

The association and dissociation indices of the flow into the manager and intellectual stratum indicated in Table 8 do not either show consequent changes. Taking as starting point the quotient[15] of the association index of the manager and intellectual stratum and the dissociation index of the individual origination strata, for the analysis of the formation of the differences in chances between 1983-1992 we can observe changes of quite differing directions by the individual strata in case of both all the male and female earners and the male and female earners between 25-29 years.

The quotient of the association and dissociation indices indicates how many times greater chances the persons of intellectual origin have for the inflow to the intellectual stratum than those originating from the other stratum. Thus it measures so to say the inequality of chances in relation of these two strata.

On the basis of all these facts we can draw the conclusion that the chances for the inflow to the manager and intellectual stratum have neither become more equal nor more unequal.

Table 8

*Association and dissociation coefficients of the inflow to the manager and intellectual stratum*

| The father at the age of 14-18 years of the person enumerated | Manager and intellectual in the years of | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1972 | 1983 | 1992 | 1973 | 1983 | 1992 | 1972 | 1983 | 1992 | 1972 | 1983 | 1992 |
| | all males | | | all females | | | males between 25-29 years | | | females between 25-29 years | | |
| Manager and intellectual | 7.2 | 4.4 | 4.6 | 7.3 | 4.8 | 5.4 | 5.4 | 4.6 | 4.1 | 3.4 | 3.6 | 3.8 |
| Office clerk | 2.9 | 2.3 | 2.8 | 3.0 | 2.5 | 2.5 | 1.4 | 2.2 | 1.9 | 2.3 | 1.4 | 2.0 |
| Artisan and retail dealer | 1.3 | 1.3 | 1.5 | 1.2 | 0.8 | 0.9 | 0.9 | 0.3 | - | 0.6 | 0.9 | - |
| Skilled worker | 1.2 | 1.2 | 1.1 | 1.4 | 1.2 | 1.1 | 0.9 | 1.0 | 0.8 | 1.2 | 0.7 | 0.9 |
| Semi-skilled worker | 0.5 | 0.6 | 0.7 | 0.7 | 0.6 | 0.7 | 0.4 | 0.4 | 0.3 | 0.5 | 0.9 | 0.3 |
| Unskilled worker | 0.4 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.3 | 0.5 | 0.2 | 0.2 | 0.2 | 0.7 |
| Agricultural worker | 0.5 | 0.5 | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 | 0.2 | 0.5 | 0.4 | 0.5 | 0.4 |

Has nothing been changed then in the mobility conditions of the manager and intellectual stratum? It would be a mistake to arrive to this conclusion on the basis of the

[14] The change of chances shows a different picture in case of the total members of some origination strata and their members between 25–29 years.

[15] Association index (shown by the example of the association index of the manager and intellectual stratum) is: the percentage of the persons being in manager and intellectual position (status) of the sons of manager and intellectual fathers in proportion to the percentage of the persons being in manager and intellectual position (status) of the sons of all fathers. Dissociation index is accordingly (shown by the example of the dissociation index of the persons belonging to the manager and intellectual stratum of the sons of skilled-worker fathers): the percentage of the persons being in manager and intellectual position of the sons of skilled-worker fathers in proportion to the percentage of the persons being in manager and intellectual position of the sons of all fathers.

outflow mobility rates or the association and dissociation coefficients. Namely, the inflow mobility rates show that among the male managers and intellectuals, especially among those between 25-29 years, the proportion of those, originating from the manual worker strata has started to decrease.

The data of Table 9 show that among the young male managers and intellectuals those originating from the manual stratum are considerably less. This, so to say, indicates the future tendency as well. Among all females the proportion of those originating from the manual stratum has yet increased to a little extent, but among those between 25-29 years it has rather decreased to some extent. In the long run, owing to these changes the composition by origin of the manager and intellectual stratum gradually changes, among them the proportion of those originating from the intellectual stratum and within this, from the manager and intellectual stratum, will be more and more considerable. This can also be interpreted so that as regards practical experience, way of thinking, views concerning the problems of the Hungarian society, the distance between the manager and intellectual stratum and that of the workers and peasants will probably be more and more growing.

Table 9

*Proportion of persons originating from the manual stratum among managers and intellectuals*
(per cent)

| Year | Total | | Between 25-29 years | |
|---|---|---|---|---|
| | male | female | male | female |
| 1973 | 60 | 55 | 45 | 52 |
| 1983 | 64 | 56 | 46 | 51 |
| 1992 | 63 | 58 | 39 | 51 |

All these can lead to the fact that the manager and intellectual stratum and the manual strata are even consciously more and more separating from each other, their conflicts may intensify as well.[16] On the other hand this tendency also means that the manager and intellectual stratum in Hungary become more and more similar to those of the Western European societies in respect of their composition.

The change in the inflow mobility rates of the artisans and retail dealers shown in Table 10 definitely indicates the decreasing tendency of the proportion of the persons originating from the artisan and retail dealer stratum (though a little growth can be observed among the young males). Even if obviously there is a tendency that more individual artisans are there among the sons and daughters of the artisans and retail dealers than among the sons and daughters of other strata, we can draw the conclusion that the today's artisan stratum is not composed of the descendants of the former petty bourgeoisie, the majority of this stratum is originating from the descendants of other strata.

[16] *Connor, W.* brought up the possibility of the fact already 15 years ago that in the then existing socialist societies the growth of the proportion of the multi-generation intellectuals within the stratum of intellectuals as well as the growth of the multi-generation workers within the entirety of workers could lead to the separation of both of these strata and to the becoming of their relations conflict-burdened.

Table 10

*Proportion of persons originating from the artisan and retail dealer strata among artisans and retail dealers*
(per cent)

| Year | Total | | Between 25-29 years | |
|---|---|---|---|---|
| | male | female | male | female |
| 1973 | 31 | 20 | 22 | 20 |
| 1983 | 19 | 13 | 11 | 18 |
| 1992 | 13 | 12 | 14 | 22 |

Within the skilled-worker stratum the persons of worker origin are in majority and their predominance /prevalence among the persons between 25-29 years is larger than that among all the skilled-workers and the proportion of the persons of worker origin is growing among the male skilled-workers between 25-29 years. All these lead us to believe that among the skilled-workers there will be more and more multi-generation workers (see Table 11).

This is caused by several structural tendencies:

*1*. within the whole population the proportion of the persons of peasant origin is decreasing therefore even in case of the inflow of the sons of peasants in an unchanged proportion (which is not valid in case of males between 25-29 years of peasant origin), the proportion of the persons of agricultural background is inevitably decreasing in every stratum, so it is among the skilled-workers, too (see Table 12);

*2*. the tendency, having already been mentioned that among the young males the proportion of intellectuals has not increased, has reduced the chances of the sons of all origination strata for becoming managers and intellectuals, thus, according to the data of Table 13, less persons of the skilled-workers' sons, too, have become managers and intellectuals, consequently even more of them have chosen the presumably "second best" career possibility and remained skilled-workers.[17]

Table 11

*Proportion of persons originating from the worker strata among the artisans and retail dealers*
(per cent)

| Year | Total | | Between 25-29 years | |
|---|---|---|---|---|
| | male | female | male | female |
| 1973 | 49 | 49 | 56 | 59 |
| 1983 | 52 | 60 | 61 | 70 |
| 1992 | 51 | 57 | 64 | 68 |

These tendencies, similarly to the intellectuals, lead to the fact that the workers, including the skilled workers who constitute the decisive part of them, will gradually separate partly from the managers and intellectuals, partly from the peasants. This might

[17] At present(and perhaps in the near future) a career alternative becoming more and more advantageous for the sons of skilled-workers can be to become an individual artisan. In 1992 a considerably larger number of the sons and daughters of skilled-workers, especially of the young ones, became individual artisans than in 1983. If this tendency becomes stable or stronger, it might have a considerable influence not only on the objective situation but also on the way of thinking of the skilled-workers.

have far-reaching effects on the inter-stratum relations. At the same time we shall become more similar to the Western European societies in this respect as well.

Table 12

*Proportion of persons originating from the agricultural stratum among skilled-workers*
(per cent)

| Year | Total | | Between 25-29 years | |
|---|---|---|---|---|
| | male | female | male | female |
| 1973 | 35 | 30 | 29 | 21 |
| 1983 | 33 | 24 | 22 | 13 |
| 1992 | 35 | 28 | 20 | 19 |

Table 13

*Managers and intellectuals at the time of enumeration among the earner sons of skilled workers*
(per cent)

| Year | Total | | Between 25-29 years | |
|---|---|---|---|---|
| | male | female | male | female |
| 1973 | 7 | 5 | 9 | 11 |
| 1983 | 12 | 10 | 9 | 9 |
| 1992 | 10 | 8 | 7 | 12 |

In the recent years the agricultural stratum, in other words the peasantry has been affected by a lot of very strong effects whose consequences could hardly be forecast on theoretical basis.

The agriculture as a national economic branch has got into an even graver crisis than the other economic branches. The re-privatization and in connection with it the privatization of the land has been started very slowly and it has taken place almost in an uncontrollable way. The number of persons employed in agriculture and forestry has decreased particularly quickly. (In 1992 the number of the employed was already less than two thirds of that in 1988.) As a result of this the unemployment has extremely increased on the one hand and a lot of the active agricultural earners whose age composition was all the same rather old, were, on the other hand, put on the retired list (many of them with exemption by age). However, as the latter are indicated as earners in the mobility tables of 1992, the direct effect of the unemployment and pensioning cannot be seen from the tables analyzed here. On the other hand, the unemployment appearing in other economic branches has especially seriously stricken the daily and weekly commuters employed, some of them could try to find an agricultural job at their parish residence or in the vicinity.

It is strange that the effect of this latter tendency can be observed in the mobility rates of the agricultural stratum: especially among the young the proportion of the persons of peasant origin has decreased and that of those of worker origin has increased (see Table

14). Therefore we can draw the moderate conclusion that a traditional peasantry can less and less be found in Hungary.

Table 14

*Proportion of persons originating from the agricultural stratum among agricultural manual workers*
(per cent)

| Year | Total | | Between 25-29 years | |
|---|---|---|---|---|
| | male | female | male | female |
| 1973 | 81 | 83 | 68 | 68 |
| 1983 | 81 | 79 | 64 | 39 |
| 1992 | 77 | 79 | 51 | 48 |

Formerly it was stated by many people that at the same time the traditional peasant mentality/attitude, i.e. the very strongly work-oriented way of life, the strong family clannishness, the mutual help used to be very strong and wide-spread in the Hungarian society.

It would be difficult to decide how the transformation of the traditional and rather closed peasantry will influence this “peasant” mentality/attitude being characteristic for the strata of the Hungarian society being much wider than peasantry (but being of peasant origin back to one or two generations). At the same time, in spite of the slowdown of the nation-wide structural changes, the outflow from the agricultural strata of the persons of peasant origin did not decrease, it has rather increased particularly among the males between 25-29 years (see Table 15). This again points to the fact that the separation of the peasantry from the other strata has decreased.

Table 15

*Proportion of persons belonging to other strata at the time of survey among the earner sons of agricultural fathers*
(per cent)

| Year | Total | | Between 25-29 years | |
|---|---|---|---|---|
| | male | female | male | female |
| 1973 | 57 | 47 | 64 | 69 |
| 1983 | 75 | 74 | 72 | 93 |
| 1992 | 74 | 76 | 83 | 92 |

On the basis of the results of the analyses I would be cautious to speak the final word about the changes of the intergeneration mobility in Hungary between 1983 and 1992, all the more because mobility can also be examined by using social categories and methods differing from those used here. As to the cognition of the real situation in Hungary and the development of sociology it would be very advantageous if, on the basis of the excellent surveys of the HCSO, several other researchers analyzed the mobility processes of Hungary and if we compared and discussed their statements.

Nevertheless, I try to summarize some moderate conclusions, mainly in order to encourage the scientific debate.

The above-said have important methodological morals. Though there is no doubt that the log-linear analysis is a very refined and reliable method for the analysis of mobility, it is not right, after all, to neglect beside it the traditional table analysis, particularly that of the inflow mobility rates which, for whatever reason, have been from the beginning been pushed into the background to some extent beside the analysis of the outflow rates and the more complicated mathematical statistical methods. It has been shown that at the analysis of the mobility data of 1992 the greatest (and in my opinion in their effects very important) changes have been stated just on the basis of the inflow rates.

Let me add that *István Kemény* pointed out already on the basis of the analysis of the mobility data of the 1960s that while the outflow mobility rates generally used in international comparisons by *S.M. Lipset* and other western authors differ only to a little extent in Hungary from those observed in the western countries, there are very large differences concerning the inflow mobility rates. It is also to be noted that for the examination of the starting issue of the great international survey by Erikson and Goldthorpe i.e. for the examination of the class formation,[18] according to their opinion, practically the inflow mobility rates are to be used because it depends on them how much a social category can be considered homogeneous in respect of origin.

About the changes of the recent years in Hungary we can say on the basis of the mobility data that, though the change of regime was no doubt a revolutionary one and certain structural changes (e.g. privatization) were very quick, the processes taking place as deep as social mobility, did not change, as a matter of fact, dramatically. Moreover, in the background of the changes observed in 1992 practically the speed-up of the new tendencies emerging already in the decade of the 1980s was to be observed, so the tendencies which appeared were not entirely new. Let me add that the by far not such peaceful changes after 1945 were also characterized by this: the analysis of the mobility survey of 1962-1964 led to the surprising conclusion that mobility showed many constancy and a lot of its concerns hardly differed from the mobility of the western countries. One can even presume that the new features of the picture of mobility shown in the early 1960s were in fact the results of the strengthening of the tendencies having started since the late 1930s.

I do not wish to depreciate the significance of the slow changes which can be observed in the field of social mobility. The slow but continuous growth of the importance of the multi-generation intellectuals and multi-generation workers will in many respects change the operation of the Hungarian society. Let me add that these changes point to the direction that the Hungarian society will more and more be similar to the advanced Western European democratic societies which are based on market economy.

[18] Erikson and Goldthorpe have started from the fact that the lasting or only temporary junction with a social status /position (in other words with a class position) and the samples of the mobility between these positions, have an influence on the formation of the identity of the individual, on his recognition of his interests as well as on the fact what cultural, economic, social and political boundaries come to being and become stronger in the society. These, however, determine the operation of the social and political system, and among others, the conflicts within it.

In connection with the great problems of the international special literature on mobility I would formulate the following moderate conclusions:

*1*. the structural factors, their faster or slower changes seem to have a very strong influence on mobility processes;

*2*. the revolutionary changes in the economic and political system exert less influence on mobility than expected;

*3*. the inequality of chances has only changed to a little extent, thus the "F-J-H-hypothesis" almost entirely seems to be justified;

*4*. it cannot be excluded that simultaneously with the economic and social development the openness of the society still increases to some extent, in the long run, since the 1930s, the Hungarian society as well has gradually become more open in respect of mobility and on the basis of certain indications, the conclusion can be drawn that the openness has increased to some extent even since 1983.

# THE DEMOGRAPHIC SITUATION IN HUNGARY IN INTERNATIONAL PERSPECTIVE

GYÖRGY VUKOVICH

How has the demographic crisis taken shape, what are its characteristic features and does it also exist anywhere else? The economic and social consequences of the demographic situation begin to become obvious in these days. However, the anxiety concerning the demographic situation emerges in many respects in another way than the reactions to other crisis phenomena. Consciously or not, presumably this difference is due to two reasons. One of them is the fact that according to the opinion of a number of people, in the long run it is about the biological survival of the nation, the Hungarian ethnic group; the other reason is that as a matter of fact the conscious influencing of the unfavourable processes has not been successful so far and observing the matter in its reality, even a consequent demographic policy can only have very limited effects for the future. The question has also arisen whether such a policy is needed at all. All these make it clear why, for a long time, many people have observed the demographic situation with anxiety, why they express their anxiety in various forms and try to find the reasons for the present situation, though the opinions in this respect are not unanimous at all. There are people who also look for others to blame, they sometimes think to have found some culpables. The well-grounded anxiety also produces signs of impatience. I think that owing to the more and more worsening situation even more conflicts are to be expected in the future. The disputes are in many respects aggravated, often burdened by the differences in the professional background of the participants, first of all their imperfect knowledge of the subject, as it has turned out in several cases in the recent years.

This is why it seems to be reasonable to summarize in brief the most important elements of the main features of the present demographic situation in Hungary as well as the demographic processes.

## THE COMPOSITION OF THE POPULATION

Hungary's population was 10 174 thousand persons on 1st January, 1997, 535 thousand less than that of the 1980 census of population. The decrease in the number of the population is not an extraordinary phenomenon at all in Europe, the number of the population of the United Kingdom, Germany, Roumania and several other countries has

also decreased in that period while in several countries it is stagnant. Moreover, the demographic situation of some countries is such that the number of their population may soon be stagnant or decreasing.

It is also characteristic for that period that the proportion of the age group of 14 years or under is decreasing (from 21.9 per cent to 18.0 per cent), that the younger age groups of the economically active population (between 15 and 39 years) has been practically unchanged (35.8 per cent to 35.6 per cent) and that of the older economically active population (between 40 and 59 years) has increased to a smaller extent (25.3 per cent to 27.0 per cent). The proportion of the persons over 60 years has increased to a larger extent, in 1980 they constituted 17.1 per cent, in 1996 19.4 per cent of the total population. These proportions originate mainly from the changes of vital events i.e. from the changes and trends of the number of births and deaths, because the role of the external migrations has been felt in Hungary since 1989 only but has not become decisive. It should also be noted that looking back for a longer period these proportions are shifting even more sharply in the case of the youngest and the old age groups as it can be seen in Table 1.[1]

Table 1

*Age composition of the population (male and female together)*
(1st January, per cent)

| Age Group (years) | 1949 | 1960 | 1970 | 1980 | 1990 | 1996 |
|---|---|---|---|---|---|---|
| 0–14 | 24.9 | 25.4 | 21.1 | 21.8 | 20.5 | 18.0 |
| 15–39 | 38.8 | 36.8 | 37.0 | 35.8 | 35.5 | 35.6 |
| 40–59 | 24.7 | 24.0 | 24.8 | 25.3 | 25.0 | 27.0 |
| 60–X | 11.6 | 13.8 | 17.1 | 17.1 | 18.9 | 19.4 |

In 1960, for example, people aged under 15 years made out still one quarter of the population, now it is only 18 per cent and their proportion in the population is gradually approximated by that of the persons aged over 60. Thirty years ago these rates differed very much from each other. So the Hungarian population is definitely growing old. The oldest population lives in Budapest where the proportion of the age group over 60 years is already nearing one quarter of the population. The most favourable age composition can still be observed in the provincial cities.

The process of the population's general aging can also be felt in the age composition of the active earners. Among the active earners the proportion of the young persons aged under 30 years decreased to some extent (by 1 per cent) in the 70s, but it has decreased more considerably since 1980 while that of the persons aged 30 to 39 years as well as of the active earners aged 40 or over has gradually increased in the last 15 years. Namely, at the end of the 70s and mainly in the first half of the 80s the young persons born in the 60s and belonging to the small-numbered generations started work who could not entirely replace those getting to an older age group. Since then opposite processes have

[1] The sources of the data presented in the article are: International Statistical Handbook. Hungarian Central Statistical Office. Budapest. 1995. (For Hungary: Data of the 1996 Microcensus); Demographic Yearsbooks of the Hungarian Central Statistical Office.

also been observed, since the mid-80s the age distribution of the active earners has only changed to a smaller extent, the proportion of the persons aged 60 or over has increased considerably. As a result of this process the proportion of the persons aged 30 to 39 years is now much higher than that of those aged 14 to 29 years as contrasted with the observations in 1980 when the proportion of the younger age group exceeded very much that of the people aged 30 to 39 years. The persons in working age – aged 40 or over – constitute today a much larger proportion of the active earners than 17 years ago.

Table 2

*The distribution of the population by age group*
(per cent)

| Country | Year | 0-14 | 15-64 | Aged 65 or over |
|---|---|---|---|---|
| | | years | | |
| Austria | 1992 | 17.5 | 67.3 | 15.2 |
| Belgium | 1992 | 18.2 | 66.5 | 15.3 |
| Bulgaria | 1992 | 20.1 | 66.8 | 13.1 |
| Denmark | 1993 | 17.1 | 67.5 | 15.4 |
| United Kingdom | 1993 | 19.4 | 64.8 | 15.8 |
| Finland | 1993 | 19.1 | 67.0 | 13.9 |
| France | 1993 | 19.8 | 65.5 | 14.7 |
| Greece | 1993 | 17.4 | 67.8 | 14.8 |
| Netherlands | 1993 | 18.3 | 68.7 | 13.0 |
| Yugoslavia (former) | 1992 | 22.5 | 67.7 | 9.8 |
| Poland | 1994 | 23.1 | 66.0 | 10.9 |
| *Hungary* | *1996* | *18.0* | *67.8* | *14.2* |
| Germany | 1992 | 16.3 | 68.6 | 15.1 |
| Norway | 1993 | 19.2 | 64.6 | 16.2 |
| Italy | 1993 | 16.5 | 68.9 | 14.6 |
| Russian Federation | 1994 | 21.5 | 66.7 | 11.8 |
| Portugal | 1993 | 18.4 | 67.3 | 14.3 |
| Spain | 1993 | 17.7 | 67.9 | 14.4 |
| Switzerland | 1993 | 17.0 | 68.0 | 15.0 |
| Sweden | 1993 | 18.7 | 63.7 | 17.6 |
| India | 1992 | 35.8 | 60.2 | 4.0 |
| Japan | 1993 | 16.8 | 69.8 | 13.4 |
| China | 1994 | 26.8 | 67.0 | 6.2 |
| Turkey | 1993 | 33.7 | 62.0 | 4.3 |
| Egyipt | 1992 | 39.1 | 57.5 | 3.4 |
| Brazil | 1992 | 34.2 | 62.8 | 3.0 |
| Canada | 1993 | 20.7 | 67.5 | 11.8 |
| Mexico | 1992 | 37.6 | 60.0 | 2.4 |
| USA | 1993 | 22.0 | 65.3 | 12.7 |
| Australia | 1993 | 21.7 | 66.7 | 11.6 |

In almost the half of the European countries the proportion of persons belonging to the young age group (aged under 15 years) is smaller or much smaller than the same in Hungary. These countries are mainly the most developed of the region. At the same time, in these countries the proportion of the old-aged people is more or less higher than it is in Hungary. Nevertheless, their age structure has formed similarly to that in Hungary, the

minor differences are mainly due to the fact that in the majority of these countries the fertility trends are to some extent different and the mortality indicators are much more favourable than those in Hungary. On the other hand the population of the East-European countries is much younger than that of Hungary.

The composition of the population by marital status has also changed to a large extent in the recent period. The proportion of the widowed and the divorced has increased, that of the married people has decreased considerably in both sexes. This tendency is to a lesser extent due to the mortality rate, but it became decisive mainly as a consequence of the latest developments taking shape in nuptiality trends. The essence of this is the fact that the number of marriages and marriage rates have decreased to a large extent and the divorce rate is permanently high.

As a joint consequence of the demographic phenomena, with the marriages in the first place, the composition of the families has also changed.

## DEMOGRAPHIC PROCESSES

In the recent 40 years, though with considerable fluctuations, the trend of births has been decreasing in Hungary. In this respect, i. e. in the decrease, the situation in Hungary is identical to the majority of the developed countries, though in several European countries the more perceptible decrease of fertility has started later than in Hungary. However, the great fluctuations in the number of births can mainly be considered as a Hungarian speciality.

The extremely high wave-crest of births in the mid-50s in Hungary was followed by a never-seen wave-trough in some years, in the early 60s, then the number of births increased with minor fluctuations producing a wave-crest again in the mid-70s to bring after it first a slower, then a quicker decrease. The number of births now has touched bottom again, but it is much lower than it was in the early 60s: in 1962 there were 130 000 births in Hungary while in 1996 this figure was only 105 000 being the smallest number of births ever registered in Hungary.

Table 3

*Vital rates*

| Country | Year | Live-births | Deaths | Natural increase | Year | Infant mortality rate (per 1000 live-births) |
|---|---|---|---|---|---|---|
| | | per 1000 inhabitants | | | | |
| Austria | 1990 | 11.6 | 10.6 | 1.0 | 1990 | 7.8 |
| | 1995 | 11.0 | 10.0 | 1.0 | 1995 | 5.5 |
| Belgium | 1990 | 12.6 | 10.6 | 2.0 | 1990 | 7.9 |
| | 1995 | 11.4 | 10.5 | 0.9 | 1994 | 7.6 |
| Bulgaria | 1990 | 11.7 | 12.1 | -0.4 | 1990 | 14.8 |
| | 1995 | 8.1 | 13.4 | -5.3 | 1993 | 15.5 |
| Czech Republic | 1995 | 9.3 | 11.4 | -2.1 | 1995 | 7.4 |
| Denmark | 1990 | 12.4 | 11.9 | 0.5 | 1990 | 7.5 |
| | 1995 | 13.4 | 12.1 | 1.3 | 1993 | 5.4 |
| United Kingdom | 1990 | 13.9 | 11.2 | 2.7 | 1990 | 7.9 |
| | 1995 | 12.6 | 11.0 | 1.6 | 1994 | 6.2 |

*(Countinued on the next page.)*

*(Conitinuation.)*

| Country | Year | Live-births | Deaths | Natural increase | Year | Infant mortality rate (per 1000 live-births) |
|---|---|---|---|---|---|---|
| | | per 1000 inhabitants | | | | |
| Estonia | 1990 | 14.2 | 12.4 | 1.8 | 1990 | 12.4 |
| | 1995 | 8.8 | 13.8 | -5.0 | 1994 | 14.5 |
| Finland | 1990 | 13.1 | 10.0 | 3.1 | 1990 | 5.6 |
| | 1995 | 12.4 | 9.7 | 2.7 | 1994 | 4.7 |
| France | 1990 | 13.5 | 9.3 | 4.2 | 1990 | 7.3 |
| | 1995 | 12.5 | 9.1 | 3.4 | 1993 | 6.4 |
| Greece | 1990 | 10.2 | 9.3 | 0.9 | 1990 | 9.7 |
| | 1995 | 9.9 | 9.4 | 0.5 | 1995 | 7.9 |
| Netherlands | 1990 | 13.3 | 8.6 | 4.7 | 1990 | 7.1 |
| | 1995 | 12.3 | 8.8 | 3.5 | 1994 | 5.9 |
| Croatia | 1991 | 10.8 | 11.4 | 0.7 | 1990 | 10.7 |
| | 1994 | 10.2 | 10.4 | -0.2 | 1994 | 10.2 |
| Ireland | 1990 | 15.1 | 9.1 | 6.0 | 1990 | 8.2 |
| | 1995 | 13.6 | 8.8 | 4.8 | 1994 | 5.9 |
| Yugoslavia | 1990 | . | . | . | 1990 | 22.8 |
| | 1995 | 13.2 | 10.2 | 3.0 | 1995 | 16.4 |
| Poland | 1990 | 14.3 | 10.2 | 4.1 | 1990 | 16.0 |
| | 1995 | 11.5 | 10.0 | 1.5 | 1995 | 13.5 |
| Latvia | 1990 | 14.2 | 13.1 | 1.1 | 1990 | 13.7 |
| | 1995 | 8.5 | 15.9 | -7.4 | 1995 | 18.8 |
| Lithuania | 1990 | 15.3 | 10.7 | 4.6 | 1990 | 10.2 |
| | 1995 | 11.1 | 12.2 | -1.1 | 1995 | 12.5 |
| *Hungary* | *1990* | *12.1* | *14.1* | *-2.0* | *1990* | *14.8* |
| | *1995* | *11.0* | *14.2* | *-3.2* | *1995* | *10.7* |
| Germany | 1991 | 11.3 | 11.1 | 0.2 | 1991 | 6.9 |
| | 1995 | 9.3 | 10.7 | -1.4 | 1994 | 5.6 |
| Norway | 1990 | 14.3 | 10.7 | 3.6 | 1990 | 6.9 |
| | 1995 | 13.8 | 10.3 | 3.5 | 1993 | 5.0 |
| Italy | 1990 | 9.8 | 9.4 | 0.4 | 1990 | 8.6 |
| | 1994 | 9.2 | 9.6 | -0.4 | 1994 | 6.7 |
| Russia | 1990 | 13.4 | 11.2 | 2.2 | 1990 | 17.6 |
| | 1995 | 9.3 | 14.7 | -5.4 | 1994 | 18.5 |
| Portugal | 1990 | 11.8 | 10.4 | 1.4 | 1990 | 11.0 |
| | 1995 | 10.7 | 9.3 | 1.4 | 1993 | 8.7 |
| Rumania | 1990 | 13.6 | 10.6 | 3.0 | 1990 | 26.9 |
| | 1995 | 10.4 | 12.0 | -1.6 | 1995 | 21.2 |
| Spain | 1991 | 9.9 | 8.6 | 1.3 | 1990 | 7.6 |
| | 1995 | 9.1 | 8.8 | 0.3 | 1995 | 5.6 |
| Switzerland | 1990 | 12.5 | 9.5 | 3.0 | 1990 | 6.8 |
| | 1995 | 11.6 | 8.6 | 3.0 | 1994 | 5.5 |
| Sweden | 1990 | 14.5 | 11.0 | 3.4 | 1990 | 6.0 |
| | 1995 | 11.7 | 11.0 | 0.7 | 1995 | 3.7 |
| Slovakia | 1991 | 14.9 | 10.3 | 4.6 | 1990 | 12.0 |
| | 1995 | 11.5 | 9.8 | 1.7 | 1995 | 11.0 |
| Slovenia | 1990 | 11.2 | 9.3 | 1.9 | 1990 | 8.4 |
| | 1995 | 9.6 | 9.6 | 0.0 | 1994 | 6.5 |
| Ukraine | 1991 | 12.1 | 12.9 | -0.8 | 1990 | 13.0 |
| | 1993 | 10.7 | 14.2 | -3.5 | 1993 | 15.1 |

As regards the number of births Hungary is not ranking unfavourably among the European countries (see Table 3). In the first half of the 90s in a considerable part of the highly-developed countries of the world one could observe similar or even lower birth

rates. In 1995 the crude birth rate was 11.0 per thousand in Hungary. At that time one could observe rates lower than that in 14 European countries, among them Italy, Portugal or Rumania. In a great part of the highly-developed countries of the European region birth rates are, similarly to that of Hungary, very low and in the remaining ones you cannot observe much higher rates, either.

Though the low and the higher rates do indicate important differences between the countries, the crude birth rate, while influenced by various factors, often hides the real demographic processes. The same relates to the temporal comparison of the rates within a country. The fluctuations of the crude birth rates in Hungary do not follow exactly the trends in fertility, because besides the level of fertility the age-composition of the female population (whether the proportion of persons of childbearing age is high or not) as well as to some extent the marriages too, have influence on the yearly number of births, only to mention the most important factors.

In the recent 20 years the reason of the fluctuation of the number of births has mainly been the fact that at the time of the wave-crests the number of the young and propagative-aged women was large, the members of the large-numbered age-groups born in the early and mid-50s reached the childbearing age.

The recession in the recent decades has only partially been caused by the decrease of the number of the young childbearing-aged women because in the meantime the unfavourable fertility tendencies have been strengthening, principally in case of the women aged under 25. Therefore in the recent years only very few children have been born even by the larger-numbered age groups of women, this is why the expected small increase in the number of births has not taken place either.

As the number of births mainly depends on fertility let us try to follow up the trends of this factor. In this respect the use of the Total Fertility Rate (TFR) seems to be the most reasonable. The index shows the average of the total number of children born by one woman during her whole propagative period, calculated on the basis of the fertility pattern of the given year or period.

This rate has considerably decreased in the highly-developed countries in the recent 2 or 3 decades and this process has even accelerated in this decade.

In Hungary the index has shown the following figures in the past four decades:

| Period | TFR | Year | TFR |
|---|---|---|---|
| 1950 to 1955 | 2.72 | 1991 | 1.86 |
| 1955 to 1960 | 2.21 | 1992 | 1.77 |
| 1960 to 1965 | 1.82 | 1993 | 1.69 |
| 1965 to 1970 | 1.97 | 1994 | 1.64 |
| 1970 to 1975 | 2.08 | 1995 | 1.57 |
| 1975 to 1980 | 2.11 | | |
| 1980 to 1985 | 1.81 | | |
| 1985 to 1990 | 1.81 | | |

In a part of the highly-developed countries one can observe the fact that the decrease in fertility has begun later but it has been much more considerable. The average figure of TFR has been 2.7 to 1.8 in the 50s and the early 60s, now the same is about 1.6 to 1.5 thus a woman bears, on the average one child less than 30 years ago.

In the recent years fertility has gone on decreasing or it has been stagnant at a very low level. The decrease is characteristic first of all for Southern-Europe. The fertility rate of Spain, Portugal, Greece or Italy, former countries of characteristically high rates of fertility, has fallen under the level of Hungary.

On the basis of international comparisons it can be stated that low rates of fertility are not extraordinary phenomena in Europe at all. In fact, in the highly-developed countries women tend to give birth to fewer children than in Hungary. Depending on the demographic features, to keep the reproduction level of the population, an average of 2.2 to 2.3 children are needed. At present such high TFR values can nowhere be observed, nor could be ten years ago except for Poland, Ireland and in some Asian republics of the former Soviet Union only.

The rate of fertility in Hungary has been for 4 decades lower than the level necessary for the simple reproduction of the population. This has forecast for long the fact of the decrease of the population which could still be held up by the age structure, the sometimes advanced births etc. until the 80s which, however, took place then as a rule. The long-lasting decrease of fertility which started much earlier, can be seen also from the fact that the completed fertility of the female cohort born in 1930 is the lowest in Hungary among 23 European countries (2.03) and in those countries where the TFR value calculated for calendar years is similar to that of Hungary or less, the data relating to the generation of 1930 are higher or much higher. Let us add that the completed fertility of the Hungarian female cohort born in 1920 was also only 2.22.

The great changes in the fertility behaviour have been rather well indicated by the data of representative surveys concerning family planning as well. The surveys – carried out during the recent decades – show that fewer and fewer children have been planned and that a considerable, though smaller, proportion of the married couples would be inclined to create a larger family if the financial situation and the conditions of accepting children improved. Among them usually the women in intellectual occupations and higher educational attainments, living in cities are in a majority. This shows that in more favourable conditions the number of children would probably increase in a part of the families, though one can never tell if the further worsening of the micro-economic situation will not undermine this inclination.

The great majority of the births usually takes place in the family, in marriages. Therefore the number of marriages continues to influence indirectly the number of births though to an ever smaller extent.

In Hungary the number (and rate) of marriages has considerably diminished. In the second half of the 50s there were over 95 000 marriages yearly, in 1980 their number was a little over 80 000 and in 1995 less than 53 000 marriages took place. At the same time the number of divorces increased nearly to 25 000 by the middle of the 90s. The decrease of the number of marriages is almost exclusively due to the fall-back in the propensity to marry, particularly in the case of the first marriages. The number of re-marriages was rather stagnant in that period. It is not our aim to set forth the social, the sociological and the more and more perceivable economic concerns of this issue but reference should be made to the fact that the diminishing marriage propensity and the decrease of fertility rates are the outward forms of the same social phenomenon to be observed all over the world and no doubt that they are in connection with each other.

The 5 decades after the end of World War II can be characterized by the increasing predominance of chronic and degenerative diseases influencing the morbidity conditions. These almost 50 years can be divided into two periods: between 1945 and 1964 and between 1965 and 1995. By the early 60s mortality decreased to a never-experienced low level while in the recent 3 decades the rate of mortality has increased, at present it is about the same as in the 20s.

In the period between 1949 and 1964 the average expectation of life of the two sexes together increased from 61.9 years to 69.4 years. As compared both to the previous period and to the data observed in other countries in the period of the reconstruction after World War II, it was by far a good result, it corresponded to the average of the highly-developed countries and it was higher than that e.g. in Austria.

The considerable lengthening of life expectancies was due to the fact that in all ages, but particularly in the early ages and among the adults aged 35 or under the frequency of deaths had considerably decreased. The infant mortality decreased from 106.0 per thousand of 1947 to 40.0 per thousand. Measured by absolute measure it was the most considerable improvement, but relatively, the mortality rates of some child and young age groups were even better.

The considerable decrease of mortality rates by age groups can be explained by the fact that the mortality caused by infectious diseases decreased by 1964 to one quarter of the level of 1947. In fact, the processes mainly took place by the middle of the 50s which resulted striking improvement in relation to some very important causes of death.

It should be mentioned, however, that the increase of the mortality originating from the degenerative diseases and malignant neoplasms already cast its shadow to that period. The decrease of mortality due to the infectious diseases, however, did not only equalize this increase but it also exceeded it. In this way the unfavourable phenomena remained provisionally hidden.

The increase in mortality is mainly caused by higher age specific mortality, but is also influenced by demographic aging. The increase in age specific mortality rates has accelerated over time.

The worsening of death rates can be observed first of all among the males. While the expectation of life at birth of males has become shorter, that of females has increased even if to a lesser extent, and it has become stagnant, respectively. At present a small improvement is shown for both sexes. In 1995 the expectation of life at birth of males was 65.25 years, that of females 74.50 years.

The worsening of the mortality rates could be observed first of all in the age interval between 30 and 59 years. The values of the life tables on the expectation of life at the age of 30 are well presenting this process. The figure in 1960 was still 41.38 years, in 1980 it was only 38.54 and 37.53 in 1990 thus it worsened almost by 3 years. This figure increased to some extent in 1990 but even by this it only corresponded to the data of the years of 1930/31 (37.02 and 37.09 years, respectively) and it is by two years lower than that in 1949! Among the women a stagnation with smaller fluctuations can be observed in this field. They showed a value of 44.40 years in 1960, 45.28 in 1970, 45,41 in 1990 and 45.74 years in 1995.

Without entering into further detailed analyses it is also well shown by these data how dramatic has been the worsening of the mortality rate of the middle-aged male

population while the improvement of the female mortality rate has stopped short in the recent two and a half decades. Within these data the female mortality rate at the age group of 30 to 59 years has become worse to some extent, mainly among those aged between 40 and 44 and to a less extent between 50 and 54 years. In the male population aged over 30 years the mortality rate has increased in each 5-year age group.

As compared to the mortality rates of infants, the children and the adults aged under 30 years have improved. The former relatively high rate of infant mortality has mainly been reduced to a problem related to premature births for now.

In the recent decades, under the effect of the changes in the morbidity and mortality conditions the developed countries could be divided into two relatively well-separable groups in this respect. Given from the nature of things, the difference between the two groups regarding the level of mortality rate lies in the quantity. This quantitative difference expresses, however, a fundamental qualitative difference.

In the majority of the highly-developed countries the symptoms of the degenerative diseases appear later and the pathological processes lead to death later than 25 years ago. The life expectations of aged people have improved for the first time in the history of mankind. This unexpected result is due to the changes in the way of life on the one hand and to the very expensive measures taken in health and social policy on the other. Owing to these facts the expectation of life at birth reached 75 to 77 years (calculated for both sexes combined) in this group of the countries in the mid-80s.

In several countries, however, and these are particularly the former communist ones, the symptoms of the degenerative diseases appear in an earlier phase of the course of life and the pathologic processes lead to death at a younger age than in the early 60s. Hungary's status is unfavourable even in this group.

Table 4

*The expectation of life at birth in industrial countries with highly-developed health culture, 1964–1995*

| Country | Period | Male | Female | Country | Period | Male | Female |
|---|---|---|---|---|---|---|---|
| Austria | 1993 | 72.9 | 79.5 | Latvia | 1993 | 61.6 | 73.8 |
| Belgium | 1990 | 72.4 | 79.1 | Lithuania | 1993 | 63.3 | 75.0 |
| Bosnia-Herzegovina | 1990–1995 | 69.5 | 75.1 | Macedonia | 1990–1995 | 68.8 | 75.0 |
| Bulgaria | 1993 | 67.5 | 75.0 | Hungary | 1995 | 65.3 | 74.5 |
| Czech Republic | 1995 | 69.5 | 76.6 | Moldavia | 1991 | 64.3 | 71.0 |
| Denmark | 1993 | 72.7 | 77.9 | Germany | 1993 | 72.8 | 79.3 |
| United Kingdom | 1992 | 73.7 | 79.2 | Norway | 1992 | 74.2 | 80.5 |
| Estonia | 1992 | 64.1 | 75.0 | Italy | 1991 | 73.7 | 80.5 |
| Belorussia | 1992 | 64.9 | 75.5 | Russia | 1994 | 58.0 | 71.0 |
| Finland | 1993 | 72.1 | 79.6 | Portugal | 1993 | 70.6 | 77.9 |
| France | 1992 | 13.8 | 82.3 | Rumania | 1992 | 66.0 | 73.3 |
| Greece | 1993 | 75.0 | 80.4 | Spain | 1991 | 73.4 | 80.7 |
| Netherlands | 1992 | 74.3 | 80.5 | Switzerland | 1993 | 75.0 | 81.7 |
| Croatia | 1990–1995 | 67.1 | 75.7 | Sweden | 1994 | 78.3 | 83.7 |
| Ireland | 1992 | 72.6 | 78.2 | Slovakia | 1995 | 68.4 | 76.3 |
| Yugoslavia (former) | 1990 | 69.5 | 75.7 | Slovenia | 1993 | 69.4 | 77.6 |
| Poland | 1995 | 67.6 | 76.4 | Ukraine | 1989–1990 | 65.9 | 75.0 |

The mortality rate of the population of Hungary, supposing equal age distribution, is by 5 to 6 per cent higher than that of the Czech Republic where the situation is similar as in Hungary. As compared to the mortality rates of Austria and Sweden, the rate of Hungary was by 42.0 and 70.7 per cent higher, respectively in 1985 (based on a standardized age distribution).

The extremely unfavourable level of the mortality rate is probably due to several factors being partly in connection with each other. They can practically be divided into three groups:

*1.* the unhealthy (noxious) elements of the way of life, affected by the formerly large-scale territorial mobility, worsening economic situation and former traditions of the population which subserve the premature evolution of the degenerative diseases in larger numbers, first of all the heart and circulatory diseases and the neoplasms are to be mentioned. This phenomenon was a consequence of the intensive work having been done by a great number of people mainly under compulsion in the second economy during the last one and a half decade of the Kádár-regime;

*2.* a rather wide stratum of the society being unconscious of health as a value partly caused by the way of life and meagre education;

*3.* the insufficient infrastructure of health and its increasing arrears behind the increasing demands and the international standard.

We are not in a position here to examine the effects of these factors in every detail but it is a fact that such factors exert and have exerted an influence on the morbidity and mortality rates of the population also in other countries. These influences, however, as it has briefly been mentioned above, have partly decreased or ceased in the highly-developed countries earlier: the negative attitudes have become positive, the amounts expended on health have been much larger than those in Hungary and there, where their relative effect still exists, their intensity is less strong.

The above-said and the age distribution of the population present the number of the annual deaths and the crude death rate. In 1959/60 the crude death rate was 10.31 per thousand, in 1995 14.22 per thousand. The number of deaths was then 103 thousand, today it is 145 thousand. The mortality rate was the highest in 1993 so far with 150 thousand deaths and a crude death rate of 14.6 per thousand.

On the basis of the above said it may well be stated that the de facto decrease of the number of the population which started in 1981 is principally due to the high rate of mortality. As it was mentioned above, tough for several decades the fertility trends have not ensured the long-term simple reproduction either, the worsening of the mortality rate in the recent 3 decades (while it further improved considerably in the more developed countries) has resulted in the fact that the population reproduction has been negative since 1981. If the mortality rate in Hungary were of a level as it is in the more developed European and overseas countries, the natural increase would still be positive. In this way, however, the degree of the natural decrease lasting for one and a half decade has more than twice surpassed the decrease observed during World War I.

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The above brief analysis offers a conclusion that the situation of the population of Hungary gives cause for anxiety due to long and unfavourable processes first of all

because of the fact that the inherent reserves of the population have exhausted by the mid-80s. Hungary has reached a point where only a considerable change in the outside environment can improve fertility and, particularly, the mortality rates which have a fundamental influence on the number and age composition of the population.

It can also be stated that the present acute crisis could probably have been partly prevented by a consequent and well-chosen population policy as the analyses (not detailed here) show that the introduction of the child-care allowance as well as the 1973 decrees on the demographic policy had an influence on the fertility rate, to be more precise on the cohort indices thereof even if only temporarily and not to a marked degree. It seems that without these measures the number of births would be even more unfavourable in those years.

As since the decrees of 1973, however, the demographic processes have basically remained unfavourable, in 1984, following a longer preparatory work a government decree was adopted on a new strategy of demographic policy. This was the most precisely elaborated governmental document establishing the basis for a complex demographic policy including several factors which, recognizing the role of mortality in the short and medium term development of the unfavourable situation, are also dealing with the possibilities of the improvement of health. Due to the worsening economic situation, however, the further development and in great part the execution of the decrees of 1984 have failed, moreover the population has been affected by several measures such as particularly the introduction of the personal income tax, the various price-building measures which neither have had a good influence on fertility nor on mortality rates.

After 1990, because of transition to democratic structures, the economic and social situation went on worsening and so did the population indices. Many people are of the opinion that the situation was not proper for the establishment of he demographic policy but some measures might have been taken. In March, 1994 the government declared in a decree that the demographic situation should be a fundamental matter of the nation and the intention of the government was to influence the processes aiming at a progress in a favourable direction. Since then there has not been formed any further opinion by the government in that issue. Under the present demographic conditions in Hungary the standpoint of non-intervention cannot be held any longer. Not only the expected further fast decrease of the population but also the unfavourable structural changes make it worth considering the attempt for exerting a favourable influence on the situation.

Concerning the basic change of the demographic trends one cannot be optimistic as, in my opinion, even a demographic policy probably to be introduced again cannot have any effect without a proper, family-friendly economic and social environment. For this there will be no chance for a long time. Naturally, endeavours should be made anyway to decrease at least or to stop the further worsening. In this respect most hopes may be in the field of mortality, but of course, it can be expected only in the long run.

# ROLE OF THE FOREIGN CAPITAL IN THE HUNGARIAN ECONOMY

VERA NYITRAI

Foreign direct investment could be considered as a specific indicator of the economic internationalization. According to several OECD studies the stock of foreign direct investment reached 5 per cent of the World GDP in 1980 and increased over 8 per cent in 1990. Especially multinational enterprises gained from this process as well as from the rapid international expansion after 1990, when new countries – namely the transition countries of Central and Eastern Europe – began offering favourable possibilities to the Western investors.

During the last few years these transition countries regarded the foreign investors, and among them the multinational enterprises, as the driving force in the integration of the world economy.

From the point of view of the multinational firms, advantages of investing in transition economies could be the following ones: lower transaction costs, shorter production cycles, more benefits gained from the R + D costs, better situation of competition at the Eastern European market.

Deregulation in the transition countries opened up new markets as well as more possibilities of joining their production sphere.

From the point of view of the international organizations (OECD, IMF, World Bank etc) foreign direct investment can be a significant factor both for macroeconomic growth and for recovering from the economic crisis at the end of this century.

Among the conclusions of several international comparisons[1] it was underlined that the quality of foreign direct investment is relevant to the host countries (as to the developing and as to transition economies). This means that foreign direct investment could support the structural adjustment of the host countries to the more developed area of the World. It was also emphasized that great initial mutual understanding between the transnational corporation and the economic counterparts in the host countries could ensure overall benefits and higher level of efficiency.

The third factor influencing the success of foreign direct investment is the nature of the host country's industrial strategy within which foreign direct investment has to

[1] Among others: United Nations Centre on Transnational Corporations. The Determinants of Foreign Direct Investment. A Survey of Evidence. UN. New York. 1992.

operate. Namely the country's industrial strategy can be either an import-substituting industrialization for the medium and long-period or an export-generating industrialization. It is quite sure that both of these government strategies have their advantages as well as disadvantages for the foreign investors. A suitable balance must be found between the ownership advantages of transnational corporations and the advantages of the host country.

It became evident from the results of different international studies that during the last decade most multinational corporations focused on countries providing an environment permitting the suitable efficient use of their existing technology and research input as well. Most of the investors aimed to supply not only the host country's market but the neighbouring countries as well.

They preferred to adopt in labour-intensive technologies in the host countries at the beginning of their collaboration with little local research-and-development activities. Need of adaptation more developed process could be expected only after a few year's success.

No doubt that importance (quantitative as well as qualitative) of management expertise in local firms can support the above mentioned advantages. Experience and capable managerial skills, personal contacts from our area with managers operating in other transition countries are also a key factor influencing the investments of foreign capital-owners.

After this short introduction we shall take a look in direct investment flows in the OECD countries presented by Table 1.

Table 1

*Direct investment flows in some OECD countries*
(million dollar)

| Country | Inflows | | | | Outflows | | | |
|---|---|---|---|---|---|---|---|---|
| | 1991 | 1992 | 1993 | 1994 | 1991 | 1992 | 1993 | 1994 |
| *OECD Total* | *117 209* | *100 511* | *105 350* | *142 101* | *178 941* | *163 845* | *166 544* | *186 992* |
| Of which: | | | | | | | | |
| Austria | 359 | 940 | 960 | 1 315 | 1288 | 1 871 | 1 404 | 1 255 |
| Australia | 6 033 | 4 263 | 3 637 | 4 849 | . | 577 | 2 069 | 4 194 |
| Finland | -247 | 396 | 593 | 1 475 | 1 049 | 406 | 1 831 | 3 769 |
| France | 11 073 | 15 928 | 12 142 | 10 955 | 20 501 | 19 097 | 12 167 | 10 895 |
| Germany | 4 202 | 2 536 | 503 | -3 003 | 22 879 | 17 745 | 11 673 | 18 985 |
| Greece | 1 135 | 1 144 | 977 | . | . | . | . | . |
| Italy | 2 481 | 3 210 | 3 751 | 2 478 | 7 326 | 5 948 | 7 231 | 4 275 |
| Japan | 1 368 | 2 728 | 86 | 826 | 30 726 | 17 222 | 13 714 | 17 711 |
| Netherlands | 5 002 | 6 994 | 5 651 | 3 204 | 12 270 | 14 096 | 10 079 | 11 368 |
| Portugal | 2 451 | 1 914 | 1 378 | 1 241 | 474 | 687 | 107 | 194 |
| Spain | 10 423 | 8 115 | 6 746 | 8 221 | 3 574 | 1 273 | 2 599 | 4 241 |
| Turkey | 1 041 | 1 242 | 1 016 | 830 | 27 | 133 | 175 | 78 |
| United Kingdom | 15 826 | 16 448 | 14 536 | 11 066 | 16 071 | 19 444 | 25 697 | 29 721 |
| USA | 27 246 | 11 452 | 22 630 | 60 071 | 32 696 | 41 587 | 58 094 | 58 422 |

*Source*: OECD International direct investment statistics yearbook 1995. Paris. 12. p.

The trends of direct investment flows seem to be growing in the OECD as a whole, but there are significant differences in growth from one year to the other. There are some countries where direct investment outflows had grown rapidly in the 1991–1994 period: like the United Kingdom, the United States and among the smaller countries Finland. The UK and the USA gave during these four years 40.5 per cent of the total OECD direct investment outflows, not only towards to the OECD countries but to other regions as well.

*Hungarian traditions*

The appearance of the foreign capital in the economic activities of Hungary has a historical background. At the beginning of the eighties several big Hungarian industrial enterprises established production relations with foreign firms.

These kinds of relationship contained the simple types of commission work, applications of licenses, and know-how, as well as contracts on joint production.

The co-operation with well known foreign firms was inspired by the fact that the Hungarian economy and especially the manufacturing industry needed more up-to-date technologies and working methods. Hungarian enterprises already acquainted with the developed market and being aware of all competition circumstances, expected that the new form of international co-operation would help them to find a better position at the international market.

The situation in the eighties could be described in short by the following figures:

– in 1981 the share of production based on co-operations with foreign firms was 7 per cent in the industrial production, at the same time the share of these activities was 17.3 per cent of the industrial exports;

– in 1981, 570 active commission work contracts were valid, most of them in the light industrial branches;

– 430 licence or know-how contracts were applied in the industrial branches;

– there were 116 contracts of division of production by products, and 128 contracts for dividing the production processes domestic and foreign between firms;

– only 3 joint ventures worked in the Hungarian industry in 1981 and their number was not significant even at the end of the eighties.

This background of the international co-operation had a good effect on the arrival of the foreign capital at the beginning of the nineties. The terrain was not unknown for the foreign firms. For example: about 580–600 contracts were based on the collaborations with firms from the German Federal Republic. Their managers got acquainted with the Hungarian industrial leaders at several industrial branches, some of them had good personal contacts even with the Hungarian industrial managers at medium size. So most of the foreign investors could find out both the advantages and the disadvantages of the capital investments in the Hungarian economy.

It is worth to mention an other factor influencing the attitude of the foreign investors, and this is the legal environment, which became more reliable than earlier, at the very beginning of the nineties. The Hungarian Parliament guaranteed favourable conditions for the foreign capital together with some preferential tax opportunities.

All of these factors lead to the result, that among the Central and Eastern European transition countries Hungary became a favourite place for the foreign capital coming from multinational firms as well as from small businesses.

*Number of the enterprises based on foreign direct investments and their capital*

At the very beginning of the nineties growing interest was recognised at different kind of foreign firms towards the Hungarian economy. First of all, most of these enterprises wished to set up a basis in Central and Eastern Europe, looking for obtaining a new market. It must not be left out of consideration, that at that time not only the leaders as well as the experts of the transition countries but also the same ones of the developed market countries had in mind and hoped that the transition process would be fast and successful in a short period. So those firms which decided to enlarge their market in the transition economies aspired to be among the first ones in the promising new market-area. But this is only one aspect. The other one is, that those Hungarian managers, who had earlier good relationships with foreign firms took the initiative in founding joint ventures hoping to have profitable co-operation and a relatively quick adaptation to the new circumstances. Most of these Hungarian managers had not significant personal financial background, but they had experiences at the Central and Eastern European firms, on market-conditions – and they had also close personal relationship with the earlier industrial and trade managers of the transition area. This kind of intellectual and relation based capital meant sometimes more for the Western partners, than being in possession of any financial background.

The third factor influencing the relatively quick flow of the foreign capital investment was based on family contacts. Several Western businessmen had Hungarian relatives who could prepare a new firm here, and – which is also not neglectable – who knew their way to go around the not so simple Hungarian administration processes. (The results of all these factors could be seen from Table 2.)

Table 2

*Enterprises with foreign direct investment*
(at the end of the year)

| Year | Number of organizations | Capital | Foreign capital |
|---|---|---|---|
| | | paid in million HUF | |
| 1990 | 5 693 | 274 200 | 93 200 |
| 1991 | 9 117 | 475 589 | 214 697 |
| 1992 | 17 182 | 713 035 | 401 792 |
| 1993 | 20 999 | 1 113 158 | 662 872 |
| 1994 | 23 557 | 1 398 217 | 833 502 |
| 1995 | 24 950 | 1 973 000 | 1 308 000 |
| 1996* | 29 000 | 2 013 000 | 1 338 000 |

* Previous data.

This table shows the rapid enlargement of the process in 1991–1992. The trend is being still continued, but from 1994 the rate became slower. At the same time a new phenomenon could be found, namely the share of foreign capital in the total capital of joint ventures was in 1991: 45 per cent, in 1992: 56 per cent and in 1993–1994: 60 per cent. This increased to 1996 until 66 per cent. This fact can underline the attitude of

foreign interest. Several Western firms decided to take part in the Hungarian privatisation process. Some of them have bought most parts of earlier Hungarian enterprises, other ones founded independent new firms in Hungary and some multinational enterprises established affiliated firms in our country. The latter ones often installed new technologies. A typical example is the car production, which was missing earlier from the production palette of our manufacturing industry.

It is also typical that at the end of 1990 only 5.5 billion HUF capital was invested in enterprises having only foreign owners, which provided 5.9 per cent of the total foreign capital invested in Hungary. The share of the capital paid in firms having exclusively foreign interest was: 66.4 per cent in 1996.

There is an other significant factor as the composition of enterprises with foreign direct investment by categories of subscribed capital. (This can be followed in Table 3.)

Table 3

*Share of newly founded enterprises with foreign investment by value of capital*
(per cent)

| Categories of capital in million HUF | Number of organizations | | Total subscribed capital | | Of which foreign capital | |
|---|---|---|---|---|---|---|
| | 1990 | 1996 | 1990 | 1996 | 1990 | 1996 |
| – 1 | 35.5 | 80.6 | 0.7 | 8.3 | 0.9 | 9.1 |
| 1.1 – 10 | 43.1 | 14.3 | 2.8 | 5.7 | 3.9 | 5.7 |
| 10.1 – 50 | 12.2 | 3.4 | 6.5 | 8.8 | 8.9 | 9.7 |
| 50.1 –100 | 3.1 | 0.6 | 4.7 | 4.5 | 5.9 | 4.2 |
| 100.1 – | 6.1 | 1.1 | 85.3 | 72.7 | 80.4 | 71.3 |
| *Total* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* |

Comparing data of the last six years could inform us on the changes in the attitude of foreign investors. At the very beginning big firms were preferred by the foreign investors. More than 80 per cent of direct foreign capital went to enterprises having subscribed capital over 100 million HUF. Their share decreased from 80 to 71 per cent in 1996. Interest on medium-size firms was practically stable, but much more foreign capital was invested into the smallest firms.

The number as well as the capital of the newly founded firms based partly or totally on foreign direct investment have been stable during this period. About 4 thousand smaller or bigger firms were established yearly, majority of which exclusively by foreign owners; the yearly invested foreign capital was about 30 billion HUF.

*Distribution of joint ventures by countries*

At the very beginning of the transition period Germany and Austria were the largest investors in Hungary and the determinant role of Germany has not changed since 1990 till 1996, only their share has modified. According to the most up-to-date figures the proportion of the German capital was 19.2 per cent in 1996, the second place was occupied by the enterprises of the Netherlands with 16.5 per cent and Austria, who was some years ago the second of the largest foreign investors, slipped back to the third place

with its 10.5 per cent. Having in mind that Austria belongs now to the European Union, this fact can explain this decline, which could be temporary or permanent, it is difficult to forecast the expectable changes till the end of this century.

From the side of the Hungarian economy it has to be recognised the growing interest of the non-European countries. More than 11.1 per cent of the invested foreign capital came in 1996 from the Near East mostly from firms of Israel. Further 5.8 per cent of the foreign investments originated from firms of Cyprus and 5.6 per cent from the United States.

Studying the processes during 1990–1996 the following tendencies could be outlined.

– German firms became determinant in the foreign direct investment.

– Significant diversification could be stated among the other investors coming from different part of the world.

– Competition among the transition countries are intensified for obtaining (as well as maintaining) interest of the foreign capital: in this competition the safe and the reliable business – environment together with the active, correct Hungarian partnership could make it possible to maintain the leading role of Hungary.

– There are several well recognizable reserves: first of all: the share of firms of the United States in the Hungarian business-sphere is too low. During the last two years significant modification could be found in this respect, mainly in 1995 when the share of capital coming from the USA achieved 15.6 per cent of the total foreign investment, but the amount – from the point of view of the USA investors – was relatively low at that time as well.

– There are some possibilities of diversification of the group of foreign investors by firms of South-Korea, Japan, South America as well. For reaching this aim more active industrial policy is needed.

*Composition by branches*

If the attractiveness of the Hungarian economy has to be studied, the most relevant picture can be outlined by the branch-composition of the foreign direct investments during the last six years.

It is also possible to draw some conclusions on the motivation of different groups of investors as well as on the changes of their motivation during this period.

There are several factors influencing where the investors would place their funds:

– to that branches where turnover could be quick,
– where labour costs (both direct and indirect) are relatively low,
– where skilled labour force is at disposal,
– where the Hungarian law guarantees suitable conditions, tax preferences etc.

The overall interest of the foreign investors could be seen in Table 4. The first four columns show that state of branch-structure developed till the end of 1995, the next four columns illustrate the progress in 1996. Comparing these data it becomes evident that during 1989–1995 interests of foreign investors were concentrated on manufacturing branches, a significant part of the foreign capital went to firms in the food industry as well as that in manufacture of machinery and equipment (see in Table 4: Engineering). During this period several enterprises of electricity, gas, steam and water supply became also joint ventures. The invested foreign capital in that branch was 172 billion HUF, representing 13.1 per cent of the total subscribed foreign capital. Wholesale and retail trade units were also very popular among the foreign investors, most of them were small firms (the average foreign capital/firm was at the end of 1995: 12.9 million HUF); but some enormous shopping centers appeared as well. It can also be recognized that those

activities which were quite insignificant earlier, till the end of the eighties in the Hungarian economy became attractive for the foreign investors, especially several kinds of financial activities as well as real estates, renting and other activities helping the new business-sphere (for example tax-advising, computer-based management).

Table 4

*Distribution of enterprises with foreign direct investment, by branches*

| Branches | Number of firms | Capital | Of which foreign capital | | Number of firms | Capital | Of which foreign capital | |
|---|---|---|---|---|---|---|---|---|
| | | paid in billion HUF | | per cent | | paid in million HUF | | per cent |
| | Stock at the end of 1995 | | | | Founded in 1996 | | | |
| *Industries total* | *24 950* | *1 973* | *1 308* | *100.0* | *4 088* | *39 838* | *30 082* | *100.0* |
| Of which: | | | | | | | | |
| Agriculture, hunting etc. | 800 | 25 | 16 | 1.2 | 107 | 541 | 457 | 1.5 |
| Mining | 69 | 15 | 11 | 0.8 | 8 | 47 | 34 | 0.1 |
| Manufacturing, energy | 4 217 | 1 131 | 732 | 56.0 | 542 | 11 580 | 6 001 | 19.9 |
| Of which: | | | | | | | | |
| Food industry | 579 | 201 | 158 | 12.1 | 46 | 1 947 | 1 435 | 4.8 |
| Basic metals | 474 | 48 | 34 | 2.6 | 76 | 1 458 | 1 309 | 4.4 |
| Engineering | 1 062 | 185 | 148 | 11.3 | 140 | 5 479 | 1 190 | 4.0 |
| Construction | 1 213 | 55 | 46 | 3.5 | 180 | 2 103 | 1 958 | 6.5 |
| Wholesale and retail trade | 12 122 | 203 | 156 | 11.9 | 2 202 | 6 037 | 5 209 | 17.3 |
| Hotels, restaurants | 1 144 | 49 | 32 | 2.4 | 167 | 566 | 484 | 1.6 |
| Transport, communication | 830 | 178 | 118 | 9.0 | 103 | 2 078 | 334 | 1.1 |
| Financial activities | 162 | 185 | 105 | 8.0 | 43 | 7 568 | 6 921 | 23.0 |
| Real estate, renting | 3 525 | 118 | 83 | 6.3 | 628 | 8 398 | 7 862 | 26.1 |

Firms founded in 1996 belonged mostly (49.1%) the earlier mentioned branches. This means that the share of manufacturing industrial firms declined in 1996 compared with the earlier phase. Wholesale and retail trade remained as popular as previously, among them smaller and bigger firms as well.

It is also remarkable that the share of foreign investment in the total subscribed capital was in firms established till the end of 1995: 66.3 per cent and in 1996 newly founded firms: 75.5 per cent; at the same time more economic units were established, in which the share of foreign capital was 100 per cent (in 1993: 41.9 per cent, in 1996: 50.1 per cent calculated on invested capital basis).

*Distribution by counties*

Though Hungary belongs to the relatively small countries in Europe significant differences could be found between it's eastern and western part. This is not a brand new phenomenon, there was the same situation 30–40 years ago as well, but the influx of foreign capital enlarged the development differences.

It is quite reasonable that most proportion of the foreign capital was invested in Budapest, mainly in the infrastructure. The intellectual background of it is that here could be found the biggest part of the world-famous Hungarian managers who were the

most active ones during the first period of the privatisation in the process of looking for foreign partners.

From 1994 a new tendency could be recognised: some areas of Transdanubia joined the capital, especially Győr-Moson-Sopron and Fejér counties. Their share in the foreign investment increased spectacularly. In 1995–1996 a special industrial park was established in Fejér county around the town Székesfehérvár. There was earlier an industrial basis (television, bus, several kinds of instruments production), a significant part of it has got ruined, but based on their remnants, utilizing the skilled and suitable labour force (workers as well as intellectuals) and by help of foreign capital an industrial center could be set up, not far from the capital. (Details on foreign owned – totally or partly – firms are shown by Table 5.)

Table 5

*Distribution of newly founded enterprises with foreign capital by counties*
(per cent)

| County | Number of organizations | | | Capital paid in HUF | | | Of which: foreign capital | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1994 | 1995 | 1996 | 1994 | 1995 | 1996 | 1994 | 1995 | 1996 |
| Budapest | 55.7 | 60.3 | 59.3 | 64.9 | 65.1 | 55.5 | 67.4 | 63.8 | 51.2 |
| Baranya | 2.8 | 2.6 | 3.2 | 2.1 | 1.1 | 3.4 | 1.6 | 1.4 | 3.6 |
| Bács-Kiskun | 3.1 | 3.0 | 2.3 | 1.4 | 5.1 | 1.8 | 1.6 | 1.8 | 1.5 |
| Békés | 0.9 | 1.0 | 0.6 | 0.2 | 0.3 | 0.2 | 0.3 | 0.4 | 0.2 |
| Borsod-Abaúj-Zemplén | 1.8 | 1.1 | 1.6 | 0.9 | 1.1 | 1.2 | 0.9 | 1.1 | 1.0 |
| Csongrád | 2.7 | 1.9 | 1.8 | 1.4 | 0.3 | 0.8 | 1.3 | 0.4 | 0.8 |
| Fejér | 2.1 | 2.0 | 1.8 | 2.9 | 2.2 | 10.5 | 3.2 | 2.2 | 12.0 |
| Győr-Moson-Sopron | 5.9 | 4.4 | 4.2 | 4.0 | 3.6 | 11.4 | 4.1 | 4.7 | 14.9 |
| Hajdú-Bihar | 1.8 | 1.5 | 1.5 | 1.4 | 0.6 | 0.2 | 0.9 | 0.4 | 0.3 |
| Heves | 1.1 | 0.9 | 1.3 | 1.2 | 0.3 | 1.0 | 0.9 | 0.4 | 0.7 |
| Jász-Nagykun-Szolnok | 0.9 | 1.1 | 1.2 | 2.1 | 3.6 | 0.5 | 2.2 | 4.7 | 0.3 |
| Komárom-Esztergom | 2.0 | 1.9 | 2.8 | 1.2 | 0.6 | 4.4 | 0.9 | 0.4 | 4.9 |
| Nógrád | 0.5 | 0.5 | 0.6 | 0.0 | 0.6 | 0.9 | 0.0 | 0.7 | 1.1 |
| Pest | 6.2 | 6.9 | 6.8 | 5.2 | 3.6 | 2.2 | 2.2 | 3.6 | 2.3 |
| Somogy | 1.4 | 1.5 | 2.0 | 0.5 | 0.6 | 1.4 | 0.2 | 0.7 | 1.8 |
| Szabolcs-Szatmár-Bereg | 1.5 | 1.5 | 2.1 | 2.9 | 0.6 | 0.3 | 3.2 | 0.4 | 0.3 |
| Tolna | 0.9 | 0.7 | 0.8 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.4 |
| Vas | 3.3 | 2.4 | 2.2 | 1.9 | 0.8 | 0.9 | 2.2 | 0.7 | 1.0 |
| Veszprém | 2.9 | 2.2 | 2.1 | 2.6 | 8.5 | 1.1 | 3.1 | 10.9 | 1.1 |
| Zala | 2.5 | 2.6 | 1.8 | 2.9 | 1.4 | 2.0 | 3.8 | 1.3 | 0.6 |
| *Total* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* | *100.0* |

The majority of foreign owned enterprises seems to be concentrated chiefly in the Transdanubian area leaving collapsed the eastern and northern counties as Szabolcs-Szatmár-Bereg, Nógrád, Borsod-Abaúj-Zemplén. These counties cannot offer attractive conditions for the foreign investors regarding the infrastructure, industrial traditions, but there could be found relatively cheap (and mostly unskilled) labour-force.

As to the origin of the foreign capital, it is to be stated that significant share of German investors were interested in Budapest and in its agglomeration in Pest county,

investors from the USA came mostly to the industrial park in Fejér county and the Austrian investors preferred the borderregions near western counties, among them Győr-Moson-Sopron, and Vas.

There are several areas in Hungary where the foreign investors established more firms based on their own capital, without collaborating with Hungarian partners. For example in 1996 97.7 per cent of the foreign capital installed in firms of Győr-Moson-Sopron county was possessed by firms having only foreign owners; and this was a significant amount nearly 4.4 billion HUF, the 14,6 per cent of the foreign capital invested in 1996 in the country. The share of exclusively foreign owners was similar in Somogy county (93.7 per cent). In Budapest tha share of joint ventures (invested partly by Hungarian, partly by foreign owners) was more than the average.

An other typical feature of the newly established firms is, that in 1996 more big units were founded in the western Hungarian area, than in Budapest. The average capital of the firms (exclusively foreign owned and joint ventures together) established in Győr-Moson-Sopron county was 26.3 million HUF, that in Fejér county was 576.4 million HUF, while in Budapest more small units were founded, their average subscribed capital was in 1996 only 9.1 million HUF. All of these figures can underline the significance of the western Hungarian industrial area.

*Economic importance of the foreign capital investments*

Having in mind the experiences of the last 6–7 years, it is to be recognised that the transition process leading toward to a real and successful market economy is a longer and more painful period than it had been expected (and hoped) by the Central and Eastern European economists. In this process the role of foreign capital became determinant, and Hungary achieved a favourable position in this respect among the transition countries.

Let's shortly summarize advantages as well as disadvantages of this process. First of all: reception of the foreign investment in Hungary was during 1990–1996 quite diverse. Because of the lack of sufficient Hungarian capital several economic experts hoped the rapid development of the economy from the foreign investors, securing up-to-date technologies as well as new markets at the same time. On the other side several experts, businessmen worried about the expansion of the foreign capital. The main cause of this fear was, that foreign firms–well-known all over the world–would aspire to buy out the Hungarian market, which became during the last few years more diversificated and the productions of the foreign firms had generally better quality products and – which is also not neglectable – more attractive manner of packing, therefore the foreign products were and are more popular among the wealthy Hungarian consumers than the Hungarian ones. After having experiences of the last 6–7 years it must be stated that only a few part of the foreign investments took this opportunity (typical examples are the production and trade of children clothing, and a few sub-branches of the food industry).

It is no doubt that this phenomenon belongs to the disadvantages of the arrival of the foreign capital to the Hungarian economy, but this is an exception to the general rule.

Generally speaking the foreign enterprises based totally or partly on foreign capital have stimulative effect on the trade as well as on the directly productive sphere.

The main elements of this effect are the followings:

– productivity of joint ventures became significantly higher;

– most of these enterprises are export-oriented and extended the Hungarian exports going to market economies;

– new technologies and some new products appeared in the Hungarian industry;

– Scope of services were enlarged especially that of the small and medium-sized enterprises, a significant proportion of these services belongs to the ones supporting financial and other business activities;

– most – but not all – of the newly founded joint ventures worked profitably even during the first and second year of their activity;

– a determinant proportion of their profit was invested into the firms, which can indicate the attitude of the foreign owners, namely their aspiration to maintain permanent relations not only with their Hungarian partners, but also with the firms and consumers of the Central-Eastern European area.

*Some kinds of information indicating the positive results of the foreign investments*

It is well-known that until the end of the eighties productivity level of the Hungarian economy, and within that of the industry was relatively low compared with the market economies of Europe. Firms with 100 per cent or more than 50 per cent share of foreign capital had a higher productivity level especially in the industry than the enterprises owned only by Hungarians. This comparison is not realistic enough because of the structural differences.

A better approach of this topic is that the joint ventures produced more value added per person than the state-owned ones and those owned exclusively by Hungarian privatised firms. Between 1993an 1995 the differences achieved about 60 per cent, in favour of exclusively foreign firms or joint ventures.

These relatively significant advantages were mainly the result of the technology transfer and its concomitant phenomenon: the licenses and know-how. This appeared among other branches in some food industrial subbranches, in manufacturing of machines and vehicles etc.

Exports of enterprises with foreign direct investment were growing from one year to the other. Their share in the total Hungarian exports was in 1992: 32.4 per cent, in 1993: 43.6 per cent, in 1994: 54.4 per cent.

It is also significant that 67–74 per cent of their exports went to market economies, most to the countries of the European Union.

Less favourable is the distribution of their exports by commodity-groups. 30–33 per cent of the exports of these enterprises were raw materials, semi-finished products or spare parts. Machines, equipments vehicles and other capital goods composed 16–20 per cent of their exports and the share of these commodities did not grow during the last few years. Proportion of industrial type consumer products was 29–33 per cent, with a decreasing tendency.

Exports going to Eastern European countries had a different commodity structure than the exports tending to market economies. Share of raw materials for the food industry, live animals as well as processed food products played a determinant role in the exports of joint ventures tending to Eastern European countries. At the beginning of the nineties this share was more than 40 per cent, but it decreased to 27–30 per cent. This proportion is also much higher, than the share of these kinds of products exported

towards market economies, where the share was between 14–19 per cent. The volume as well as the share of other raw materials, semi-finished products and different kinds of spare parts achieved 33–36 per cent of total exports toward market economies from the Hungarian joint ventures.

Less significant differences have been found generally in the share of machines, equipments, vehicles, and other capital goods within the exports tending to Eastern European countries or to market economies. In the latter case the proportion was somewhat lower.

Final result of external trade can be illustrated by the export–import balance, which was negative in the examined part of the Hungarian economy as well. It can be explained by the fact, that the newly founded foreign investments were at that time and are nowadays mainly import-oriented. Their firms established in Hungary made and make only a few part of the total production process, so they rely on imported semi-finished products as well as on raw materials. Often the labour-intensive processes are performed by the Hungarian affiliated firms.

As it was mentioned earlier among the new foreign firms are many trade units, their turnover is based mostly on imported products.

The export–import balances of these firms are negative in the external trade handled with countries in transition as well as that with market economies. It is quite natural that higher proportion of negative balance exists in the trade with developed market economies. The most significant proportion of the negative balance originated from the firms founded by German owners (this was 19–27 per cent of the total negative balances during 1992–1994).

*Possibilities for the future*

A high need for foreign capital appeared in the transition countries, which were lacking sufficient capital resources domestically for renewing, making their economies more up-to-date, more profitable. The first phase of the transition period approaches to its end now, in 1997, which means that most part of the privatisation process came to their closing phase.

The first years constituted the basis of getting acquainted with the foreign investors, with they manner of management, with they requirements and working-style. This was a learning-period for the Hungarian economy and it can be stated that most enterprises, smaller units, joint ventures reacted well upon this challenge.

It was a learning-period not only for the Hungarian participants, but for the foreign investors as well. They had the challenge “how to adapt themselves to the economic environment of a transition country”. The statistical data as well as information achieved from different sources show that in general the learning period was successful though naturally not without mistakes and errors.

The next phase will be the time of closing up to the European Union’s developed market economies. The companies founded and operated with foreign capital could make the transition period easier for the whole Hungarian economy.

# EU HARMONIZED ENTERPRISE SURVEYS IN HUNGARY

GÁBOR PAPANEK – RAYMUND PETZ – ANDRÁS VÉRTES

Economic research based on interviews with corporate professionals have spread the world in the second part of the last century. Since then, these kinds of surveys have gained utmost importance in business cycle research.[1] In Hungary researchers have started to use this method with a little delay but earlier than in other countries of the region. The first survey with a larger scope was arranged by *Zoltán Román* (Research Group of Industrial Economics of the Hungarian Academy of Sciences – MTA IKCS).[2]

At the beginning of the 1970s, *Júlia Zala* has introduced regular business surveys at the Economic Research Institute (GKI). The questionary collected annual and semi-annual data on firm plans and on firm plan fulfillment expectations – based on the methods of IFO Munich. In the past, the valuable data of the research – excluding a short summary published in a couple of daily and weekly newspapers – used to be classified as confidential.[3] Nowadays, however, surveying (taken over by GKI Economic Research Co. after the dissolution of the state-owned Economic Research Institute) is still conducted and published regularly providing one of the most comprehensive scientific information source on enterprise behaviour in Hungary.

Since the 1980s, the Kopint Co. has participated in the researches as well with their quarterly business cycle tests.

*The New Survey System of GKI Co.*

In market economies enterprise surveys are basic elements of market tendency researches and forecasts. The GKI Co. has found, however, that its system developed in the past decades – for example the semi-annual collection of information – does not really serve the today's purpose of the conjuncture researches. Therefore, after many years of preparation on January 1, 1996, the GKI Co. fully adopted or in some parts

[1] *Oppenlander, K. H. – Poser, G.*: Handbuch der IFO-Umfragen. Duncker. Munich 1989.

[2] *Román, Z.*: A vállalati magatartás és a vállalat helyzetének megítélése (Corporate behaviour and corporate situation analysis). MTA Ipargazdasági Kutató Csoport. *Ipargazdasági Tájékoztató.* 1969. No. 6.

[3] The few exceptions are the articles by *Annamária Inzelt*: A vállalati véleménykutatási módszer alapjai (Experiences with the application of company opinion research methods. G*azdaság*. 1976. No. 2.) and A vállalati véleménykutatási módszer szerepe a makrogazdasági elõrejelzések készítésében (The role of corporate-view research methods in preparing macroeconomic forecasts. *Ipargazdasági Szemle*. 1981. No. 4.)

adjusted its survey methods – as much as the Hungarian surroundings let it – to the EU's methods developed and used uniformly in all the EU countries.

The EUROSTAT and the qualified professionals of the OECD gave their help to GKI Co. in developing and introducing the new survey system and in improving its effectivness. We have also gained valuable information at the Conference Board of Canada research institute (Ottawa), which is responsible for the Canadian conjuncture research. The long-term working relationships that we developed with the experts of the above mentioned organizations have provided us with a good feedback on the standards of our work.

As a first step in introducing the EU standards, the GKI Co. conducts a monthly survey about the expectations of consumers[4] since 1993 – in association with SZONDA IPSOS Public Poll Institute. The investigated "sample" includes 1000 people representing the Hungarian population by age, gender, education, and residence. The questionnaire includes the harmonized questions of the EU about the general state of the consumer's own-household, the inflation, the unemployment, and the family's purchasing and savings plans. Based on the survey results, an aggregate "confidence" index is calculated and published monthly in the *Figyelő* weekly economic newspaper.

Short-term business surveying of the industry, the trade sector, and the construction industry started-off – on a trial basis – in 1995 and since June 1995 surveys have been conducted regularly. We conduct a monthly survey of industrial and trading enterprises, while the construction industry is surveyed only quarterly. For the purpose of the survey, based on the firm register of the Central Statistical Office (CSO), we use stratified-sampling method (stratified by the number of employees) to choose the survey's target sample. Then, we mail out our one-page, simple questionnaires to the chosen enterprises. In these questionnaires we are not asking for absolute numbers and data but we ask about the enterprises' tendency expectations and the difference between their actual and "normal" seasonal situation. The English special literature simply calls this a "business tendency survey". The answers collected are published in the form of balances of opinion which measure the difference between the percentage of firms which have chosen the "up arrow" or the answer "above the normal level" and the percentage of those which have chosen the "down arrow" or the answer "below the normal level".

The questions posed by GKI Co. – with one exception – are all adopted from the EU harmonized system. The only one question that is different is about producer prices but in this case we ask for an actual number because in Hungary the high inflation rate makes it useless to ask for the tendency of price changes (if they will go up or down.) From the collected data so-called confidence indicators – representing the sector's business expectations in one single index number – are calculated by trial weighing. In EU countries these composite type indicators – their base variables and elements are later discussed – can show and forecast forthcoming business fluctuations in relief and have successfully predicted cyclical breakpoints many times.

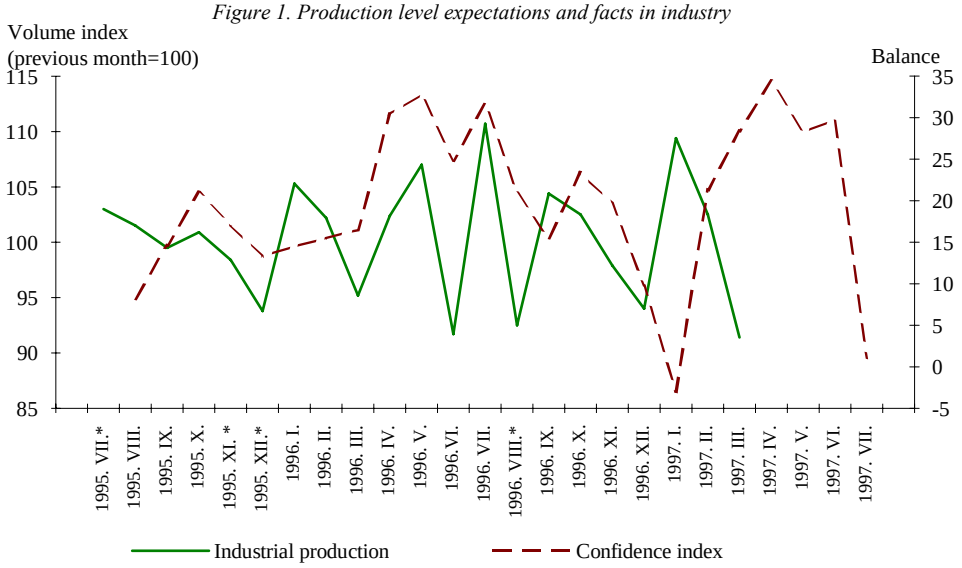
The industry sample includes 1700, the trade and the construction industry sample includes 1400–1400 enterprises. The industry and the commercial trade samples are corrected every half-year by replacing some of the enterprises with new ones. We usually

[4] For details, see: *Molnár, L.* – *Skultéty L.* et al.: Consumer confidence in Hungary. GKI Co.'s economic trends and research summaries. 1995. No. 1.

receive 400 processable answers from the industry, 200 from the commercial trade, while about 150 from the construction industry. This response rate is a bit behind from that of Western Europe but is in line with the Hungarian "habits". Other firms that conduct enterprise surveys (like KOPINT DATORG) experienced the same low response rates and agree that this is the Hungarian reality.

The industrial survey asks questions about the following: production levels and expectations, domestic and export order-book level, stocks of finished products, producer price inflation, the usage of determining capacities, limits to production, financial position, change in the number of employees, percentage change in investment and the overall state and development of the economy.

*Figure 1. Production level expectations and facts in industry*




* Survey was not conducted.
*Source*: Central Statistical Office, GKI Co.'s survey.

Sometimes, the survey's results (or at least some part of the results, for example in the case of production expectations) adjust closely to certain fact figures.[5] This can be viewed on Figure 1. The balances of opinion present problems of interpretation: should they be analyzed as a level or as changes? In formulating their answers, are the respondents referring to very short-term changes, in line with the wording of the questions, or are they comparing the present situation with that of a year earlier? (On Figure 1 we interpret the survey results as a level.)

The components of the industrial confidence indicator show information about expectations on production, assessment of order-book levels, and stocks of finished products. The industrial confidence indicator is mostly correlated with production outlook, the adequate correlation coefficient is 0.65.

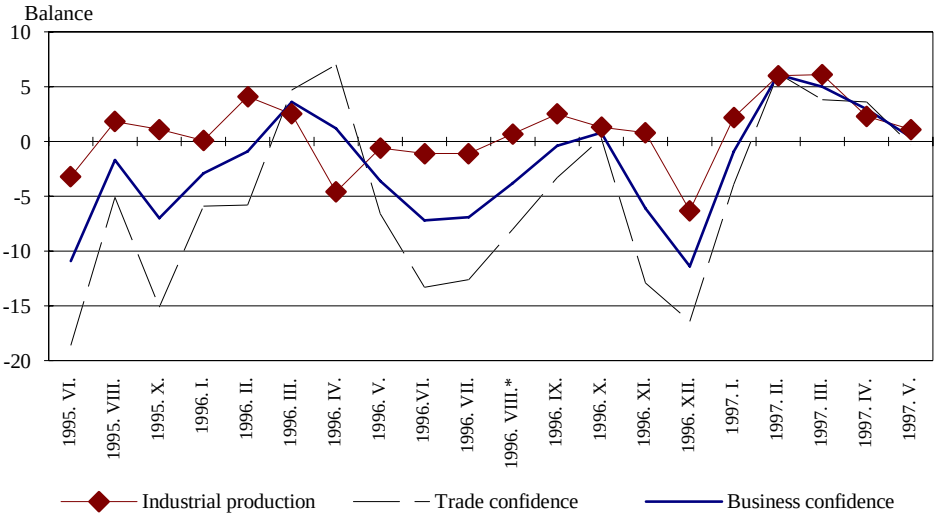
[5] According to GKI Co.'s experience the CSO's monthly industrial producer indices give the latest information on business cycle movements.

Analyzing inherence of responds (i. e. correlation among the different factors) we met some interesting facts. There is a relatively close negative connection between assessment of production trend and stocks of finished products (the correlation coefficient between these two variables is -0.68). So, increasing in stocks of finished goods was judged as an unfavourable development by most of the respondents. This empirical fact supports the metodological recommendation of EU for calculating industrial confidence indicator. In this method the stocks of finished products is taken into consideration with inverted sign.

Another point of interest: there is enough strong correlation between the level of domestic and export order-books (the adequate correlation coefficient is -0.63). Consequently there are not too much firms (between the respondents) which have good position both at the domestic and at the export markets. Naturally, it means in the same time that most of the firms in the sample of industrial survey are successful in one segment of the market.

Production outlook is not closely connected with the assessment of production trend, or the level of order-books, or the stocks of finished products. This factor is only correlated with expectations on overall economic development (the correlation coefficient is 0.65). We can interpret this fact that the expected position of the firms rather depends on outlook for the development of whole economy than on present conditions of enterprises by the most of managers.

*Figure 2. The business confidence index and its components*




* In August of 1996 entrepreneurial survey was not conducted.

Figure 2 gives an overview of the registered changes in confidence indicators. As it is seen the business conjuncture expectations of industrial enterprises have been modest for the last 2 years (they expected a high export growth but they also predicted the fall of domestic demand as a result of the stabilization measures – the so-called Bokros-package – introduced in 1995.) Economic prospects were judged "better" at the end of 1995 – partially because of the favourable predictions about global economical growth – but changed for the worse in

the beginning of 1996 to start another improvement only in Autumn. After the indicator's year-end fall some signs of optimism started to appear again and this can be said relatively stable.

Building and construction is an industrial activity which differs somewhat from the others: its production, investment and selling processes are a little different from those of the other (industrial) sectors. Building and construction could not therefore be included in the industry survey. Nevertheless, it is natural to extend the surveys to this very important sector of economy, which frequently follows its own cycle. Construction is said to be the fastest signaling system of economy, because beginning of recession and recovery phase of business cycle can be revealed sooner than in other sectors.

The construction industry's survey asks questions about level of production, order books, employment expectations, financial position, price expectations and limits to production. The components of the construction confidence indicator show information about stocks of order-books and expectations on employment.

*Figure 3. The construction confidence index and its components*


Answers up-to-now reported low production levels – in accordance with the critical stage of the sector in 1996. In the last quarter of 1996 the recovery phase began in building and construction sector and it is reflected in survey results. At the beginning of 1997 the responds we got promise further slowly improving in business conditions.

The trade survey asks questions about the following: present sales position, intentions of placing orders, volume of stocks, expected business trend, financial position, changes in employment and sales prices, and the overall state of the economy.

Intentions of placing orders is rather depending on expected business trend (the correlation between these two variables is 0.68) than on assessment of stocks. So by this mean, the managers in trade sectors can rather be called as "future-oriented" than these of the other branches.

The components of the trade confidence indicator include the expected business trend, intentions of placing orders and the assessment of stocks. The trade confidence

indicator is mostly correlated with intentions of placing orders and the expected business trend (the correlation coefficients are 0.93 and 0.83).

Figure 2 shows this index, as well, calculated by using the answers given to the above mentioned questions. As it is seen on the figure, in the last 2 years the business expectations of trading enterprises have been much more pessimistic than that of the industry; due to the present low level of retail trade turnover it has been a well-founded opinion. The optimism in the beginning of 1996 turned out to be irrealistic. However, the optimism that started to appear in Autumn is in line with the forecast of GKI Co. After the year-end fall, the trade expectations improved and nowadays they express "suspicious" optimism of the respondents.

The business climate indicator – that is also shown on Figure 2 – is a trial weighed average of the industrial and trade indicators. Using the business climate and the consumer confidence indicator we also compute the so-called GKI Co. economic sentiment indicator. When calculating this indicator, however, we had to deviate from the EU method temporarily. The EU methods suggest the stock index as a further component for the economic sentiment indicator but this index in Hungary – due to the low capitalization of the stock exchange – has not been an adequate indicator of real economical processes, thus could not be included in our calculations.[6]

*Analysis of long-term enterprise strategies*

Business surveys on long-range industrial expectations and endeavours are more and more frequently conducted in developed economies, thus in the EU as well. The EU, however, gave only a partial but not compulsory recommendation about the required research methods for conducting these kinds of surveys.

The former Economic Research Institute (GKI) usually conducted its before-mentioned semi-annual business surveys among industrial, trade, and construction firms. In the 1990s decade, the GKI Co. extended the scope of this research, first to firms providing business services then to agricultural enterprises, as well. Nowadays, the studies have a scope of 6–8000 enterprises – chosen from every sector – with more than 20 employees. The survey seeks information about the market situation, available resources, long-term (investment) plans, financial position. Each of the received 1000 answers of recent years gives us an opportunity to conduct a thorough investigation of enterprise development and perspectives (when evaluating the results it has to be taken into account that usually the firms who do not answer are the ones in the worst condition so the answers to some of the questions become mildly optimistic.) Still, the collected data of the past years have been made useful in GKI Co.'s large number of forecasts and other publications.[7]

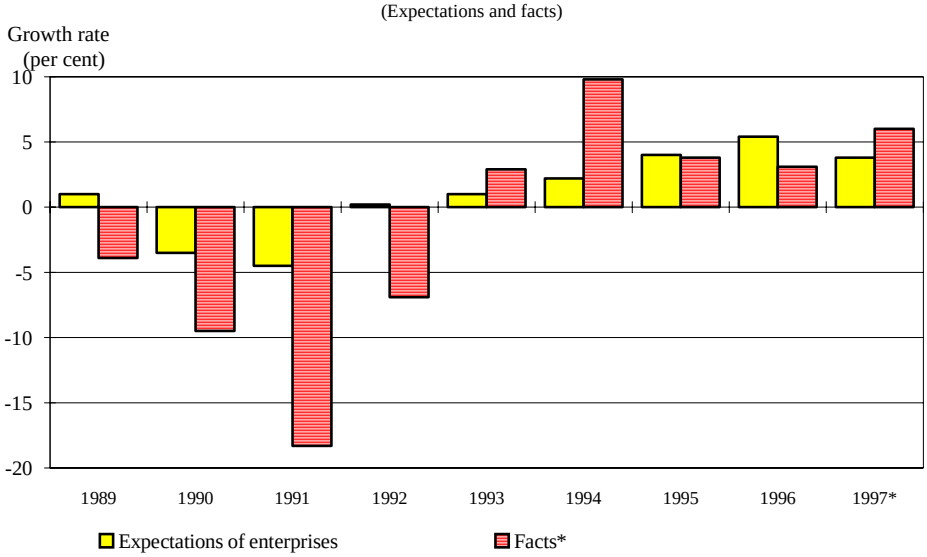
The surveys also provided valuable information on the expected trend of sales opportunities. For example: Figure 4 shows the firms' expectations about the development of industrial sales. As it is seen on the figure, firm expectations predicted the possible outcome of economic processes very well, even during the recent times of

[6] Only after the forthcoming years' experiments can we express our well-established opinion about the forecast opportunity of the discussed indicators (that require longer data series).

[7] See: Ahogy a vállalkozások látják... (As enterprises think...) GKI Rt. 1993, 1994, 1995, 1996, 1997. *Csernenszky, L. – Papanek, G. – Pető, M.*: Business surveys and forecasts in Hungary. In: *Oppenlander, K. H. – Poser, G. – Nerb, G.*: New development of business surveys in Central and Eastern Europe. CIRET Studien. 1992. No. 42.

radical economic transformation. In the Spring of 1990, these expectations prognosticated the forthcoming crisis well before any other information sources did, and sooner again, in the Spring of 1992 they registered the commencement of stabilization (if we look at monthly statistics they give a right view of these things). In this – quite anomalous – period, however, expectations concerning the extent of changes were not perfectly reliable.

*Figure 4. Total sales in industry*
(Expectations and facts)



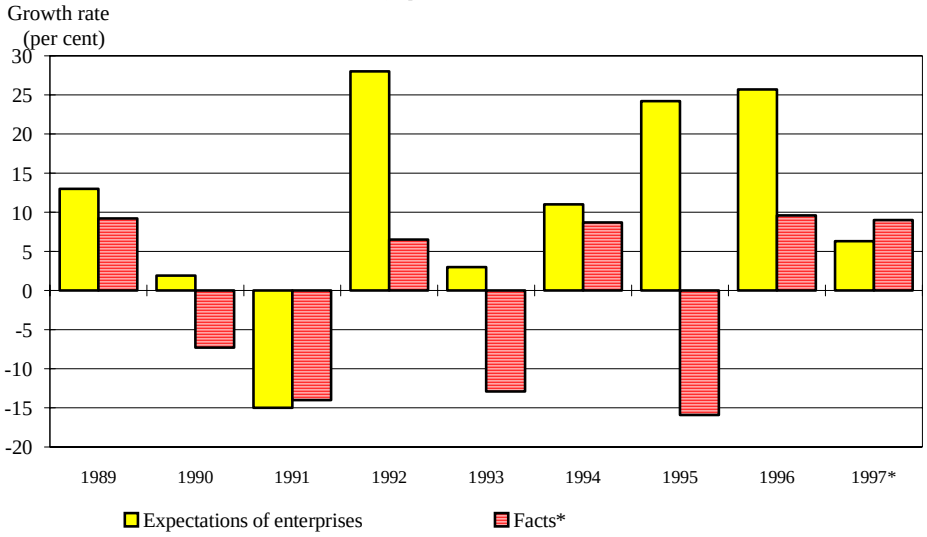

* GKI Co. forecast.

In 1997, the questioned enterprises calculate with a 3–4 per cent growth of their sales, in total. It means that this year Hungary might become one of the countries in the region with a more preferable situation concerning economic growth, as well. Primarily the firms of the food and the service sector have given evidence of increasing – though not well-established – optimism. However, firms in the construction, the transportation, the telecommunication industry, and in the trade sector have been modest concerning their expectations. In conclusion of all these, the GKI Co. forecasts a 3 per cent GDP growth for 1997. We expect a considerable production growth in the industrial sector (7%), the area of construction (8%), and transportation-telecommunications (2 %). We forecast a 1 per cent growth in the trade sector and stagnation within the agricultural and the service sector.

The most awaited long-range information of the research should be those that refer to the strategic plans of the firms. Unfortunately, as it is seen on Figure 5. we could only register quite stunted development plans in recent years (and usually the actual implementations were even under the expectations.) One of the most important findings of the Spring 1997 survey was that this time firms reported a not negligible **7** per cent growth of their capital investments. Large firms, foreign-owned firms, and firms in the trade, transportation-telecommunication sector gave evidence of stronger – above average – intentions to invest (investment propensity is the lowest within the food and the service industry). However, the results of the survey, are not without contradictions, since the expected dynamism of the firms is behind the desirable level. Struggling with

low-competitiveness the modernization of the Hungarian economy needs a much higher, at least two-digit growth of investments (implemented at a larger number of firms). But, after the past years of stagnating–declining development efforts the favourable turn concerning these plans, is a sign that gives hope to a slow encouragement of venturing. This is true even if we notice that usually the main purpose of the planned investments (at 60 per cent of the firms) is the change of used equipments and only about one-fifth of enterprises plan on profile-expansion, introduction of new technologies, and energy economizing while just over one-tenth of firms (but less than one-tenth of small firms) plan to invest in environmental protection.

*Figure 5. Volume indices of investment in industry*
(Expectations and facts)

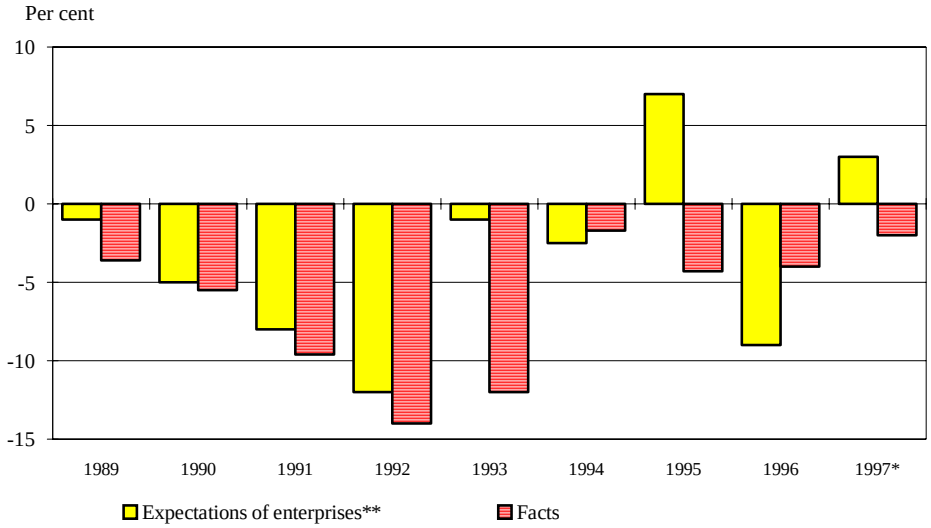



* GKI Co. forecast.

According to the Spring of 1997 survey of GKI Co., there is a heterogeneous connection between expected sales growth and capital investment plans. While on the one hand domestic sales opportunities do not or just slightly affect investment plans, on the other hand, the expected improvement of export-opportunities is accompanied by explicit investment plans. The high proportion of exports within total sales, however, does not result strong capital investment ambitions.

The before-mentioned ones on the present contradictory nature of firm expectations are also supported by the information acquired from the surveys which states that at a large number of firm-endeavours aiming for competitiveness, for keeping and improving modernity are quite modest for a long time. At present, only one-tenth of the respondents undertakes research duties (and only 3–4 out of 100 did licensing, or know-how purchasing.) These figures are tragically low in international comparison. It is also worrying that although still a considerably large group of firms would like to improve their market-work – develop their sales-network, strengthen their advertising-PR activities, modernize their after-sale services –, our research registered that the number of firms planning on the above mentioned developments is slowly decreasing.

*Figure 6. Employment in industry*
(Expectations and facts)




* GKI Co. forecast.
** 1989–1993: growth of rate (pervious year=100); 1994–1997: balance of answers for qualitative question.

In line with the afore-mentioned ones it is not surprising that for a long time the investigations provide a rather unfavourable forecast on the continuance of unemployment problems (see Figure 6). It is even more depressing that the reality is usually worse than the projections in this area, as well.

*Main limiting factors hindering the expansion of production/services*
(based on firms' and entrepreneurs opinion)

| Limiting factors | Proportion of enterprises that consider the given limiting factor important* (per cent) | | | | | |
|---|---|---|---|---|---|---|
| | 1993 | 1995 | 1997 | | | |
| | | | total | under 50 | 51–500 | over 500 |
| | | | employee | | | |
| Limited demand | | | | | | |
| – on export market | 20** | 16 | 11 | 9 | 13 | 13 |
| – domestic market | 61 | 48 | 55 | 54 | 54 | 68 |
| Poor competitiveness | 6 | 4 | 3 | 2 | 4 | 3 |
| Capital shortage | 32 | 32 | 27 | 25 | 28 | 30 |
| Fierce competition | 20** | 25 | 25 | 25 | 26 | 23 |
| Unfair competition | 15 | 25 | 32 | 37 | 33 | 17 |
| Unpredictable government behaviour | 19** | 33 | 41 | 45 | 39 | 32 |

* As of the Spring survey.
** As of the Autumn survey (the Spring survey did not mention such a factor).

Information on the limiting factors of production/services expansion give support to other rather important statements of the surveys. The data give clear evidence that the shift from an "economy of shortage" to a market economy is a determining effect for firms. Since the end of the previous decade, the respondents – in contrary to the managers in several other countries of the region – already considered limited demand as the main limiting factor of growth (in two-third of the cases) instead of the lack of resources they got used to in the economy of shortage.

The data clearly justify that at most of the enterprises – regardless of their size – the expansion of the domestic market (as well) is an inevitable prerequisite of commencing business uplift. The data also show that the growing uncertainty and the loss of confidence that can be observed in the Hungarian society did not avoid entrepreneurs, either. In 1997 – according to the enterprises – unethical business life hinders the growth of several hundred thousand firms, and the economic policy's not-yet-acceptable low entrepreneur-friendly nature – in spite of the stabilized currency and the declining interest rates – hinders the development of half-a-million enterprises. It should be noted that the former index was worse than right now only once before (43 per cent), in the Autumn of 1995, after the drastic stabilization measures of the so-called Bokros package. The increasing loss of confidence among entrepreneurs should arouse the interest of the economic policy.

Finally we have to mention, that since 1991 GKI Co. have been conducting a semi-annual financial survey as well, covering the entire banking sector, supplemented by the insurance sector from 1995. The sector itself believes in the importance of the survey and in addition, the survey's results are quite useful because they give us an opportunity to examine the previously outlined research information from a monetary point of view.

*

Usually, by means of the press, the GKI Economic Research Co. deliberately strives for making the obtained survey information known extensively in Hungary. Since 1993, the *Figyelő* weekly newspaper has been publishing the survey on the development of consumer confidence. The results and analyses of business surveys are published in *Napi Gazdaság*, *Vasárnapi Hírek*, *Üzleti 7* and *MISZ Hírlevél*. Since October 1996, the results of the quarterly construction survey can be found in *Építési Piac*. It is also worth mentioning that survey-participants receive the most important results of the research.

Since 1995, the consumer survey results are also published in the *European Economy* and the *EUROSTAT*, the publication of the European Union's Statistical Office. The international publication of business survey results will commence in the near future, as well.

# NONPROFIT SECTOR IN HUNGARY IN THE EARLY 1990s

ÉVA KUTI – ISTVÁN SEBESTÉNY

A striking upsurge has taken place in voluntary activity in Hungary after 1989. The nonprofit organizations have mushroomed, their social importance and economic strength have soared, the number of donors and the amount of charitable donations have multiplied for the last couple of years. This sudden growth is puzzling even in the context of the "global associational revolution".[1] The scope and scale of the phenomenon suggest that something really exceptional is happening in the Hungarian economy and society. The proliferation of voluntary organizations is a clear sign of the citizens' intention to actively and directly influence the transition process. The emergence of nonprofit organizations in many fields of the economy, their behaviour and actual activities are obviously an expression of the society's attitudes and aspirations, and in the same time they are, of course, more or less important factors and also indicators of the development process.

The statistical analysis of such a complex phenomenon must be obviously manifold. We have to find the answers to several different, though interrelated, questions: what happens in the Hungarian nonprofit sector, and what are its impacts on the social and economic development in Hungary? How large is the nonprofit sector, how is its share in the national economy? How many voluntary organizations do exist in different fields? What are their activities? How much and what kind of services do they deliver? How extensive are their advocacy activities? How much money do they spend? Who has established and who is financing the thousands of new voluntary organizations? What are the sources of third sector revenues? Who are their clients, how large is their contribution to the solution of social problems?

To answer these questions, to fill the glaring information gap, to replace vague personal impressions by internationally comparable statistical estimates in the analysis of the roles, size, structure and finances of the Hungarian nonprofit sector: this was the very challenge the statistical system had to face in the beginning of the 1990s.

Though the Hungarian Central Statistical Office was among the very first statistical agencies which had surveyed the voluntary organizations (surveys of voluntary

[1] *Salamon, Lester M.*: The global associational revolution. The rise of the third sector on the world scene. Occasional Paper No. 15. The Johns Hopkins University. Institute for Policy Studies. Baltimore. 1993.

associations had been carried out in 1862, 1878, 1932, 1970, 1982 and 1989), the results of these surveys became completely outdated by 1992. They could not any longer be used as proxies to represent the whole nonprofit sector. The extremely rapid growth could be monitored only by an annual survey of voluntary organizations. This is why a general survey of the nonprofit sector and a set of "satellite surveys" have been developed which constitute a solid base for the analysis of the above listed problems. The definition and classification of nonprofit organizations used for statistical purposes are compatible with the ones which were developed by the Johns Hopkins Comparative Nonprofit Sector Project and are accepted now in most of the developed countries.[2]

*Definition*

In order to establish the boundaries of the nonprofit sector the definition states that organizations can be considered as part of the nonprofit sector if they meet the following criteria:

*1. Formal*, i.e. the nonprofit organizations are institutionalized to some extent, they have some formal character. Groups without legal personality are not regarded as nonprofit organizations.

*2. Private*, i. e. the organizations are institutionally separate from government though they can get significant state support.

*3. Non profit-distributing*, i.e. the organizations can have profitable business activities, but they do not distribute profits to their owners, members and managers.

*4. Self-governing*, i.e. the organizations have their own internal decision-making structures and internal procedures for governance, they are not controlled by outside entities.

*5. Voluntary*, i.e. the organizations have some meaningful degree of voluntary citizen involvement, either in the actual conduct of their activities or in the management of their affairs.

6. *Non-religious*, i.e. the organizations are not involved in the promotion of religious worship, they are not churches, congregations or other primarily religious institutions. Nevertheless, religiously affiliated nonprofit service organizations are part of the nonprofit sector.

7. *Non-political*, i.e. political parties are not considered to be nonprofit organizations.

The above – internationally accepted – definition is, by and large, applicable to the Hungarian nonprofit sector. Operationally, its use is quite easy because the Hungarian legal system is very clear about institutional forms.

*Legal forms of nonprofit organizations*

Originally, there were only two legal forms available for the nonprofit organizations: those of the foundations and voluntary associations. The actual activities of these two kinds of nonprofits are not necessarily different, but they significantly differ in their organizational structure, nature, legal and tax regulations.

*Foundations* are organizations governed by a voluntary board (mostly named by the founders). They must have an endowment and cannot have members. Once registered, their endowment cannot be withdrawn by the founders. They can be grant-making bodies, grant-seeking, fund-raising organizations, and also service providing, operating foundations.

[2] Defining the nonprofit sector. A cross-national analysis. Ed.: *Salamon, Lester M. – Anheier, Helmut K.* Manchester University Press. Manchester. 1997.

*Voluntary associations* are membership organizations with officers elected by their members. They can be both member-serving and public-serving organizations; lobbying and advocacy are also among their usual activities.

An amendment to the Civil Code has introduced three new types of nonprofit organizations since 1994, namely the public law foundation, the public law association and the public benefit company.

*Public law foundations* are foundations established to take over some government tasks, i.e. tasks which are defined in law as government responsibilities (e.g. education, health care, public safety, etc.). Their founders can only be the Parliament, the Government and the municipalities. (These latter are not allowed to create private foundations.) The public law foundations are kept financially accountable by the State Controller's Office. The founders can initiate the dissolution of a public law foundation if they think its function can be more efficiently fulfilled by another type of organization. The property of the dissolved public law foundation reverts to its founder. Apart from the above special provisions, the basic legal regulation of private foundations applies to public law foundations, as well.

*Public law associations* are self-governing membership organizations which can only be created by the Parliament through passing a specific law on their establishment. The Academy of Sciences, the Chambers of Commerce and the chambers of some professions (e.g. doctors, lawyers, architects, etc.) have been transformed into public law associations since the creation of this legal form. The government may let public law associations exercise some authority over their members (e.g. official registration, quality control, the issue of licenses, etc.). Otherwise the legal regulation of voluntary associations applies to them.

*Public benefit companies* are not-for-profit organizations established in order to produce public goods and to meet public needs. The profit of their occasional unrelated business activities must also be used to pursue their public purposes. They are not allowed to distribute profit to their owners. They can be established by either private persons or organizations. In addition to the non-distribution constraint imposed by the Civil Code, it is the basic economic regulation of the for-profit limited liability companies which applies to the public benefit companies.

Both foundations and voluntary associations are registered by the court, while public benefit companies must register with the tribunal. Basic information from the court is a starting point in the development of the regularly updated statistical register of nonprofit organizations.

### *The size of the nonprofit sector*

At the beginning of its renaissance, in 1990 the Hungarian nonprofit sector was much smaller than that of the developed countries, but its size was still significant. The relatively liberal Hungarian version of state socialism had let "politically innocent" voluntary associations exist. Some services had been provided by state-supported voluntary organizations. Consequently, the development of the politically free nonprofit sector did not start from zero. Nevertheless, its rapid growth was unexpected and needs explanation.

Table 1

*Number of nonprofit organizations in Hungary, 1862-1994*

| Year | Foundations and public law foundations | Voluntary associations and other nonprofit organizations | *Total* |
|---|---|---|---|
| 1862 | . | 319 | . |
| 1878 | . | 1 917 | . |
| 1932 | . | 14 365 | . |
| 1970 | – | 8 886 | *8 886* |
| 1982 | – | 6 570 | *6 570* |
| 1989 | 400 | 8 396 | *8 796* |
| 1990 | 1 865 | 14 080 | *15 945* |
| 1991 | 6 182 | 17 869 | *24 051* |
| 1992 | 9 703 | 21 528 | *31 231* |
| 1993 | 12 064 | 23 851 | *35 915* |
| 1994 | 14 216 | 25 943 | *40 159* |

*Source:* Here and at the following tables and figures see *Bocz, János – Kuti, Éva – Locherné Kelédi, Ildikó – Mészáros, Geyza – Sebestény István*: Nonprofit szervezetek Magyarországon, 1994. Központi Statisztikai Hivatal. Budapest. 1996.

The striking development of the Hungarian nonprofit sector has come about for many reasons, but two factors have been of crucial importance.

– The first is the long-standing tradition of voluntary activities, including both independent citizen action and the high adaptability, the "take all the opportunities, use all the institutional forms in order to survive" attitude of the Hungarian society.

– The other factor is the facilitation and encouragement from the part of government.The results are really impressive, and the sector still does not seem to stop growing.

This growth of the nonprofit sector is all the more impressive because the economy itself was clearly declining in the early 1990s. The emergence of a flourishing nonprofit sector in a declining economy can only be explained by the fact that the patterns of problem solving offered by nonprofits are equally acceptable and attractive for citizens and government. The nonprofit institutional form is generally considered to be an appropriate means of facing the social and economic challenges of the transition period.

*The structure of the nonprofit sector*

About two thirds of the nonprofit organizations are voluntary associations with 5.5 million members. Although more than half of these associations have been created since 1989, the structure of the sector is still marked by the "heritage" of the state socialist period. In the same time, the differences between the composition of the partly old voluntary associations and the structure of the completely new foundation sector herald significant changes in the composition of the nonprofit sector as a whole. The fields (education and research, health, social care, development and housing, international activities), which were definitely underdeveloped in Hungary compared to the developed, democratic countries, represent much higher shares in the foundation sector than among voluntary associations. This can be interpreted as a sign that the structural

changes of the Hungarian nonprofit sector began to decrease the differences between the Hungarian and the foreign nonprofit sectors.

The most striking of these differences is the relatively low share of the Hungarian voluntary organizations in health and education, which are the most important fields of activities of nonprofit organizations in the developed countries. This difference is explained by the state monopoly of education and health care under state socialism. While voluntary organizations as service providers were tolerated in culture and even promoted in sports, recreation and emergency prevention, they were not allowed to establish schools or hospitals. Although this state monopoly was broken in 1989, the nonprofit service provision could not rapidly develop because it would have needed a lot of investment and there was very little capital available for the possible nonprofit entrepreneurs.

Similarly, the state monopoly of housing and urban services prevented Hungarian nonprofits to play a more active role in development and housing, and thus contributed to keep their share relatively low in this field compared to other countries.

Mostly political reasons are responsible for the petty share of international and advocacy organizations among Hungarian nonprofits. The state socialist regime tried to fully control international assistance and discouraged open advocacy activities by voluntary organizations. Since the establishment of such organizations became free, more and more voluntary groups decide to specialize in international and advocacy activities.

Table 2

*Structure of the nonprofit sector in Hungary in 1994*

| Fields of activity | Foundations and public law foundations | Voluntary associations and other nonprofit organizations | *Total* |
|---|---|---|---|
| Culture | 2 452 | 1 708 | *4 160* |
| Sports, recreation | 1 270 | 12 244 | *13 514* |
| Education, research | 4 321 | 638 | *4 959* |
| Health | 1 265 | 309 | *1 574* |
| Social services | 2 178 | 857 | *3 035* |
| Environment | 348 | 519 | *867* |
| Development and housing | 971 | 869 | *1 840* |
| Civil and advocacy associations, crime prevention | 358 | 1 042 | *1 400* |
| Emergency prevention and relief | 50 | 1 164 | *1 214* |
| Philanthropic intermediaries | 39 | 640 | *679* |
| International activities | 209 | 304 | *513* |
| Business and professional associations, trade unions | 51 | 5 155 | *5 206* |
| Other | 704 | 494 | *1 198* |
| *Total* | *14 216* | *25 943* | *40 159* |

The expenditure data (see Table 3) suggest that the economic importance of the Hungarian nonprofit sector is definitely larger than it is generally presumed to be. Its service-providing role deserves far more attention than it attracted in the first years of the

transition period. The newly emerging nonprofit organizations represent the society's response to the new challenges. Their large scale emergence in the fields of education and health care express the government's and citizens' willingness to increase the supply and quality of services which were previously monopolized by the state. The mushrooming of advocacy organizations suggests, on the one hand, that citizens are determined to take matters into their own hands and to develop institutional guarantees of their participation in decision making at all levels. On the other hand, the proliferation of these nonprofits may partly be an organizational expression and consequence of the degree of upheaval, upward and downward social mobility, and instability of Hungarian society under the conditions of the transition from state socialism to a market economy.

Table 3

*Structure of the nonprofit sector in Hungary in 1994*

| Fields of activity | Expenditures (million HUF) | Expenditures | Number of organizations |
|---|---|---|---|
| | | per cent | |
| Culture | 16 559.6 | 13.2 | 10.4 |
| Sports, recreation | 29 366.6 | 23.4 | 33.6 |
| Education, research | 12 384.4 | 9.9 | 12.3 |
| Health | 4 967.8 | 4.0 | 3.9 |
| Social services | 16 115.5 | 12.8 | 7.6 |
| Environment | 1 572.5 | 1.3 | 2.2 |
| Development and housing | 8 103.1 | 6.5 | 4.6 |
| Civil and advocacy associations, crime prevention | 1 428.0 | 1.1 | 3.5 |
| Emergency prevention and relief | 310.0 | 0.2 | 3.0 |
| Philanthropic intermediaries | 10 237.2 | 8.2 | 1.7 |
| International activities | 798.9 | 0.6 | 1.3 |
| Business and professional associations, trade unions | 23 118.5 | 18.4 | 12.9 |
| Other | 514.3 | 0.4 | 3.0 |
| *Total* | *125 476.4* | *100.0* | *100.0* |

Promising as it is, the development of the nonprofit sector is far from equal. Less than one third of the nonprofit organizations are located in Budapest, the capital, but these Non Governmental Organizations (NGOs) own more than two thirds of the total income of the nonprofit sector (see Figure 1). The smaller is a community, the scarcer and poorer are its voluntary organizations, which also means that their problem-solving capacity is probably much smaller in the less developed regions.

The Hungarian nonprofit sector employs about 33.4 thousand full-time and 15.5 thousand other (part-time, second job, employment of retired persons) employees.

These relatively low figures show that the growth of nonprofit employment could not keep pace with the general development of the sector. Very few of the voluntary organizations have well-trained and well-paid employes, thus the need for professionalization is a very important challenge for Hungarian NGOs.

*Figure 1. Concentration of organizations and revenues*
*by the size of organizations and types of communities in the nonprofit sector in 1994*


## *Income sources*

The composition of the third sector revenues (see Table 4) is quite surprising, especially in an international comparison (see Figure 2 and Table 5).

Table 4

*Nonprofit sector revenues by revenue sources, 1994*

| Revenue source | Revenue million HUF | Per cent |
|---|---|---|
| Support from the central government | 23 588.6 | 16.3 |
| Support from the local governments | 6 171.4 | 4.3 |
| *Government support* | *29 760.0* | *20.6* |
| Corporate donations | 11 484.1 | 8.0 |
| Individual donations | 3 428.4 | 2.4 |
| Foreign donations | 8 997.1 | 6.2 |
| Donations from nonprofit organizations | 6 677.6 | 4.6 |
| *Private donations* | *30 587.2* | *21.2* |
| Membership fees from private individuals | 6 696.8 | 4.7 |
| Membership fees from organizations | 7 243.2 | 5.0 |
| Sales and dues related to the charitable activities | 19 943.8 | 13.8 |
| *Revenues from the basic activities* | *33 883.8* | *23.5* |
| Investment income | 13 353.8 | 9.3 |
| Unrelated business income | 29 797.2 | 20.7 |
| *Revenues from for-profit activities* | *43 151.0* | *30.0* |
| Other | 6 749.9 | 4.7 |
| *Total* | *144 131.9* | *100.0* |

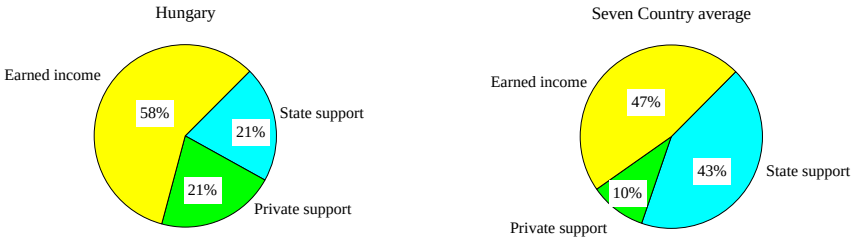
The revenue structure of the Hungarian nonprofit sector is dramatically different from that of the developed countries. Our data seem to prove the importance of private initiatives in the striking development of the nonprofit sector. The direct government support to nonprofit organizations is rather parsimonious in Hungary. Its share (21 per cent of the total nonprofit income in 1994) is much lower than in Western Europe. (The breakdown of the revenues is surprisingly stable. The share of state support was 23 per cent in 1990.)

The relatively low government support is all the more surprising because it does not seem to be consistent with the official ideology. What politicians said about the importance of civil society and the possible role of voluntary organizations in the denationalization and decentralization of service provision did not correspond with what they actually did (or rather did not do) in order to help the nonprofit sector in the early 1990s. While the legal regulation and the indirect support of the sector mirrored that the government favoured the sector, nonprofit organizations were not treated really generously in terms of direct state support.

Nevertheless, the role of the state was probably more important in financing nonprofit organizations than it is suggested by our data. Some of the large enterprises and banks were still state-owned in 1994. Consequently, their expenditures on supporting voluntary organizations decreased the revenues of the state budget, thus their donations represented semi-private contributions. The Hungarian government created several foundations, which actually distributed government money. The decision-making is more or less private in these cases, but the money itself comes mainly from government sources. Even the really private donations of individuals and private companies include indirect state support through tax-deductibility of individual and corporate donations to foundations. (This indirect state support is naturally present in other countries' figures for private giving, as well.)

For lack of state support, Hungarian nonprofit organizations relied on earned income even more than their Western European and American counterparts. The largest share (58 per cent) of the total nonprofit income originated from private earnings, i.e. sales, investment and business activities of the nonprofit organizations themselves in 1994. Remarkably, the most important source of earned income was not the sale of the products or the fees charged for services (they represented only 13.8 per cent of the revenues), but the unrelated business income (20.7 per cent). The constantly high rate of business income suggests that the Hungarian nonprofit sector is more entrepreneurial than those of the developed countries.[3] This entrepreneurial character of the voluntary organizations is probably a consequence of their serious financial problems.

*Figure 2. Revenue structure*




*Remark.* The seven countries are: France, Germany, Hungary, Italy, Japan, the United Kingdom, the USA.
*Source:* See Note 3.

[3] *Salamon, Lester M. – Anheier, Helmut K.*: The emerging sector. The nonprofit sector in comparative perspective – An overview. The Johns Hopkins University. Institute for Policy Studies. Baltimore. 1994.

Table 5

*Revenue sources of the nonprofit sector in an international perspective*
Per cent

| Country | Government | Private contribution | Earned income |
|---|---|---|---|
| France, 1990 | 59 | 7 | 34 |
| Germany, 1990 | 68 | 4 | 28 |
| *Hungary, 1990* | *23* | *20* | *57* |
| *Hungary, 1994* | *21* | *21* | *58* |
| Italy, 1990 | 43 | 4 | 52 |
| Japan, 1990 | 38 | 1 | 60 |
| U.K., 1990 | 40 | 12 | 48 |
| USA, 1990 | 30 | 19 | 51 |
| 7 country average | 43 | 10 | 47 |

*Source: Kuti, É.*: The nonprofit sector in Hungary. Manchester University Press. Manchester. 1996.

The income from private charitable giving (including gifts from individuals, corporations, churches, unions, foundations and other voluntary organizations) accounted for about 21 per cent of the total nonprofit income in 1994, which is much higher than the average share of private donations among the revenues of the nonprofit sector in Western Europe. At first glance, the figures in Table 6 don't look conceivable, but on closer examination we can find some explanation for this strange phenomenon. No doubt, private giving operates from a much smaller base in Hungary than in the developed countries, but relative poverty does not necessarily prevent people from philanthropy. Having more personal experience of struggling with financial difficulties and being more endangered themselves, Hungarians seem to be sensitive to other people's need for help. On the other hand, under the circumstances of denationalization and shrinking public services they can be sure that their problems won't be solved by the government, so they must contribute both work and money if they want to increase the consumption of collective goods. Also, the relatively high share of private donations may have to do with the tax treatment of nonprofit organizations which was relatively generous in the early 1990s.

In order to confirm or reject these tentative explanations, we carried out a representative survey of giving and volunteering. The results obtained from 14 833 in-home personal interviews with private individuals aged 18 and over are as follows.

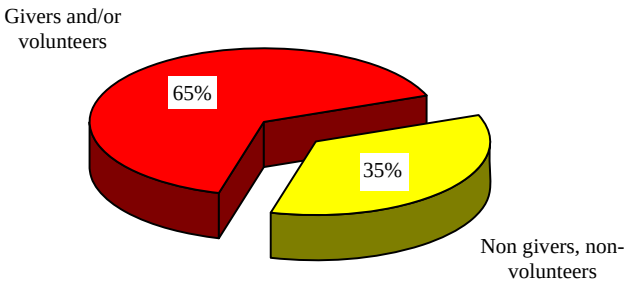
### *Individual giving and volunteering*

The survey of charitable behaviour has shown that almost two thirds of the adult population voluntarily helped other people, charitable organizations, or contributed to the solution of social problems emerging either at a local or national level in 1993.

The direct individual financial support to foundations, voluntary associations, churches and public institutions reached about 0.3 per cent of the total disposable income. The indirect budget support provided through the tax deductibility of donations was negligible compared to the citizens' contribution. The majority of donors did not

deduct their donations at all, thus the lost budget revenues represented less than 10 per cent of the sum of money individual citizens gave up in order to support nonprofit organizations.

*Figure 3. The share of donors and volunteers in the adult population, 1993*




Church institutions are among the salient supportees of both donors and volunteers. Most of the support provided to the lay nonprofit organizations goes to four fields, namely to social care, culture, education and assistance to Hungarians living abroad, but the target fields significantly vary according to the types of support. Nonprofit organizations delivering social services can firmly rely on in-kind donors and volunteers to help them. The main supporters of the cultural field are the cash donors and volunteers, though the number one supportee of cash donors is education. The nonprofit organizations which support Hungarians living abroad mainly receive in-kind donations.

Citizens' charitable behaviour is closely bound up with their socio-demographic characteristics, with their social embeddedness. Women are better donors, but they volunteer less than men do. The best givers are those well educated, highly positioned people aged between 30 and 60, who live in large cities with consolidated (2 children) families, have a relatively high income from various sources, and are connected to voluntary organizations not only as supporters but also as members.

The answers to the questions about the motivations of donations and voluntary work seem to suggest that solidarity is a basic value of the Hungarian society. While citizens feel obliged to take part in the solution of social problems, they think that the government also has a responsibility. Trust in the supported organization and clarity of the organizational aims to be achieved play an important role in the selection of supportees. Donors and volunteers are much better informed than people who neither give nor volunteer. The majority of non-givers do not know or get only limited information about the organizations seeking funds or assistance. Very few Hungarian nonprofit organizations know and apply the really sophisticated techniques of raising funds, recruiting volunteers and building steady relationships with supporters. This implies that there are some opportunities to increase individual donations and voluntary work, and to advance citizens' participation in Hungary in the near future.

*

The rapid growth of the Hungarian nonprofit sector since 1989 is a complex phenomenon which has its origins in the efforts of various economic actors. These efforts are obviously diverse, consequently the nonprofit organizations and the social functions they fulfill are also different. There exist grassroots organizations of the civil society and large foundations established by the government, grant-makers and grant-seekers, advocacy groups and service providers, very small and extremely big organizations side by side within the sector.

Without wishing to deny the importance of facilitation and encouragement from the part of government and from some Western foundations and official aid agencies, we can state that the renaissance of the Hungarian voluntary sector started in the 1990s mostly as a result of private initiatives. 60 per cent of the nonprofit organizations were established exclusively by private individuals, the share of government-created organizations is about 6 per cent. People, who wanted to act as citizens established nonprofit organizations in order to exercise some control over social processes, decision making and the provision of welfare services. Many of these voluntary organizations were born as the institutions of civil society and act as alternative policy-makers directly expressing the interests and aims of social actors.

After a flying start, the further development of the sector has been possible because the patterns of problem solving offered by nonprofits have been also acceptable, in some fields even attractive for the government. The nonprofit institutional form is generally considered to be an appropriate means of facing the social and economic challenges of the transition period.

After decades or even centuries of mutual distrust and either latent or manifest conflicts, co-operation has become the leading principle in the government/nonprofit relationship. To put this principle into practice, to stabilize, institutionalize the mechanisms of co-operation and still preserve the independence of the voluntary sector, this is one of the key issues facing the nonprofit sector in Hungary in the years immediately ahead.

# ON A PILOT SURVEY OF HOUSEHOLD INCOMES

JÁNOS AY – LÁSZLÓ VITA

With the transition to a market economy in Hungary, the conditions of conducting household income surveys have significantly changed. This is partly due to the proliferation of income sources, and partly to the introduction of taxation of income on a personal basis in 1988. Most of the newly emerged income items, e.g. entrepreneurial and property incomes, are "soft" with respect to measurement in contrast to typical income items under conditions of a planned economy and income policy. The significant extent of underground economy in Hungary has similar effects. The introduction of a comprehensive personal taxation has radically changed the attitude of population towards reporting true income since, at least in most respondents' mind, doing so would be a "self-denunciation". The fiasco of income survey attempted by the Hungarian Central Statistical Office (CSO) in 1993 is a convincing evidence for the aforesaid.

Therefore, by 1994, a new approach to gathering data on household income seemed to be necessary. A research project with this objective was launched by he Statistics Department of the Budapest University of Economic Sciences (BUES), sponsored by the Hungarian Scientific Research Fund (OTKA. Theme Number T 013505). The actual field work, i.e. the interviews in the selected households were conducted in April 1995 by students of the same university in Budapest and in two towns, while in four villages the interviewing was done by professional enumerators of the CSO.

In order to enhance the co-operation of the selected potential respondents, letters had been sent to about 2300 households, informing them about the objectives of the pilot survey, promising them absolutely confidential handling of the information obtained and asking for their co-operation. A pre-paid reply letter was attached, by which they could give three different answers to our request of co-operation: an affirmative or negative one, or they could state they might perhaps be persuaded at the time of the survey to co-operate. It was also stated in our letter that in case of no reply they would be visited by our enumerators.

88.6 per cent of the households approached chose this last option, while only 5 per cent of them denied the co-operation in writing. Such households were also requested to give the reason of their non-willingness to participate in the survey and to report some of the characteristics of their household. One third of such households did not give any

reason for their negative attitude, one sixth reported no faith in statisticians/politicians, and about one tenth reported lack of time.

*Selection of the sample*

Although the survey did not aim at producing nation-wide statistics on the living conditions and income of the population, because of cost considerations, we tried to spread the sample over a wide range in both social and regional sense. Namely, the Central Statistical Office recently experienced different attitude towards surveys in Budapest and the country-side respectively. Moreover, we thought that the attitude of replying to survey questionnaires might also differ in various strata of the population.

However, in order to obtain statistically significant data on income distribution and to assure its comparability with relevant data from other sources, at least for the capital city of Budapest, we concentrated two thirds of the sample to Budapest. The country-side was represented by a relatively small sample of households selected in two towns of county Fejér and four villages from county Pest. The selection of these two counties was deliberate, while the villages chosen were those where the professional enumerators conducting the regular household surveys of the CSO were also inclined to undertake our survey, however, in households not involved in the regular survey.

Originally we intended to select a random sample of households in Budapest and in the chosen towns and villages, respectively, but civil rights in Hungary did not allow the construction of a list of citizens' names with their addresses. At that time a list of dwellings with addresses could only be obtained. The post would not, however, deliver our afore-mentioned letters to addresses without names. At the same time, we were informed by the postal authority about the existence of documents, which describe mail-delivery districts. They order postmen to follow a given itinerary when delivering mail. The itinerary to be followed was given by listing a prescribed sequence of certain segments of the district, the segments consisting of blocks of houses, and indicating the number of floors and the number of private addresses within each block. Fortunately enough, the delivery of letters to all dwellings in any selected segment even without giving the names was possible. Thus, the primary sampling units became the mail-delivery districts, and one or more neighbouring segments within each primary unit were chosen as secondary sampling units. In each primary unit (district) the selected segments contained at least 23 households and a maximum of 45. Our afore-mentioned letter was then delivered to all private households within the selected segments. In Budapest we selected 36 districts, and 12 and 13, respectively in the two towns and in the four villages. The number of letters delivered in this manner was 1591 in Budapest, 398 in the two towns and 368 in the villages.

The enumerators had been instructed to visit first all the households (within the segment assigned to each of them), which gave a positive or "wavering" reply to our letters of approach, and then to supplement the sample with additional ones from among those, who had not replied at all. Each enumerator was given a target of completing the questionnaire in 12 households.

It should be obvious that, in spite of our effort to select a more or less random sample, the 578 households actually observed did not yield such a sample. On the one

hand, there were 118 households denying co-operation by answering so in writing and on the other hand, our enumerators also may have differed in their ability to convince the households actually visited. Still we hope that our findings with regard to testing our new approach to collect income statistics are valid.

*The questionnaire*

The questionnaire consists of two blocks: the items of Block *A* are related to the household as a whole, while items of Block *B* pertain to persons of the household as individuals having earned any kind of income in 1994. It is rather long and complex. This complexity is due to our original intention of conducting two or three consecutive surveys representing different approaches to and philosophies of income inquiry. However, financial considerations forced us to conduct a single survey, and we did not want to put aside our original plan either. Thus, we had to combine the planned several questionnaires into one. In fact, this solution also had an advantage, viz. the direct comparibility of the results based on the various approaches. With some of the questions we finally tried to inspire the households' confidence.

The first item of the questionnaire was the number of persons in the household as on July 1 of 1994 and on 15 April 1995, respectively. The second item enumerated all individuals of the household born in 1981 and before (in descending order of age), indicating their year of birth, sex, highest school attainment, all sources of income they had in 1994 and the length of their presence in the household in 1994 (measured in months). Items 3 to 11 described the characteristics of the household's dwelling (size, tenancy, type of heating, amenities, etc.) and the expenditure connected with it.

Item 12 enquired about the average monthly net money income in 1994, item 13 about the estimated savings resulting from the consumption of goods and services produced by the household, item 14 requested the respondent to rate the level of living resulting from the income derived, while under item 15 and 16 they were requested to give an estimate on the amount of money income they would consider adequate for a decent life in 1994 and in 1995, respectively.

Items 17 to 20 were connected with the stock and use of car(s) in the household and the costs involved, items 21 and 22 requested the same information about the cottage and pets in the possession of the household. Items 23 to 28 put very detailed questions on all expenditures of the household, for 1994 as monthly averages and as a monthly figure for March 1995. Item 29 enumerated all durable household goods and appliances with the year, way and cost of acquisition.

Item 30 asked for information about the relation of their usual monthly income and expenditures, and under item 31 what they did if expenditure exceeded income. As a supplementary question to these, under items 32, 33 and 35, we asked whether they derived any income from leasing, selling, swapping or inheriting property, while item 34 asked if they had any debt. Item 36 inquired the amount derived from agricultural commodities produced, item 37 and 39 the amount received as gift and/or aid, item 38 the amount of aid rendered to (members) of other households. Item 40 inquired the amount spent on acquiring foreign currency. (At that time, but even now it is fairly frequent to keep savings in the form of some "hard" currency.)

It is also important to mention that the respondents were requested to assess the quality (accuracy) of every reply given in the form of a concrete amount and to indicate it by inserting a mark for it in the cell provided for this purpose after each amount. Amounts judged as perfect and accurate received mark 5, and with descending quality the marks went down to 1, this latter indicating a very unreliable reply. If someone was not able to give the amount a code 6 was written in the cell, a code 7 when the answer was denied, and the code 9 when the amount in question was 0 in the case of the interviewed household.

Block *B* was supposed to give a full account of the income received and taxes paid by all household members enumerated under item 2 of Block *A*. The first question inquired about the amount the household member contributed to the common budget of the household, the second question was how much he/she retained for "private" expenditures. Then 11 different tax-exempted income sources (e.g. fellowship, pension, casual work, interests, etc.) were enumerated. After these items 9 taxable income sources followed in the sequence of the tax-declaration form, and finally the amount of income tax paid was asked for. In this block it was also asked if the respondents relied on their income tax returns when reporting the amount of tax paid and the amounts of various taxable income items.

It is obvious that all income sources reported in item 2 of Block *A* must also appear as concrete amounts in the corresponding cells of Block *B*. To implement this requirement was given as an instruction to our enumerators. As a consequence only a refusal to answer our direct questions on income in Block *B* could have resulted the situation reflected by the figures of Table 1.

Table 1

*Per cent of persons reporting not only the source but also the amount of their income*

| Source | Budapest | The two towns | The four villages |
|---|---|---|---|
| Employment | 67.5 | 91.3 | 97.6 |
| Entrepreneurship | 37.3 | . | . |
| Unemployment allowance | 51.6 | . | . |
| Property | . | . | . |
| Pension | 93.9 | 100.0 | 92.2 |
| Social benefits | 64.7 | 89.6 | . |
| Other | 37.7 | . | . |

*The income and expenditure indicators*

The raw data collected by the questionnaire were transformed into several indicators for the purpose of further analyses. Two types of analyses were planned. The first type of analysis aimed at finding out if it were possible to acquire household income data of acceptable quality in Hungary in our days. To this purpose annual income data calculated for the households as units were used exclusively. The other type of analysis had the objective of studying the relationship between the households' income situation and their living conditions. To this purpose mostly monthly incomes calculated on a per capita

basis were used. In this article only some important findings of the first type of analysis will be reported.

Income and expenditure data of households are widely known to be dependent on household size and, by our presumptions, also on the character of the dwelling area. Thus, the first thing we had to do was to examine if the sample of 366 Budapest households had the same composition by these two variables as the parent population. It was found that this was not the case and, therefore, a re-weighing of our sample by these two variables was necessary. This re-weighing was made in such a way that the number of the households was raised to the actual number of Budapest households in the reference year 1994. The composition of these 772 thousand households obtained by the re-weighing mentioned is already in perfect coincidence with the structure of the parent population. This could, however, be done only with the Budapest households, since the conditions of a similar re-weighing for the towns and villages were not met.

From now on, mostly data of the re-weighted Budapest sample will be used.

With respect to the accuracy of the raw data, the following observations should be made. None of our questions provoked particular protesting effect. Only the question about the amount spent on buying foreign currency in 1994 seems to stand out in this respect, since 7 per cent of the Budapest respondents refused to answer this question. As to the proportion of "I do not know" answers, the questions related to the expenditures on cars, the question about the savings achieved by goods and services produced for self-consumption as well as the question about expenditures on repairing services are worth mentioning. In these cases the proportion of "I do not know" answers ranged from 13 to 20 per cent.

The modal accuracy code for most amounts was 4, but the average marks show characteristic differences. The accuracy of the raw data, as assessed by the respondents, seems to depend on two things: the "freshness" of the amount inquired after and the regularity of the item in question. For example, the mean accuracy code for the 1994 average monthly expenditure on medicine was 3.92, while for the same spending in March 1995 it was 4.22. At the same time, the mean mark for the 1994 monthly rent was 4.21 and 4.40 for the rent paid in March 1995. Some further information on the accuracy of a few important items is summarised in Table 2.

Table 2

*The mean accuracy mark of selected items*

| Item | Budapest | The two towns | The four villages |
|---|---|---|---|
| Average net money income per month in 1994 | 4.14 | 3.97 | 4.04 |
| Savings from self-consumption | 3.82 | 3.37 | 3.67 |
| The monthly income necessary for a decent life in 1994 | 4.02 | 3.64 | 4.19 |
| The monthly income necessary for a decent life in 1995 | 3.98 | 3.60 | 4.27 |

Before conducting the survey we hoped quite a few respondents would rely on their income tax returns when answering certain questions. Table 3 furnishes some information in this respect.

Table 3

*Percentage of persons relying on their income tax returns when answering certain questions*

| Subject of the question | Budapest | The two towns | The four villages |
|---|---|---|---|
| The amount of income tax paid | 48.7 | 48.1 | 15.7 |
| The amounts of taxable items | 26.5 | 32.2 | 14.1 |

The figures in Table 3 obviously disappointed us, since we had hoped that many more respondents would depend on their income tax returns when answering questions of this type.

After this short characterisation of our data, we attempt to summarise the kind of indicators we formed from the raw data in order to measure the households' living standards. All the six indicators we formed were calculated on a household basis and for the whole reference year 1994. The six indicators were the following.

*Declared Income* (DINC) – the annual net money income of the household, calculated from the amounts declared in Items 12 and 13 of Block *A*;

*Declared Household Budget* (HHB) – the household members' contribution to the common household budget plus the amounts retained for their own purpose (based on the first two questions of Block *B*);

*Household Expenditure* (EXP) – the expenditure of the household excluding those spent on purchasing real estate, car and on the construction of new dwelling (based on the detailed questioning of household expenditures in Block A);

*Total Household Expenditure* (TEXP) – the total expenditure of the household including expenditures on purchasing real estate, car and on the construction of new dwelling;

*Gross Household Income* (GINC) – the sum of the household members' gross incomes reported in Block *B* of the questionnaire;

*Net Household Income* (NINC) – the sum of the household members' net incomes based on the gross income items and income tax amounts reported in Block *B*.

Table 4

*The number of households allowing to construct the indicators*

| Indicator | Budapest | | The two towns | The four villages |
|---|---|---|---|---|
| | before the re-weighing | after | | |
| DINC | 358 | 757 472 | 132 | 78 |
| HHB | 317 | 674 585 | 130 | 56 |
| TEXP | 366 | 772 409 | 132 | 80 |
| EXP | 366 | 772 409 | 132 | 80 |
| GINC | 291 | 628 810 | 127 | 77 |
| NINC | 193 | 447 113 | 102 | 71 |
| Observed households | 366 | 772 409 | 132 | 80 |

From now on only the corresponding acronyms will be used throughout instead of the full names of the six indicators.

Four of the above six indicators are of income-type by their nature, while the other two are of expenditure-type with different content. The underlying assumption of

distinguishing between EXP and TEXP is that EXP is presumably financed from the current receipts of the household members, while financing TEXP may require former savings or loans, too. It can also be seen that five out of the six indicators are net of income tax and other possible deductions.

Since respondents had the possibility to deny answering any particular question, not all six indicators could be calculated for every household, but only to their certain sets. This is shown by Table 4, which also gives the effect of re-weighing in the case of Budapest.

*Some results*

The underlying idea of forming the six indicators was that the investigation of their consistency with each other may give useful clues if household incomes of acceptable quality can be procured at all in the present days, and if the answer to this question is affirmative, what the appropriate way of this might be. Before coming to these points, however, we briefly introduce the distribution of the Budapest households by the six indicators formed.

Table 5

*Summary statistics of the Budapest households' distribution by the six indicators*
(thousands of HUF)

| Indicator | Mean | Standard deviation | Lower quartile | Median | Upper quartile |
|---|---|---|---|---|---|
| DINC | 486 | 433.92 | 204 | 384 | 620 |
| HHB | 475 | 374.75 | 216 | 372 | 600 |
| TEXP | 678 | 767.56 | 277 | 464 | 746 |
| EXP | 585 | 531.65 | 276 | 452 | 702 |
| GINC | 644 | 731.35 | 192 | 400 | 780 |
| NINC | 503 | 594.98 | 180 | 333 | 539 |

Just to orientate the foreign reader we note the average exchange rate for 1994 was 105.13 Hungarian Forints (HUF) to 1 USD.

First of all we wanted to get an idea about the magnitude of sampling errors of the means of the six indicators. To facilitate the estimation of standard errors we relied on the cross-classification of households by size and type of dwelling area and regarded the cells of this cross-classification as strata. In order to find the standard errors we assumed simple random sampling within the strata and the weights of the strata were taken from the parent population. Just to demonstrate the results we are mentioning that the standard error of the mean of EXP was 27.64 thousand HUF.

The summary statistics in Table 5 are not strictly comparable to each other, since they refer to different sets of households. Therefore, they are not appropriate for the purposes of consistency analyses either. In principle, both for comparison and for consistency analysis only those households can be used, for which all six indicators are available. Such a requirement would, however, restrict the number of comparable households very much. Therefore, we finally limited this "availability requirement" only to the three

indicators DINC, HHB and EXP. This yielded 671 thousand "comparable" households, which is only 13 per cent less than the re-weighted number of all households.

Leaving out GINC is straightforward enough, since its gross character is very different from the net character of the other five indicators. TEXP could, however, easily be omitted, too, since, in contrast to the other four indicators, it was not only related to the current receipts of the households. NINC was finally left out only because its retention would considerably narrow down the set of households that could be examined. But its omission can also be justified by the "message" of Table 1. The selection of these three indicators can, however, be also justified by the consideration that DINC and HHB are the simplest possible measures of living standards, while EXP is a much more detailed measure of the same thing. Table 6 gives some summary statistics on the distribution of the comparable Budapest households by the three selected indicators.

Table 6

*The distribution of the comparable Budapest households by the three selected indicators*
(Thousands of HUF)

| Indicator | Mean | Standard deviation | Lower quartile | Median | Upper quartile |
|---|---|---|---|---|---|
| DINC | 470 | 314.44 | 228 | 384 | 610 |
| HHB | 477 | 375.26 | 216 | 372 | 600 |
| EXP | 557 | 418.74 | 277 | 452 | 694 |

From Tables 5 and 6 it is apparent that the standard deviation of DINC and EXP is considerably less in Table 6 than in Table 5. According to our investigations, this phenomenon stems from the greater variability of the households left out from Table 5 with regard to both DINC and EXP. On the other hand, both tables include practically all households, for which HHB is available and thus the distribution of this indicator is almost identical in the two cases.

The inter-consistency of the three selected indicators, what was in fact our focal interest, has been examined from several angles. First of all let the intercorrelations of the three indicators be shown in Table 7.

Table 7

*Intercorrelations of the indicators DINC, HHB and EXP*

| Indicator | DINC | HHB | EXP |
|---|---|---|---|
| DINC | 1.0000 | 0.7447 | 0.6672 |
| HHB | 0.7447 | 1.0000 | 0.5070 |
| EXP | 0.6672 | 0.5070 | 1.0000 |

The intercorrelations are not very strong, but they are not negligible either, all of them being highly significant. (The corresponding two-tailed p-values are 0 without exception.)

The inspection of Table 6 seems to suggest that the distribution of the households by the size of DINC and HHB is very similar, while their distribution by the size of EXP is rather different from the two distributions mentioned before. This is even more explicitly shown by Table 8, which gives the means and standard deviations of the differences between DINC and HHB, DINC and EXP, and HHB and EXP, respectively. The means and standard deviations are given for three different classes of the households. In the first class the first of the two paired indicators is smaller than the second one, in the second class the two indicators in question are nearly equal and in the third class the first of the two paired indicators is greater than the second one. Two indicators paired were considered nearly equal if the ratio of the first one to the second one varied between 0.95 and 1.05, and their order of magnitude was also qualified accordingly. Table 8 also gives the percentage distribution of all comparable households by the three classes defined above.

Table 8

*The order of magnitude of the three indicators*

| Relationship of the indicators | | Percentage of households | Mean | Standard deviation |
|---|---|---|---|---|
| | | | of the differences in 1000 HUF | |
| DINC is | | | | |
| Smaller | than/to HHB | 17.3 | -210 | 492.1 |
| Nearly equal | | 68.8 | 0 | 7.3 |
| Greater | | 13.9 | 212 | 244.0 |
| Together | | 100.0 | -7 | 252.9 |
| DINC is | | | | |
| Smaller | than/to EXP | 57.8 | -245 | 303.4 |
| Nearly equal | | 5.9 | 2 | 16.3 |
| Greater | | 36.3 | 151 | 165.4 |
| Together | | 100.0 | -87 | 313.9 |
| HHB is | | | | |
| Smaller | than/to EXP | 59.3 | -251 | 325.1 |
| Nearly equal | | 6.2 | 0 | 14.4 |
| Greater | | 34.5 | 200 | 378.1 |
| Together | | 100.0 | -80 | 396.0 |

Table 8 clearly shows that DINC and HHB are nearly equal for about two thirds of all comparable households, and the average differences in both directions are about equal.

However, the differences between DINC and EXP, as well as those between HHB and EXP show a quite different feature. They are namely not symmetric and in only 6 per cent of the cases there is no considerable difference at all. It would be worth to devote deeper analyses in order to find out what the factors are behind this phenomenon. At present we only have certain conjectures about the causes of these discrepancies. While underreporting may be supposed in case of DINC and HHB, for EXP overreporting can be assumed. Furthermore, in our experimental survey inquiring about expenditures was much more detailed than about incomes, which may have yielded a fuller account of expenditures than incomes.

Of course, we also examined how the cross-classification of comparable households looks like by certain identical intervals of any pair of the three indicators. Table 9 displays the results of one of these cross-classifications performed.

Table 9

*The cross-classification of the households by DINC and EXP*

| DINC | EXP | | | | | | | *Total* |
|---|---|---|---|---|---|---|---|---|
| | –150 | 150–250 | 250–350 | 350–500 | 500–650 | 650–800 | 800– | |
| –150 | 13 859 | 17 369 | 17 987 | – | – | – | – | *49 215* |
| 150–250 | 31 009 | 30 366 | 33 785 | 32 121 | 9 321 | – | – | *136 602* |
| 250–350 | 8 869 | 15 588 | 19 606 | 44 232 | 979 | 2 679 | 3 264 | *95 217* |
| 350–500 | 979 | 4 637 | 36 498 | 33 522 | 38 591 | 14 290 | 15 288 | *143 805* |
| 500–650 | – | – | 10 509 | 20 113 | 28 642 | 13 265 | 19 627 | *92 156* |
| 650–800 | – | 3 040 | – | – | 14 521 | 22 936 | 28 533 | *69 030* |
| 800– | – | 1 040 | – | 4 926 | 8 559 | 15 347 | 55 436 | *85 308* |
| *Total* | *54 716* | *72 040* | *118 385* | *134 914* | *100 613* | *68 517* | *122 148* | *671 333* |

Percentages of households appearing in the diagonal of the above and the two other tables constructed in a similar way are given below.

The per cent of households that fall into the same interval of various pairs of indicators:

| Pair of indicators | Per cent |
|---|---|
| DINC and HHB | 80.7 |
| DINC and EXP | 30.4 |
| HHB and EXP | 31.3 |

Table 9 and the column of figures above reveal inconsistencies, which are striking enough. This is, however, in fairly good agreement with the differences found before. (See Tables 6 and 8.) It is also worth mentioning that almost the same percentages were obtained for the households that claimed regularly to have a balanced household budget.

*Conclusions*

Though our experiences with the letters sent to potential respondents are negative with regard to reply, we are still convinced about the usefulness of contact letters before the enumerators call on households the first time. Such letters namely may

– avoid frustration of enumerators caused by resolute refusal,

– contribute to the elimination of eventual mistrust to receive unknown persons,

– make the detailed introduction of the subject of the survey by the enumerator unnecessary or, at least, reduce the time required by this,

– incite the respondent to think the subject of the survey over and thus to give more informed answers to the questionnaire.

As for anonimity, we may report rather mixed experiences. On the one hand, anonimity reduces the self-denunciation effect mentioned in the introduction. On the other hand it makes checking and amending questionnaires posteriorly impossible, which may create unwanted problems.

With respect to the use of income tax returns in the course of interviews we also found negative attitude in contrast to our hopes and expectations. If, however, income tax returns are not used as background documents in the course of collecting income statistics, it is not advisable to adjust the timing of the survey to the deadline for declaring incomes to the tax authority. Instead, the survey is to be conducted as soon as possible after the end of the reference year. This proposition stems from the experience gained and already reported with the accuracy codes we developed and used in our pilot survey.

Our most important conclusion from the pilot survey is that expenditures covered by current receipts, rather than incomes, could and should be collected, processed and published in order to reveal the "true" living standards of population in Hungary, and in our days. We can support this claim by the following facts. For Budapest in 1994 the average income in our sample (both DINC and HHB) practically coincided with the corresponding CSO figure based on the Household Exependiture Survey. In our survey, however, the mean of EXP and TEXP exceeded average income by about one fifth and one third, respectively. At the same time, CSO published almost equal means for expenditure and income. In addition, the CSO expenditure concept is supposed to be equivalent with our TEXP. Therefore, we think our EXP is in closer correspondence with prevailing Hungarian reality than any figure based on a direct inquiry on income.

Based on the aforesaid we think the most promising way to get reliable statistics on living standards of population is a survey taken immediately after the reference year, and with a questionnaire focusing on various expenditure items. A survey like this would be, with regard to its content, similar to traditional household expenditure surveys, however, it would neither be so deeply detailed nor lasting so long in time.

# EMPIRICAL RESEARCH OF LONG-TERM CYCLES*

BÉLA SIPOS

World-wide interest in market conditions' researches and in the theory of business cycles usually arises in crisis periods. Scientists and researchers deal mainly with two problems in this field:

*1*. What is the reason for the crisis, and is it necessarily the result of laws of nature?
2. At what point of time can prosperity be expected?

To find a solution to these problems is in the focus of public processional interest.

*The theoretical problems of long-term (Kondratev) cycles*

For the sake of better understanding of long-term cycles we have to extend the limit of our investigations. Time is closely correlated with the three dimensions of space, so we can call it the fourth dimension. But it has different characteristic features than space. Time is continuous as well but the parts of time-continuum does not have the same meaning. Time is not a coexistence of being but a succession of moments, so it involves past, present and future as well. According to Aristotle[1] time can be experienced as the sequence of changes. Time is a progressive, irreversible process. Economic processes take place in time and also in space. Nowadays, since the technical progress accelerates, future becomes present more and more rapidly. Philosophers, historians have already recognised that the investigation of social processes within long periods (100–400 years) is very important. "What is time as such?" – puts up the question *N. Hartmann* in his work published in 1938: "...Time and Substantiality". He answers as follows. "Essentially the most evident moment is probably the fact that the world cannot be regarded as a whole, it is separated into the phases of the progress. And what has reference to the whole world that has reference to everything which can be found in the world: objects, creatures, mankind. Everything is subordinated to the law that has gone, it does not exist any more and what exists now it won't be tomorrow.[2] "We separate the

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[1] According to Aristotle: Tempus est numerus motus secundum prius et posterius.

[2] *Hartmann, N.*: Lételméleti vizsgálódások. Válogatás kisebb írásaiból. Gondolat Kiadó. Budapest. 1972. 346. p.

world – says Hartmann – if we separate the essence of time into processes which take place simultaneously. World's cohesion depends on the unity of time." ... "Sequence separates time from space, from mere dimension and from the order defined only by quantity."[3]

Most of the economists cut time into shorter periods, within the dimension of the time. The reason for this is that they usually deal with actual problems. The length of the period seldom reaches 15–20 years. Strategic decision have been overshadowed and tactics took prominent part instead. With good reasons *Géza Kovács* says that "the impossibility of solving short and middle-term problems often lies in the lack of long-term planning."[4] To solve this problem we have to research long-term (100–400 year periods) economic processes, i. e. the spiral movements of economic processes have to be researched as well. Among time periods the short ones are the most dangerous and illusory ones.[5]

In the 1920's sociology realised that the life of society, the whole mankind changes periodically according to forever renewing processes. This periodicity can be shown in the field of economy, demography, politics, crime, fashion, art and literary schools and in the ideology as well. *J. A. Schumpeter*, the famous and significant bourgeois economist, suggests in his work, which was published in 1939, that we should call these cycles after the name of their discoverers.

In technical literature, nowadays, after Schumpeter,[6] the following grouping of the business cycles is acceptable.

*1. Kitchin cycle*.[7] 3–4 years' short-term concerning the movements of stocks.

*2. Juglar cycle.*[8] 6–8 years' middle-term cycle (2 Kitchin cycles) which according to C. Juglar's work is called commercial cycle.

*3. Labrousse cycle.*[9] 10–12 years' middle-term cycles (Juglar and Labrousse) are to be explained with the changes in investments.

*4. Kuznets cycle*.[10] middle-term, 20–23 years' hyper cycle (doubled Labrousse cycle) Kuznets discovered the so-called secondary secular movements mainly on the basis of North-American data. He didn't regard these movements as cycles but regarded them as "waves" like other contemporary economists.

*5. Kondratev cycle,*.[11] 40–60 years' long-term cycle (2 Kuznets cycles). Theories concerning with clearing up Kondratev cycles haven't explained the reason for the appearance of these cycles yet. There are explanations based on the facts of monetary, agriculture and production (see innovative, demographic, and investment cycles) factors and further judgements.

*6. Changes in secular trends.* Historians draw distinctions between 100 (2 Kondratev cycles) and 200–400 years' cycles, which we can call century-trend changes.

[3] See Note 2. 356. and 359. p.

[4] *Kovács, Géza*: Nagy távlatú fejlődéstendenciák. (Magyarország 2020-ig.) MSZMP KB Társadalomtudományi Intézete. Bu-dapest. 1985. 11. p.

[5] *Braudel, F.*: A tér és idö felosztása Európában. In.: *Fernand Braudel*: Anyagi civilizáció, gazdaság és kapitalizmus a XV-XVII. században. 3. A világ ideje. Világtörténet. 1980. No. 4. 49–50. p.

[6] *Schumpeter, J. A.*: Business cycles: A theoretical historical and statistical analysis of the capitalist process. Vol. 2. New York. McGraw-Hill. 1939. 1132. p.

[7] *Kitchin, J.*: Cycles and trends in economic factors. *Review of Economic Statistics.* 1923. No. 1. 10–16. p.

[8] *Juglar, Cl.*: Des crises commerciales et leur retour periodique en France, en Angleterre et aux États Unis. Paris. 1862. 560 p.

[9] *Labrousse, E.*.: Esquisse du mouvement des prix et des revenus en France au XVIII[e] sičcle 2. Vol. Paris. Dalloz. 1933.

[10] *Kuznets, S.*: Secular movements in production and prices. Boston – New York. 1930. 264 p.

[11] The works of *Kondratev, N. D.* (Kondratyev, Kondratiev) concerning the subject are as following: Mirovóje hozjajsztvo i jego, konjunkturü vo vremja i poszle vojnü. Vologda. 1922.; Bolsije cikli konjunkturi. *Voprosii Konjunkturi.* 1925. 28–79. p.; Die langen Wellen der Konjunktur. Archív für Sozialwissenschaft und Sozialpolitik. 1926. 573–610. p.; The long waves in economic life. *Review of Economic Statistics.* 1935. 105–115. p.; The long waves in Economic life. *Review of Economic Statistics*. 1979. No. 4. 519–562. p.; A gazdasági fejlődés hosszú hullámai. *Történelmi Szemle.* 1980. No. 2. 241–269. p.

The length of the above distinguished business cycle-periods doubles. Nevertheless, the cycles with different periods occur simultaneously, are mixing together, and their movements increase or decrease the amplitude of the whole vibration. So, e. g. if the ascending or rising branch of a given Kondratev cycle meets the descending or declining branch of a shorter cycle, then crisis is reduced, otherwise it is increased. With an easy technical procedure we can divide the cycles into partial movements, we can take out some of them for the sake of deeper investigation of the desired motion.

On the basis of our national and international results of research we can draw the general conclusion that the reasons of the Kondratev cycles (and usually all the cycles) are not to be found in the ownership of production means. Even during the feudal system – though the corresponding data are not to our proposal – one could show the existence of long-term cycles. So, e. g. the changes in bread and corn prices in Cologne indicate Kondratev cycles from 1376 to 1797.[12]

It is known and proved that also in the capitalism are existing long-term cycles. In Hungary long-term cycles could be demonstrated in the field of industrial production and foreign trade.[13] In this essay some results are given concerning different former-socialist (Soviet Union, Hungary, Poland, etc.) and capitalist (USA, Canada, Austria, Australia, etc.) countries.[14] E. g. in Europe we can speak of 4 each other following main century-cycles. Within them there are the Kondratev and shorter cycles. In the following, we demonstrate the changes of the century-trends. The first and the last year-numbers show the start of rising and the end of declining. The data in brackets mark the culmination of the process i. e. the turning point of the century-trend and the long-term-cycles: the beginning of the crisis.[15]

To summarise the results see

the century-cycles

| | trough | | peak | | trough |
|---|---|---|---|---|---|
| I. | 1250 | – | [1350] | – | 1510 |
| II. | 1510 | – | [1650] | – | 1743 |
| III. | 1743 | – | [1817] | – | 1896 |
| IV. | 1896 | – | [1973] | – | 2030? |

the long-term-cycles:

| | trough | | peak | | trough |
|---|---|---|---|---|---|
| I. | 1780 | – | [1815] | – | 1848 |
| II. | 1848 | – | [1873] | – | 1896 |
| III. | 1896 | – | [1929] | – | 1945 |
| IV. | 1945 | – | [1973] | – | 1995? |

[12] See Note 5.

[13] *Sipos, Béla*: Vállalati árelőrejelzések. Közgazdasági és Jogi Könyvkiadó. Budapest. 1985. 247–263. p.

[14] *Sipos, Béla*: Empirical research and forecasting based on Hungarian and world economic data series. 1985. 119–126. p. In.: The long-wave debate. Springer-Verlag. 430 p.; Empiricseszkoje isszledoványije i prognoziroványije ciklov Kondrateva. In.: Trétyij mézsdunarodnüj szimpozium sztrancslenov SZEV po problemam prognoziroványija naucsno-technicseszkovo progressza. Moszkva. 1986. 7–8. p.; A Kondratyev-ciklus empirikus vizsgálata és prognosztizálása. *Statisztikai Szemle.* No. 12. 1986. 1209–1237. p.; *Sipos, Béla – Szentmiklósi, Miklós*: A hosszú hullámok alakulása a mezőgazdaságban. *Statisztikai Szemle.* 1991. No. 10. 798–812. p.

[15] See Note 5. 51. p.

It is obvious from the illustration that the length of the period of the century trend shortens. The first century-cycle lasted for about 260 years,[16] the second one lasted only for about 233 years,[17] the third one lasted only for about 153 years.[18] The periods of the long-term-cycles are getting shorter: the first long-term-cycles lasted for about 68 years,[19] the second one lasted 48 years,[20] the third one lasted 49 years.[21] Within the cycles changes the ratio of the rising and declining branches, probably because of the changes of the Kondratev and the shorter cycles. Now, since the first oil-crisis (1973) we are at the end of the declining branch of the fourth cycle.

It is obvious after 1945 that the rising branch of the century-trend met the rising branch of the Kondratev cycle. So the two processes strengthened each other. The prosperity was strengthened also by the almost similar procedures of the restoration periods.[22]

At the beginning of the 1920s the situation changed. The declining branch of the century-trend met the declining branch of the Kondratev cycle, so the crisis became more serious.

*Methods*

Considering the economic long waves we have more difficulties to cope with. According to the nature of the given research area, there is a need for the observation of long-time series. If we wish to process reliable and comparable data – which is an essential demand – then in most cases we have to go back to the 60s of the 19th century. Data from the period between the end of the 18th century and the middle of the 19th century are often insufficient and unreliable.

Kondratev elaborated his procedure for demonstrating and separating the long waves at the beginning of the 1920s.[23] The computer techniques have developed to a very high level during the last five decades but the methodological basis has remained the same. Naturally, the mathematical and statistical methodology have also developed but other methods (e. g. dynamic factor analysis, cluster analysis, production function, etc.) have been elaborated as well. This does not alter the fact that Kondratev's method gives a very good approach of long waves and his process is correct logically.

On elaborating his procedure Kondratev assumed that he could distinguish the following components in time series (in series of per capita production output):

*1*. short-term cycles of 3–4 years (Kitchin cycle)
*2*. middle-term cycles of 8–9 years (average of period length of Juglar and Labrousse cycles)
*3*. long-term cycles 40–60 years (long-term cycles named after Kondratev)
*4*. change of secular trends
*5*. random changes

[16] 1510 - 1250 = 260
[17] 1743 - 1510 = 233
[18] 1896 - 1743 = 153
[19] 1848 - 1780 = 68
[20] 1896 - 1848 = 48
[21] 1945 - 1896 = 49
[22] *Jánossy, Ferenc*: A gazdasági fejlődés trendvonaláról. 2. Ed. Magvető Könyvkiadó. Budapest. 1975. 388 p.
[23] See Note 11.

The so-called Kuznets cycles (20–30 years) were founded later (in 1930). Kondratev wanted to demonstrate the effect of the third component above.

Therefore he used the procedure below.

*I*. He plotted the data of the time series ($Y_t$) ($t$=1, 2, . . . $n$) and fitted them to an entire rational function of the $n$-th degree. The use of a function of more than third degree is unreasonable from the economic point of view, so he used linear functions and functions of the second and third degree. By increasing the degree of a function, the accuracy of estimation improves, but this function follows more and more the periodic and random fluctuations as well. When determining the degree of the function we consider economic aspects (direction of secular trend) instead of mathematical and statistical ones. The secular trend cannot follow the fluctuations of time series because these are manifestations of the random or periodic component.

*II*. Knowing the trend-values ($Y_t$) we could estimate the residuums $Y_t$-$Y_t$ on the basis of the data $Y_t$. So Kondratev eliminated the change of secular trends.

*III*. He distinguished the random fluctuations and cycles of 3 and 9 years by using the 9-element moving average for the residuums. The curves he got are showing long Kondratev cycles of 40–60 years. Now we set forth the procedures we applied. In the first procedure we followed Kondratev's method, in the second one, before eliminating the trend-effect, we used the moving average. For cutting out the shorter cycles we used 9-element-moving averages. So we eliminated the effect of the possible Kitchin's and Juglar's cycles (3 and 9 years) and random changes.[24]

We investigated the empirical study of Kondratev cycles on the basis of 300 time series which meant the processing of about 25 thousand data. The final year of the cycles was 1980.

Data processing referred to 30 countries and the world economy. By choosing the countries we processed data of about 11–12 countries which definitely or at least considerably influenced the world economy. Generally, the time-series of the Soviet Union, the USA, Hungary and the countries of Western and Eastern Europe were examineol by us in all cases.

The empirical study covered the following fields.

– Industry : production of brown coal, lignite, coal, crude iron, steel, lead, oil, electric power, gold, silver, iron, bauxite, aluminium, copper ore, copper, lead ore, cement, sugar, beer, car industry and shipbuilding.

– Agriculture: plant cultivation production of wheat, barley, corn, rice, potato, cotton, pure coffee, cocoa, animal husbandry, livestock of horses, cows, pigs, and sheeps.

– Foreign trade: Export and import volume in dollars and international currency.

– Transport: length of railway-lines. Railway capacity of goods transportation, railway capacity of passenger transportation, stock of commercial ships.[25]

Generally, the historical time-series reflect the quantity of production in natural units of measurement. However, this shows certain differences in case of some products. Comparability of time-series must be assured. Processing the data measured in natural

[24] The necessary computational program was made in 1981 by *Kiss*, *Tibor* assistant professor of Janus Pannonius University, Pécs. with the help of BMDP and TSP program-packets. He developed and run the program as well.

[25] See Note 14 and Time series of world economics 1860–1960. Közgazdasági és Jogi Könyvkiadó. Budapest. 1965. 157 p. Data for the period 1961–1996 are from: International Statistical Yearbooks, the yearbooks of Central Statistical Office, Budapest and the statistical yearbooks of United Nations Publications. New York.

units was supported by the fact that the currency had been changed during the studied period in a lot of countries. By "chaining" we assured comparability for these time-series. So e. g. in the case of Roumania, before 1950 they had another grouping of different coal sorts in the production area of brown and lignite coal than after that point of time. This correction ("chaining") was made possible by the fact that production was known for both groups in 1948.

Supposing that this rate remains constant, we multiplied the data with (2720/960) where the numerator beginning in 1950, represents the value according to the old type of grouping in 1948, and the denominator represents the value according to the new type of grouping in 1948. This way the data became comparable.

The processed data are related to a calendar year. It was a great problem that data of time-series were in certain cases not complete for the studied period. So e. g. during the period of World War II. data were often insufficient and defective because the data collection was not formed out or the results were destroyed. We inserted estimations for those data.

In Hungary during the 30s and 40s some members of *Farkas Heller's* school[26] dealt with the work of Kondratev for the first time.[27] After a long pause historians published about Kondratev in the 80s, and after that the Kondratev's cycles aroused the economists' interest.

N. D. Kondratev (1892–1938), was an outstanding Soviet economist and he was the chairman of the first Prosperity Research Centre, and achieved considerable results within its short existence (1917–1930).

In literature of economics and economic history they call the long-term fluctuations Kondratev cycles. Scientists were interested in the waves in the economic life since ever economic studies had been pursued. The period, when the theory of the self-acting system of economy was invented was not free from economical disorders. In England for instance there were severe crises in 1815, 1825, 1836–1837, 1857, in 1866 then in 1873. The crisis of 1873 shattered the economy of Europe. It is worth to note that even 100 years later, with the beginning of the 70s, the same crisis repeated again. The calculations made so far based on fundamental economic coefficients proved in many fields the existence of Kondratev cycles. Whenever the length of our time-series was greater than 100 elements, we were successful in showing the Kondratev cycles, too. It is also clear that the reason of the cycles cannot be found in the ownership, because the occurrence of the cycles could be shown in the field of mining and heavy industry in post-socialist, capitalist and in developing countries as well.

My intention was not to give economic-historical explanations of the long waves. The reasons of the Kondratev cycles can at least be regarded as some hypothesis of mine, so I am not able to explain ambiguously the causes of long waves. In the international literature there is no unique point of view about this. By all means it is remarkable that the period-length of the cycles doubles which provides reason for the assumption that the occurrence of resonance in economic life can prove effect too. The cyclic course of different economic or elementary phenomena can effect each other in a boosting or a

[26] Tanulmányok a konjunktúrakutatásról. Ed.: *Heller, Farkas.* Közgazdasági Könyvtár. Tom VI. Magyar Közgazdasági Társaság. Budapest. 1928. 168 p.

[27] *Heller, Farkas*: A közgazdasági elmélet története. Gergely R. 1943. 602 p.

weakening manner, and so the length of the periods and their amplitudes can be doubled. The length of doubling periods became shorter because of the quick technical progress. Nowadays, the population of the world for instance doubles within 30–40 years, though at the beginning of the 19th century the doubling time was 100 years yet. Similarly, the doubling time of productivity fell to about 30–40 years in the developed countries. In our days quantity of scientific results doubles in 10 years already.

Our conclusions for the future are the following: probable a decreasing branch of the Kondratev cycle started in the decade of the 60s, 70s and it met a decreasing branch of the secular trend.

*Empirical results and research with Excel and Regal*[28]

I completed previous data from 1989 to 1996 in the field of steel, corn and sugar production. The dimension is kilogram/person. I used 9-element moving average and after this process I separated linear trend.[29]

Table 1 and Figure 1 illustrates the long-term cycle (Kondratev cycle) in the field of steel production.

Table 1

*Steel production long-term cycle*
(kilogram/person)

| Country | Years of observations period (duration) | 1. cycles trough – peak – trough | 2. cycles trough – peak – trough | Duration of full cycle |
|---|---|---|---|---|
| Austria | 1891–1989 (99) | ? – 1894 – 1949 | 1949 – 1982 – ? | 89 |
| Belgium | 1880–1992 (113) | | 1904 – 1922 – 1984 | 81 |
| Czech Republic | 1919–1992 (74) | | 1948 – 1976 – 1992? | 45 |
| Hungary | 1920–1995 (76) | ? – 1920 – 1956 | 1956 – 1976 – 1995? | 40? |
| Italy | 1891–1993 (103) | ? – 1891 – 1948 | 1948 – 1978 – ? | 88 |
| Japan | 1920–1993 (74) | ? – 1920 – 1955 | 1955 – 1974 – 1993? | 39? |
| Russia | 1883–1995 (113) | ? – 1883? – 1947 | 1947 – 1977 – ? | 95 |
| United Kingdom | 1891–1994 (104) | ? – 1915 – 1929 | 1929 – 1963 – 1991 | 63 |
| United States | 1867–1994 (128) | | 1945 – 1990 – ? | ? |
| World total | 1890–1994 (100) | | 1947 – 1973 – ? | ? |

Long term cycles of steel production in most countries got in the declining branch in the 70's both in Czech Republic, Hungary, Italy, Japan, Russia, and in the world. In Austria and the USA the cycle turned down later (in 1982 and 1990, respectively), while in England the declining branch already started in 1963. In Belgium we experienced an opposite tendency: increasing branch: 1904–1922, declining branch: 1922–1984. Steel production approaches best the world tendency (1945–1973: increasing branch). This is also an evidence for the fact, that not the national features are characteristic in the Kondratev cycles. Kondratev cycles are global; they are the cycles of the whole world

[28] REGAL. Expert System for Multiple Linear Regression.
[29] 9-element moving average- linear trend ($y = b_0 + b_1 x$).

economy. The bigger countries (USA, Russia) follow the cycles better than the smaller countries (e. g. Belgium, Austria).

Figures depict 9-element moving averages and the approaching linear trends. The difference between the two series is the Kondratev cycle.

*Figure 1. Steel production/population*

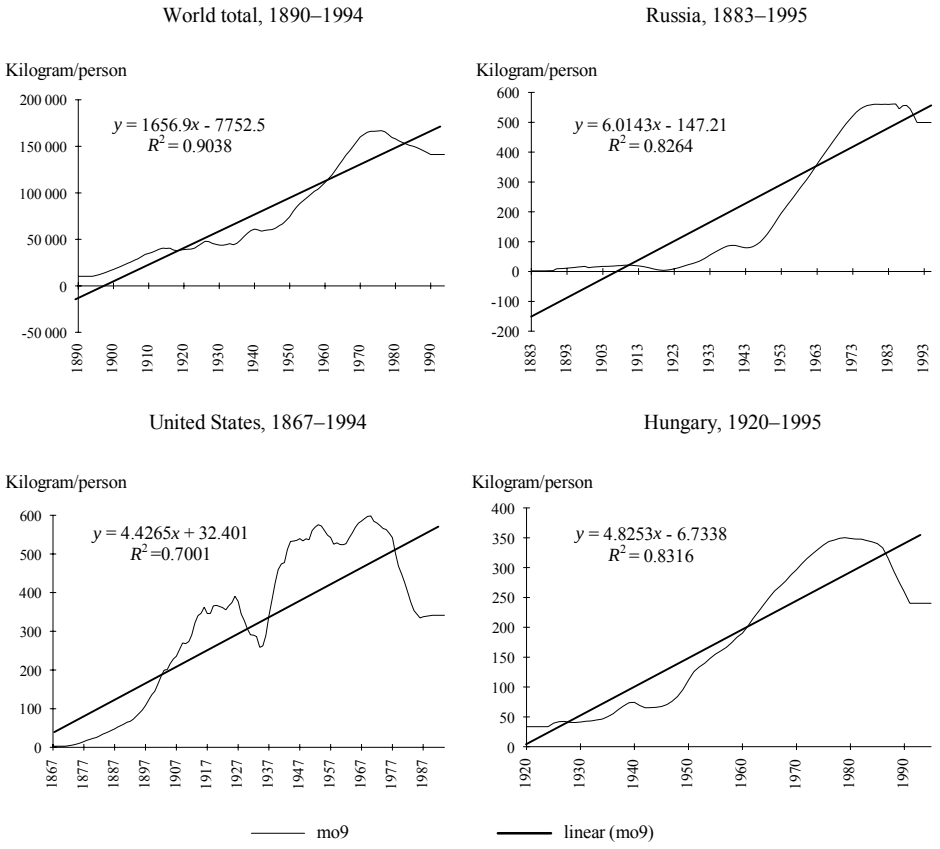


Table 2 shows the long term cycles of corn. Bulgarian long cycles follow the world tendency. The increasing branch started later, after the II. World War in Egypt (1953), Brazil (1961), and India (1960). The increasing branch already started earlier, in 1937 in the USA. The tendency of world production (1949–1983) also shows delay comparing to the average tendency (1945–1973).

Table 2 and Figure 2 illustrate the long-term cycle (Kondratev cycle) in the field of corn production.

In corn production (kilogram/person) 9-element moving average is used, and after this process linear trend is separated.

Table 3 shows the long term cycle of sugar (cane) production. The average tendency is also approached best by the world production series (1947–1975). The cycle turned

back later in the other investigated countries (Argentina 1985, Austria 1980 and Belgium 1985).

Table 2

*Corn production long-term cycle*
(kilogram/person)

| Country | Years of observations period (duration) | 1. cycles trough – peak – trough (duration) | 2. cycles trough – peak – trough |
|---|---|---|---|
| Brasilia | 1917–1995 (79) | ? – 1932 – 1961 | 1961 –1991 – ? |
| Bulgaria | 1889–1995 (107) | ? – 1890 – 1945 | 1945 – 1975 – ? |
| Egypt | 1920–1994 (75) | ? – 1924 – 1953 | 1953 – 1990 – ? |
| India | 1911–1996 (86) | 1916 – 1926 – 1960 (45) | 1960 – 1972 – ? |
| United States | 1866–1995 (130) | 1870 – 1902 – 1937 (68) | 1937 – 1982 – ? |
| World total | 1901–1995 (95) | ? – 1909 – 1949 | 1949 – 1983 – ? |

*Figure 2. Corn production/population*

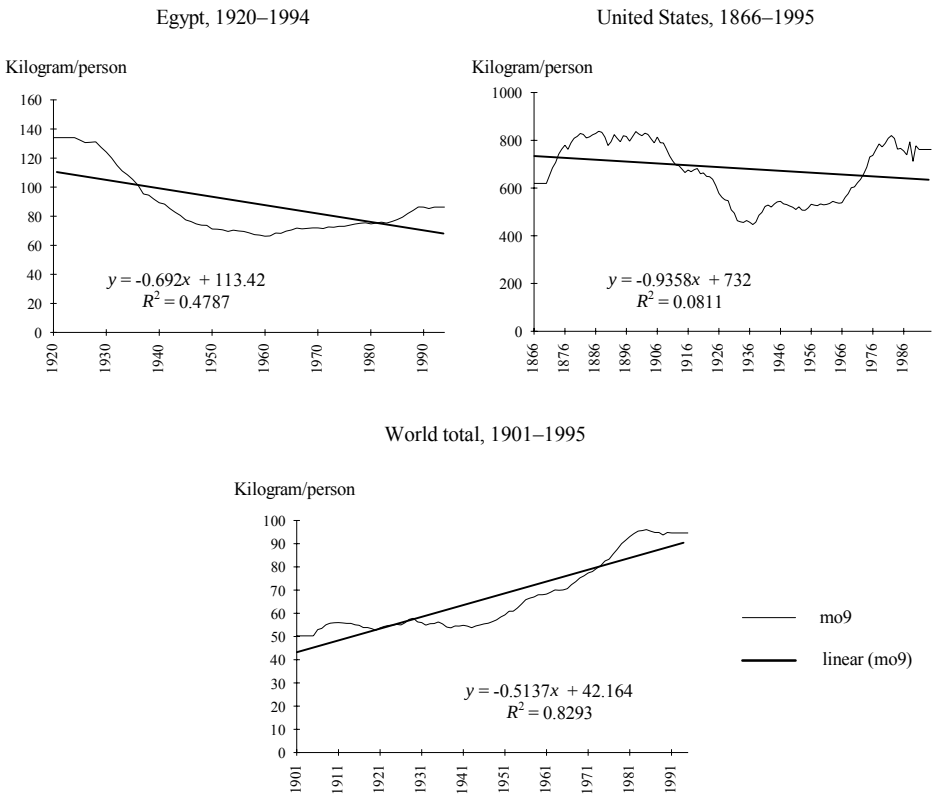


Table 3 illustrates the long-term cycle (Kondratev cycle) in the field of sugar production.

Table 3

*Sugar production long-term cycle*
(kilogram/person)

| Country | Years of observations period (duration) | 1. cycles trough – peak – trough (duration) | 2. cycles trough – peak – trough |
|---|---|---|---|
| Argentina | 1891–1989 (99) | 1926 – 1934 – 1953 (28) | 1953 – 1985 – ? |
| Austria | 1891–1993 (103) | ? – 1891 – 1951 | 1951 – 1980 – ? |
| Belgium | 1880–1991 (112) | ? – 1899 – 1945 | 1945 – 1985 – ? |
| World total | 1921–1995 (75) | ? – 1928 – 1947 | 1947 – 1975 – ? |

Computations concerning the basic economic factors proved the existence of long-term waves. The research is focused on empirical investigation and statistical induction. The researchers are expecting the next increase of Kondratev long-term cycle in the next years. The basic innovations (radically new technics and products) will determine in the future changes in log-term cycles.