HUNGARIAN STATISTICAL REVIEW

JOURNAL OF THE
HUNGARIAN CENTRAL
STATISTICAL OFFICE

76. VOLUME SPECIAL NUMBER, 1998.

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ISSN 0039 0690

Published by the Central Statistical Office
Editor in charge: dr. Tamás Mellár
Executive editor: Mária Visi Lakatos
Printed by the Akadémia Nyomda
1786 – Martonvásár, 1998
Director in charge: Lajos Reisenleitner

Made in the editorial office of *Statistical Review*.
Editorial office: Budapest II., Keleti Károly utca 5–7. Postal address: POB. 51. Budapest, 1525. Phone: 345-6528
Publishing office: Central Statistical Office, Budapest II., Keleti Károly utca 5–7.
Postal address: POB. 51. Budapest, 1525. Phone: 345-6212
E-mail: statszemle@ksh.x400gw.itb.hu
The publication can be purchased at the Statistical Special Bookshop:
Budapest II. Keleti Károly utca 10. Phone: 212-4348

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FOREWORD

This is the second English issue of the scientific periodical of the Hungarian Statistical Office called the Hungarian Statistical Review. Our aim this time, however, is not to commemorate either the 130th anniversary of the estabishment of the Hungarian official statistical service or the 75th volume of the Review, but being respectful of tradition we hope to provide our professional readers worldwide with a further volume of our periodical.

The essays in the present publication have been carefully chosen and selected particularly for this issue instead of being simply chosen from the 76th volume.

Reading through the contents, the reader can get a brief view of the results the Hungarian official statistics and statistical science have achieved recently in the various fields.

The studies don't only offer a wide spectrum of the latest issues which engage the attention of the Hungarian statisticians, but they also reflect how sensitively and quickly statistics reacts to the main problems of the Hungarian transition economy and society.

The studies can be technically divided into three main categories: statistical analyses, methodological studies and historical papers. As regards their contents, however, the reader is also exposed to the world of economic statistics, social statistics, methodological problems, and of general and public opinion polls.

The editors hope to have achieved their aim and they trust this collection of studies represent worthily the present situation of the science of statistics in Hungary.

president
of the Hungarian Central Statistical Office

STATISTICAL APPROACH TO CORE INFLATION

GYÖRGY SZILÁGYI

Inflation, inflationary pressure etc. has been a traditional subject of statistics and economic analysis. It has received new dimensions in the last two decades when inflation of various sizes and length took place in different countries. Consequently anti-inflation policies have been carried out with different success.

Along with these efforts, issues regarding the measure of inflation have come into focus. It has been felt that traditional instruments (basically price indices, in particular the consumer price index – CPI) are not satisfactory to express the actual size of inflation. The reason of dissatisfaction can be divided into two types:

a) shortcomings of the traditional price indices in measuring actual price changes;
b) 'Noises' in actual price changes (i.e. even the 'best' indices) that prevent the quantification of inflation.

It should be stressed that the first issue – shortcomings, as poor samples, formula bias, insufficient treatment of quality and new goods, substitution bias in terms of commodities as well as outlets etc.[1] – are not considered in this paper. In other words, it is assumed that the respective price index is reliable enough in quantifying price development e.g. consumer price index is an accurate measure of the change of the purchasing power of households' income etc. The only concern of our consideration is to what extent these – otherwise 'good' – price indices are suitable to quantify inflation. So we are focusing on the second issue: the identification of actual inflation within the usual price indices.

Out of the set of various price indices the consumer price index is the sole subject of investigation in this article. The reason of this choice is that CPI is generally used as the indicator of inflation. However this compliance with the general practice doesn't mean the authors' agreement with this role of CPI. Other indices – e.g. the implicit price deflator of Gross output or GDP – might be more appropriate for the overall price development.

In this respect it is interesting to refer to the Regulation of the European Union on harmonized index of consumer prices: 'It is recognized that inflation is a phenomenon manifesting itself in all forms of market transactions including capital purchases, gov-

[1] *Chechetti, St. G.*: Measuring short-run inflation for central bankers. Working Paper 5786. National Bureau of Economic Research. Cambridge. MA. 1996. 26 p.; *Zsoldos, I.*: Kimagvazott infláció. The core of inflation. *Figyelõ*. 26 February 1998.

ernment purchases, payments to labour as well as purchases by consumers'.[2] Others attribute some deficiency of the CPI to 'error caused by applying the CPI to a problem it was never intended to address'.[3]

Nevertheless, the measure of inflation is going to be discussed in terms of consumer price index.

THE CONCEPT OF CORE INFLATION

Core inflation or underlying inflation (these terms are used as synonyms) has been the concern of growing number of economists, in particular of those involved in the financial and the business sector. For the time being, no unambiguous concept or definition exists for this term. Roughly speaking, core inflation is a subset of price movements in a given period. This subset is intended to express constant tendency of price development. It is excluding volatile price changes of individual commodities or groups of commodities. Those volatile elements are considered as noise, due to change in costs, productivity of and demand to particular goods and services. Other sources of noise include seasonal patterns, exchange rate changes, modifications in indirect taxes, asynchronous price adjustments, etc.[4]

A considerable amount of attempts has been made to meet this objective. Some of them try to clean CPI from the price changes of one or several of the following commodity groups, considered as especially 'noisy'[5]: food, seasonal items, administrative prices, services.

Another approach[6] consists of 'excluding taxes in order to reflect changes in the price level due to production costs, including import prices and profit margins'

Other type of attempt in estimating core inflation[7] applies one or several of the following devices

– seasonal adjustment
– smoothing procedures, as moving average
– weighed median of the individual price relatives
– trimming a given percentage of the highest and lowest price relatives.

A STATISTICAL MODEL FOR MONITORING CORE INFLATION

A decomposition model is put forward below with the aim to separate the two components outlined above within the price indices. I developed the idea of such a decomposition procedure in the late sixties, in order to analyse the development of the purchasing power of money.[8]

[2] Council Regulation (EC) No 2494/95 concerning harmonized indices of consumer prices. *Official Journal of the European Communities*. No L 257/1.-4. p.
[3] See Note 1.
[4] See Note 1.
[5] *Poole, W.*: Where do we stand in the battle against inflation? Report to the Shadow Open Market Committee. 8-9 March. 1992. and *Zsoldos, I.* m.a.
[6] *Lehtonen, M. – Hukkinen, J.*: Different indices of consumer prices. Bank of Finland Bulletin. 1997. No 1. 9 p.
[7] See Note 1.
[8] *Szilágyi Gy.*: Árstatisztika a makroökonomiában. Akadémiai Kiadó. Budapest. 1970. 190 p.

The model is labelled as ‘statistical’, as it differs from the attempts outlined above in the

– use of the total coverage of CPI (i.e. without the exclusion of certain groups of commodities),
– use of purely statistical tools (basically standard deviation).

As a starting point, and in general term, the CPI is conceived as a function (*f*) of two effects: CORE and NOISE

$$CPI = f\,(CORE, NOISE) \qquad /1/$$

To facilitate the interpretation it would be expedient if the interrelation takes the form of

$$CORE + NOISE = 1 \qquad /2/$$

In an idealtypical case when each price changes to the same extent, this extent would equal the core inflation; so in /2/ CORE would equal 1 and NOISE=0. The standard deviation of the individual price relatives would be zero as well. Consequently, the larger the standard deviation of the individual price relatives (or price indices of commodity groups) is, the larger may be the share of noise in the price rise.

In such a way /2/ can be satisfied with the help of the standard deviation (*S*) by the following ratio:

$$\frac{S}{(CPI^2 + S^2)^{1/2}} \qquad /3/$$

and

$$CORE = 1 - NOISE \qquad /4/$$

(Note that the denominator of /3/ equals the quadratic mean of the individual (group) price indices Q(CPI)).

/3/ has some favourable properties:

– monotonous increase along with the increase of standard deviation,
– zero and 1 as lower and upper limit, respectively.

With the help of CORE and NOISE shares, the overall CPI can be decomposed into a partial price index, limited to the underlying inflation P(CORE), and a price index due to the noise effect P(NOISE):

$$P(CORE) = (CPI - 1)\,CORE + 1 \qquad /5/$$
$$P(NOISE) = (CPI - 1)\,NOISE + 1$$

consequently

$$CPI = P(CORE) + P(NOISE) - 1$$

The economic interpretation of this decomposition can be manifold. E.g.one may say that the overall CPI quantifies the change of the purchasing power of the household incomes, P(CORE) shows the change of the purchasing power of money.

NUMERICAL ILLUSTRATIONS

Two kinds of numerical illustration are put forward in the following. First, a number of theoretical (sometimes extreme) examples enlighten the behaviour of the model, then the procedure is being illustrated with the help of actual data.

Theoretical cases

Table 1 presents three 'model cases'. For the sake of simplification, the consumer price index is limited to three items (*A*, *B*, *C*) and the weighing pattern is the same in all cases.

Table 1

Three 'model cases'

Commodity groups	Weights	Price indices		
		Case 1	Case 2	Case 3
A	50	120	168	160
B	40	120	120	70
C	10	120	120	120
CPI total	*100*	*120*	*144*	*120*

Case 1 is the extreme situation, referred to above, in which all prices rise to the same extent (20 per cent); consequently, the CPI amounts 120, the standard deviation equals zero, as well as the NOISE effect. The core inflation is the same as the CPI total.

Case 2 differs from case 1 on account of item *A*. The higher price rise (68 per cent vis-à-vis 20 per cent produces a higher overall CPI (144 per cent) and a slight noise effect:. 16.4 per cent of the price movement is due to this noise. So the core inflation (136.8 per cent) lies slightly below the CPI.

The overall price index in *Case 3* is the same as in the initial example (120 per cent), but the behaviour of the individual items significantly differs from each other. It means that the noise effect is high: one third of the total price movement. Consequently the underlying inflation (113.3) is only partially responsible for the overall price raise.

The results of these calculations are summarised in Table 2.

Table 2

Analysis of the 'model cases'

Inflation indicators	Case 1	Case 2	Case 3
CPI	120	144	120
Standard deviation	0	24	42.4
NOISE	0	0.164	0.333
CORE	1	0.836	0.667
P (NOISE)	100	107.2	106.7
Core inflation; P (CORE)	120	136.8	113.3

Actual figures

Table 3 displays the Hungarian consumer price index, in CORE–NOISE breakdown for two consecutive years, 1994 and 1995. Consumer prices rose at a considerably higher rate – almost 10 percentage points – in the second period than one year earlier.

Table 3

Consumer price indices in Hungary

Inflation indicators	1994/1993	1995/1994
Consumer price index	118.8	128.2
NOISE	0.087	0.107
CORE	0.913	0.893
P (NOISE)	101.6	103.1
Core inflation; P (CORE)	117.2	125.1

In addition to the higher speed of rising prices, 1995 was ‘noisier’ than 1994. Therefore the share of noise was by 2 percentage points higher. The core inflation amounted 125 per cent, so it differed by 8 percentage points from that of previous year, contrary to the 10 points of the CPI.

THE EFFECT OF DISAGGREGATION

As any statistical procedures, the method presented so far is not exempt from drawbacks. It can be labelled as ‘disaggregation-sensitivity’. As the magnitude of the standard deviation is subject to the degree of disaggregation, so are our NOISE and CORE measures. Generally, more detailed basic data result in higher noise.

Table 4 illustrates this effect, by comparing the analysis of the 1995/94 CPI in two different breakdowns: 160 basic headings (as the data in Table 3), and a more aggregate grouping by 24 items.

Table 4

The disaggregation effect
(Hungary 1995/1994)

Inflation indicators	Breakdown of 160	Breakdown of 24
CPI	128.2	128.2
NOISE	0.107	0.069
CORE	0.893	0.931
P (NOISE)	103.1	102.0
Core inflation; P (CORE)	125.1	126.2

The aggregate figures show a lower noise and a higher core. In our example the difference amounts 1 percentage point. There is little doubt about the detailed data to be more reliable.

In some cases, however, limited availability permits no choice between sets of data of different aggregation schemes. In such instances we have to 'work with what we have', but care has to be taken on the uniformity of the classification. Comparison has to be made in uniform breakdown. E.g. when comparing Hungarian and German inflation, basic headings can not be compared because of different classifications in the two countries. However, the aggregation of 24 proved to be comparable. This comparison is carried our in Table 5, for a span of three years: 1992–1995.

Table 5

Comparison of CPI in Hungary and Germany, 1995/1992

Inflation indicators	Hungary	Germany
CPI	186.6	108.1
NOISE	0.130	0.052
CORE	0.870	0.948
P (NOISE)	111.2	100.4
Core inflation; P (CORE)	175.4	107.7

This table compares a relatively high and a very low inflation (annual rate 23.1 and 2.6 per cent, respectively). However, beyond this obvious statement there are striking differences between the natures of the developments. The German inflation was almost 'noiseless'. Therefore the core inflation and CPI were almost the same. Price behaviour in Hungary was different, the share of noise being 13 per cent. So the core inflation was by 11 percentage points lower than the price rise measured by the CPI.

THE ROLE OF THE SATELLITE ACCOUNTS IN THE SNA

VERA NYITRAI

During the last decades several special UN, EUROSTAT, OECD meetings dealt with the problems of satellite accounts. In the Hungarian statistical publications *dr. György Szilágyi*[1] made known the concept as well as the history of these kinds of balances, in the latter article he outlined some practical characteristics of the R+D satellite account.

In this paper I try to deal with several advantages of the satellite balances, underlining those aspects that meet with general consensus at the international discussions, with their possible role in the Hungarian SNA in the future and to illustrate these by presenting two kinds of the satellites namely the environmental as well as the household accounting.

Consensus on the use of satellite accounts

When the actual form of the SNA was approved by the Statistical Commission of the UN in 1993 it became clear that the SNA must be a closed system containing the most important kinds of activities, but not all of them. There are several activities in the national economies with growing importance which cannot be part of the System of National Accounts, among others some of the unpaid production. So these fall outside the conventional accounts. But this fact does not mean that they have to be excluded from traditional accounts.

The statistically best developed countries were looking for the way to join the statistical data and information of these activities to the SNA and the best solution of these processes seemed to be such kind of accounts which would complement the traditional economic accounts by using disaggregated data of physical as well as of monetary accounting.

The pioneers of these topics had to answer (among others) the following questions.

– What is the goal of a satellite account: analysing the special activities in the framework of SNA or to describe the actual role, the development of this activity by using physical accounts together with monetary indicators in balance sheet forms?

– What is the main concern with inputs from the examined activity to the national economy or with outputs from the economy to the analysed activity? Different kinds of approaches were used by several experts starting either from the supply or from the demand side.

[1] See *dr. Szilágyi, Gy.*: Statisztikai integráció részmérlegekkel. *Statisztikai Szemle*. 1987. No. 8. 766–778. p.

– How can the physical accounting be balanced with the monetary accounts? It is quite clear that from the point of view of the SNA monetary indicators (balance sheets) have determining roles. Recognising the need of different users, however, physical accounts have to be the starting point for getting acquainted with the actual situation and these balances can cover most of the natural assets.

– Are there any preferences among the possible topics of satellite accounts listed in the last publication of the SNA? If these could be found, are they internationally the same or not?

In answering such and other questions, it is rare to find general consensus. The national practice of different statistical offices as well as international organisations (World Bank, IARIW, OECD, etc.) indicated that it is quite general to elaborate independent accounts for several topics in connection with the standard national accounts of the interested country. This is the aspect of the Netherlands, USA and the UK as well. The international organisations tried to involve developing countries in solving such kinds of problems (see: IARIW meeting in Tokyo. 1996, dealing with environmental accounting) but nowadays using satellite accounting remained the problem of statistically more developed countries. Therefore one of the most successful forum dealing with special aspects of satellite accounts in the framework of SNA is the London group, established in 1994. This group meetings were examining aspects of these kinds of accounting systems, analysing how far a common approach could be identified and agreed, and where there are still significant differences in the point of view of country-experts. The June 3-6 1997 meeting in Paris and the Ottawa meeting prepared several recommendations for identifying the problems and some of their details for elaborating a synthesis of comments.

The result of these special meetings is that it is time to enlarge the scope of elaborators and users of satellite accounts especially in those countries where the SNA system is practically well-known and used for analyses.

The possible role of satellite accounting in the Hungarian SNA

Having in mind the development of the SNA in Hungary during the last five-six years, it can be stated that the integrating role of the SNA in the Hungarian economic statistics has reached a relatively high level. This means that the GDP has been calculated on branch basis since 1998 with the collaboration of the interested departments of the Hungarian CSO. This new calculation has a significant consequence, namely the departments measuring the contributions of their branches (agriculture, industry, services etc.) to the GDP are charged not only of the results of the calculations but also of analysing the structure of the produced GDP by subsectors, examining the productivity and its changes based on the GDP/persons employed, etc. These analyses could draw the attention of the interested departments (and other users of these kinds of information) to the lack of more detailed data of several transactions.

As to my opinion: branch-departments, which are accustomed to use physical and monetary indicators of the branches belonging to the scope of their departments, could recognise the significance of the use of SNA data by presenting the role of the individual branches in the value added in respect of the whole economy and by measuring the relationship of several industries with other ones within the production boundary.

The widening tasks of the individual departments can make them more interested in compiling special satellite accounts in close connection to the national accounting sys-

tem. A good example can be the construction of tourism accounts namely in Hungary, tourism plays a significant role in the balance of payment.

Under the heading of tourism several traditional indicators are collected, for example: number of tourists, international tourist arrivals detailed by countries, expenditures of international arrival per day and by purposes of travel, number of persons arriving on package tours, length of stay of foreign tourists and its details by kinds of accomodation, data of Hungarians travelling abroad. As it can be seen, these indicators are measured partly in physical units, partly in value (HUF or USD). These indicators do not contain the transaction processes which affect the production or the consumption sides of the accounting system. For this aim several complementary information sources are needed, with a few estimations among them as well. This can be a typical example for internal satellite account, which is used to reorganise production, transaction and consumption which take place within the presently compiled SNA accounts, aiming at the more enlightening ones of the important parts of the whole system. This is only one example, but others could also be mentioned. These internal satellite accounts have a common feature, all of them can be accounted in monetary terms and most of them have several complementary indicator series in physical units.

These internal satellite accounts can enlarge the scope and topics of economic analysis backed by balance sheets.

There is another group of satellites: the external satellite accounts which provide freedom to use non-monetary units when compiling them. The advantage of these satellites is the possibility to account non-market transactions as well and to combine their analysis with the traditional elements of the SNA. Without overestimating the results gained by the Hungarian SNA experts until now it can be stated that time has arrived to start colouring the picture provided by traditional accounting and the construction of a few kinds of satellite accounts (internal and/or external) could well serve this goal. In the following part of this article I would like to present two examples.

Environmental Satellite Account

As it is well-known measuring the present status of the environment belongs to the subjects stressed by the EUROSTAT and has a great interest among the Hungarian users as well.

Having many physical indicators describing this status is only one side of an ideal solution. (For this aim a large and rich volume has been published recently by the Hungarian CSO.) There appeared another need at the national and the international level to compile an integrated accounting system. In 1993, when the present form of the SNA was approved, an interim handbook was published by the United Nation Social Development (UNSD) bearing the title of: Integrated Environmental and Economic Accounting. It is called ‘interim’ because this is not a universally agreed approach to environmental accounting but it has provided the possibility for discussing the experiments of countries till 1992–1993, the different kinds of recommendations and the problems appearing during the progress of this work.

The first problem is to distinguish two aspects: those concerned with environmental goods and those with environmental services.

Environmental goods are products for example natural forests, wildlife, sub-soil deposits etc. They are subjects of economic activities and these processes can be evaluated in monetary form as well. It has to be underlined that from the point of view of the accounting the stocks of such goods must be measured. This means that it is not too complicated to establish several balance sheets based on the annual transactions of these goods.

More problematical is the measurement of environmental services, which cover several functions provided for example by air and water, as environmental sinks for residual and waste. It also has to be mentioned, that for the most part there is no monetary consequence of the use of the so-called sinks. Only an indirect measurement can be imagined of the use of water or air by approaching from the side of natural regeneration and their cost. For the statisticians elaborating balance sheets based on monetary transactions of environmental services, it seems to be pure estimation with the danger that estimations made by environmentalists could be subjective and far from statistical reality. So the first step has to be to concentrate on balance sheets of environmental goods which is the trend in the most developed OECD countries.

The approach recommended by the UNSD aims to concentrate on an environmentally adjusted GDP (named EDP).

This can be adjusted for both depletion and degradation in a purely accounting (therefore statistically correct) framework.

There exists another approach as well used by the Netherlands, the so-called NAMEA system, which is a modelling system containing several measured and other estimated indicators.

The London group tried to find a common approach based on both of these systems but no kind of analysable practice could be found up to now. From the theoretical background the following has to be stated.

– An environmental and economic accounting can be based on a matrix, in which the horizontal table of supply and use of products is overlaid by vertical balance sheets. The intersection can show which assets are used in which kind of production processes.

– The scope of the environmental accounts is different in the two solutions mentioned above. According to the UNSD recommendations, there is no income in the environmental accounts, while the Netherlands' system includes all the SNA flow accounts. As to my opinion, to be consequent to the SNA means environment zero output and negative value added.

– An important problem to be solved is: how can internal environmental protection be separated into a part responding to the own activity and the same part relating to repercussions. Some estimations are needed for making that distinction.

– The question of an 'integrated system' arises also in practice. According to the opinion of some experts this means that relatively complete physical asset accounts need to be combined with similar monetary data-system. In practice separate rows and columns are needed for articulating monetary as well as physical indicators of the different kinds of environmental phenomena and flows. A good example is the structure of material energy balance combined with the natural resource accounts, containing data on the opening and closing stocks and the flows during a concrete period (a year or so). But this is a relatively simple example, for several other environmental goods (solid, liquid, gase-

ous residuals) and their type, it is not possible to compile such a parallel matrix in physical and in monetary units. I have mentioned this example for illustrating the problem of integrated system and the fact that no kind of internationally recommended solution has been found up to now.

One of the most important indicators is the value of environmental costs. The UN recommendation divided costs into two categories:

– costs caused: 'costs associated with economic units actually or potentionally causing environmental deterioration by their own activities', and

– costs borne: 'environmental costs borne by economic units independent of whether they have actually or might potentially cause environmental deterioration'.

The grounds of such categories are hardly disputable, but their use in the SNA practice could generate more problems. A suitable approach could be the use of imputed (and not objectively measured) costs for describing costs born by productive industries as well as cost caused by different industrial or household units.

The actual situation of the environmental accounting presented at the twenty-ninth session of the UN Statistical Commission (10-14 February, 1997) is the following:

– there are different kinds of methodological works carried out by the UN Statistics Division, published in the form of a handbook of national accounting on integrated environmental and economic accounting. Special agencies as the FAO, WHO, UNEP, World Bank, EUROSTAT have been active not only in elaborating methodology but also in some areas of technical co-operations;

– however, in this field, there can be no consensus found on a range of concepts and valuation of data;

– the paper presented to the UN Statistical Commission stated also that there is a duplication in the area of technical co-operation which is unavoidable for the time being.

By describing the present situation it has to be stated that at international level the work on environmental satellite accounting is still at an early stage, several industrialized and statistically developed countries collected experiences, so there is no need to wait for a clear international recommendation. The handbook elaborated by the UNSD gives a good basis, and – as usual in the Hungarian statistical practice – our own statistical experiments can help in finding a relatively simple, perhaps not final approach for compiling environmental satellite accounting system connecting with our SNA system.

Household Satellite Account

Another typical example for the need of a satellite account is the household statistics which belongs both to the economic and to the social statistics. The household is namely a unit of production and unit of consumption as well. As it is well known SNA 1993 does not include unpaid services in the sector of households, but this form of SNA contains a recommendation: to use a household satellite account. It has to be mentioned that several productions within the household are included in the traditional SNA, for example production of agricultural goods, which has a significant ratio in the Hungarian households production, some kinds of housing repair, theoretically the services of owner occupied housing, but these cannot easily be measured. Most parts of the household services are excluded from the SNA, especially the unpaid services.

In the SNA manual, the following text can be found:

a) 'The own-account production of services within households is a self-contained activity with limited repercussions on the rest of the economy...'

b) 'As the vast majority of household domestic and personal services are not produced for the market, there are typically no suitable market prices that can be used to value such services...'

c) 'Imputed values have a different economic significance from monetary values. The imputed incomes generated by the imputed production would be difficult to tax in practice...'

Some other arguments advanced against measuring and valuing unpaid work of household could be continued, but several arguments could be listed in favour of taking into consideration those kinds of work if not inside of the SNA, then in a satellite accounting.

One of the significant reasons is that welfare measurement is not possible without drawing our attention to the unpaid work realized by household members. This is only one side of the problem. Another aspect is that in Hungary we have to concentrate on assessing most kinds of productive resources of the economy and work performed by households belong to these. Taking into account the household-production means that we have to take into consideration their consumption as well.

As to my opinion we have to learn from the experiences of developed countries in this field as well and the best example is given by the Office for National Statistics of the United Kingdom. Several interesting articles describe the UK practice. From these it has become clear that in the process of compiling satellite accounts for the household sector, the following steps are needed.

1. Finding a suitable definition for the household production. This is not easy, because different definitions are used in different national practices, having in mind that household production in the formal economy are as often substitutes as complements. It depends on the domestic situation of the country and it is not the same in the country at different times. For example at that time when unemployment is relatively high, more kinds of household activities substitute the production in the formal economy. When the welfare situation has become better, several kinds of household activities go to the formal economy (for example: some car-repairs, laundering, gardening etc.).

2. To find the best solution of measuring distribution intermediate and final consumption of the household section. (Intermediate unpaid part of household work is for example driving to and from workplace.) For the aim of measuring the activities, the balance of time statistics could help but from these sources only hours spent on different kinds of household work can be acquired. The next step has to estimate the value of the time used.

3. To decide the use of an input or an output approach when compiling the household satellite account or to use both of them. Input accounts can be based on time used for different kinds of work. Output account means estimations of the value of unpaid domestic production.

4. To compare the results of the pilot household satellite accounts with other statistical information and to analyse the figures.

From this very crude outline, mainly the difficulties of the compilation of household satellite accounting could be derived. It has to be added, however, that this satellite can serve more aims; therefore this has to be an integrated part of the widely defined up-to-date SNA's scope.

ADAPTATION OF EU-HARMONIZED ACTIVITY AND PRODUCT CLASSIFICATIONS IN HUNGARY

STEFÁNIA TÛÛ

The creation of an internationally harmonized system of activity and product classifications can be considered as one of the most outstanding statistical achievements of the last two decades. In close connection with the interrelated world-level economic classifications (ISIC Rev.3., Central Product Classification – CPC; Harmonized Commodity and Coding System – HS) an adequate family of the more detailed European activity and product classifications (NACE Rev. 1., Classification of Products by Activity – CPA; PRODCOM; Combined Nomenclature – CN) has also been developed, according to the prevailing needs of the European Communities.

In Hungary, the rapid pace of transition from a centrally planned to a market economy required close monitoring of the structural changes of economy in comparable terms with the European economic classifications. Therefore the medium-term development programme of Hungarian statistics gave high priority to adapting step by step these internationally harmonized classifications.

This article provides an overview on the main phases of the process of implementation and identifies some important differences between the former and the new situation, first of all in the field of activity classifications. Last but not least, I should like to draw attention to some experiences arising from the use of rather detailed economic classifications in such a relatively small country as Hungary.

Main phases of the implementation of the harmonized, new international economic classifications.

1. On 1st January 1991, the Harmonized Commodity and Coding System was introduced into Hungarian foreign trade statistics. (In order to save comparability with previous time series and production data, over some years HS was used parallel with the former Hungarian Product Nomenclature for External Trade).

2. On 1st January 1992, the revised Hungarian Standard Classification of all Economic Activities (Hungarian abbreviation: TEÁOR) was put into force, not only in statistics but for administrative purposes, too. This new version was fully adjusted to the first two levels of ISIC Rev. 3. and NACE Rev. 1. Efforts were made to adapt the international standards at more detailed levels, too, but this target could only be partly aimed at, due to the fact that the division of labour in Hungary (being still in an early phase of

transition) differed substantially from conditions in market-oriented economies. As a consequence, the number of three- (183) and four-digit level items (366) in the Hungarian activity classification did not achieve that of the NACE Rev. 1. (222 and 5l3, respectively). The implementation of the entire NACE Rev. 1. was scheduled for the second half of 1990s.

3. On 1st January 1992, the revised Classification of Services – CS (Hungarian abbreviation: SZJ) was also introduced. The structure of the CS has been harmonized with the new Hungarian activity classification. At the time of its elaboration, CS consisted of 69 divisions, 219 groups, 487 classes and 629 subclasses. It was decided that further harmonization with CPA would be realised only after the adaptation of NACE Rev. 1.

4. The complete revision of the former Hungarian classification of transportable goods (produced by agriculture, hunting, forestry, fishing, mining and quarrying, manufacturing, electricity, gas and water supply and products of computer related activities) was finished in the second quarter of 1995. The result of this revision, i.e. the new Domestic Product Classification – DPC (Hungarian abbreviation: BTO) has used the subcategories of the CPA as starting points for its detailed breakdowns, and has been fully harmonized with CPA, PRODCOM and Combined Nomenclature, respectively.

Regular data collection based on DPC started on 1st January 1996. The Hungarian DPC is able to satisfy all demands raised by adequate EU classifications, in particular by PRODCOM. Industrial products or groups of products in DPC are directly comparable with PRODCOM headings (based on 1:1 or *n*:1 relationship). In the case of conflicts between continuity of the domestic time series and international demand, priority was given to the latter.

5. On 1st January 1996, the new Nomenclature of Hungarian Customs Tariff, namely the adaptation of the Combined Nomenclature came into force for the purposes of customs declarations and that of foreign trade statistics, too. For the time being the Hungarian combined nomenclature also includes additional sub-items (marked with the 9.-10. digits of the code-numbers) for special national purposes in connection with commodities of great importance from the point of view of import or export transactions.

6. Since 1st January 1998, the final version of Hungarian activity classification, i.e. the result of full adaptation of NACE Rev. 1., has been valid. Although the elaboration of the final version required very thorough scrutiny of the detailed structure and explanatory notes of NACE Rev.1., (published in the meantime), it ment mostly 'fine tuning' compared to the great changeover in 1992. The latest development in Hungary related first of all to the service sectors in order to follow the rapid and wide-spread growth for example in the field of telecommunications, computer related activities, financial intermediation, pension funding, real estate or other business activities.

However, it has to be underlined that the implementation of the rather detailed structure of NACE Rev. 1. could be settled in many cases only by changing the concept of the statistical (reporting) unit. As far as the former statistical practice in Hungary was concerned, the enterprise was taken into account as general statistical unit. Under the new circumstances, in many classes of activities, the local unit or rather the Local Kind-of-Activity Unit (LKAU) has to be classified as statistical unit in order to get homogeneous production and related data. Selection of these appropriate statistical units claimed wide range of preparatory work (including direct negotiations with enterprises in question)

about their possibilities and willingness to calculate gross value added at factor cost in order to determine the classification of the local unit – or LKAU – in accordance with its principal activity. The determination of the principal activity was based in some sectors (for example in agriculture, wholesale or retail trade etc.) on a full-scale census of businesses.

7. The revision of the Classification of Services (which has been valid since 1992) is also in progress. The newest revised version of CS has been directly derived from the present (NACE Rev.1.-conform) structure of the Hungarian activity classification. Thus the first four digits of the code-numbers of both, just mentioned classifications are identical. A close, but not absolute, connection has been established between CS and CPA, too. It means, for example, that as long as the structure of repairs or other industrial services (performed on a fee or contract basis) or that of educational services are more detailed than in CPA, some services – being less developed in Hungary at present – are classified by CS in a more aggregated way than by CPA.

8. From the Hungarian point of view, the last improtant step in the adaptation process of the actual, most important European activity and product classifications is the revision of the former Hungarian version of the Classification of types of Constructions (CC – Hungarian abbreviation: EJ). The revision of EJ is in progress. It is envisaged that the new version (fully harmonized with the CC of the EU) will entry into force on 1st January 2000.

Some significant differences between former and present activity classifications

Transition countries adopting ISIC or NACE faced problems of two different sorts:

1) problems of partly ideological origin (conceptional problems);
2) predominantly practical problems.

In the first place, this paper focuses on some conceptional (methodological) issues which claimed transition countries to accept new – or better to say: reconsidered – ideas.

The first group of problems was connected with the fact that in accordance with the political system of centrally planned economy, the former range of branches of the economy had been divided in two parts: material sphere of production creating national income (i.e. production of commodities and of the so-called material services) and non-material sphere. (The activities in the latter sphere supposed to be of redistributive character, therefore in this sphere primary national income was not calculated.)

ISIC and NACE do not differentiate between productive and non-productive (i.e. material and non-material) spheres and thus the borderlines between primary, secondary or tercier sectors are drawn quite differently from the boundaries of the main economic branches drawn in the centrally planned economies of the former CMEA (Council of Mutual Economic Assistance) countries. For example, data related to Industry (i.e. to the 01 branch of activity classification of CMEA) could not be obtained simply by summarizing data related to *C*. Mining and quarrying, *D*. Manufacturing and *E*. Electricity, gas and water supply, due to the inadequate contents of the just mentioned activity categories. The situation was similar in many other cases: denominations might incidentally be the same (see Construction), but the scope of the covered activities differed considerably.

Repair and maintenance services rendered by industrial units for others can be mentioned as examples causing pretty large difficulties at the adaptation of the common basic structures of ISIC and NACE.

In the former statistical practice of the transition countries, all kinds of repair and maintenance activities, performed as a service for others, were identified as industrial activities, independently from the (possible consumptive) characteristics of the object to be repaired or maintained. However, both ISIC Rev.3. and NACE Rev.1. differentiate, in general between

a) industrial types of repair and maintenance (belonging to the same class of manufacturing as the activity of units producing the machines, instruments or apparatus in question),

b) repair and maintenance of motor vehicles and motorcycles, and repair of personal and household goods, respectively (classified in different classes of section *G*. Wholesale and retail trade),

c) repair and maintenance of office, accounting and computing machinery (classified in class 7250 of section *K*. Real estate, renting and business activities).

The main reason of the aforesaid differentiation was that under the circumstances of market economy a significant rate (or possibly the whole amount) of repair and maintenance services was carried out by the same unit which was engaged for example in the trade of motor vehicles or other personal or household goods in question. (In order to characterize the possibilities of different combinations of economic activities also in market economy, it can be mentioned that ISIC Rev.2. still classified, the repair of personal and household goods in major division 9. Community, social and personal services.) From the point of view of Hungary, the intention to transfer these repair activities to section *G*. was contradicted by the fact that the repair and maintenance services in question were generally rendered by enterprises specialized directly for this performances, without any trade activities and they traditionally considered themselves industrial enterprises. Thus for us the problem became a characteristic case when priority was given definitely to international comparability instead of national tradition.

Generally speaking we had to overcome the methodological difficulties originating from the fact that under the organizational circumstances of centrally planned economies, the usual combinations of activities carried out by enterprises, co-operatives, institutions, etc. differed to a great extent from the patterns in market economies.

From the point of view of transition countries, among the common conceptional problems it could be mentioned that – compared to ISIC and NACE – their former activity classification differently identified architectural and engineering activities, foreign trade activities, research and experimental development, activities of publishing, lending activities, laundry service activities, etc.

In some cases, the impact of the important structural changes between the former and present activity classifications was not directly perceptible due to equalization. For example in 1992 – approaching to NACE, Rev.1. to an optimum extent – the number of statistical units belonging to Manufacturing has increased significantly by transferring ‘Publishing of books, newspapers and periodicals etc.’ from earlier ‘853 Miscellaneous cultural services’ to the new division ‘22 Publishing, printing and reproduction of recorded media’. But the effect of decrease due to transferring enterprises and co-operatives, performing repair and maintenance of motor vehicles, motorcycles and per-

sonal and household goods from Industry to Trade or those of performing laundering and dry-cleaning from Industry to '93 Other service activities', has significantly outstripped the above mentioned impact.

It is worth mentioning that the former activity sphere of 'Construction' has been restricted to a great extent by transferring activities of architectural design, organization of investment and maintenance etc. from 'Construction' to '74 Other business activities' (more exactly to '742 Architectural and engineering activities and related technical consultancy').

Furthermore, several minor modifications were made for example among the domains of agriculture or forestry and manufacturing, respectively, due to borderline changes among sections of activities.

Some arguments for the sake of two-phased approaching to NACE; methods of reclassification of statistical units

At the beginning of the 1990s it was a subject of wide-spread discussions, whether, for the moment, the full approach to NACE Rev.1. would be or not a realistic target for Hungary. I should like to recall a few special reasons which – in my opinion – properly influenced the decisions relating to the necessary and possibly degree of adaptation, mainly in the field of activity classifications.

The most important counter-arguments of full-adaptation referred to the still overwhelming majority of big, multi-activity enterprises and the lack of a broad stratum of small- and medium-sized businesses. In the end, the decision in 1991 related to the new Hungarian activity classification, took into account that statistical data would be significantly distorted and misleading if enterprises and co-operatives carrying out a big amount of mixed secondary activities (which cannot be segregated into separate statistical units) would be classified according to an unduly detailed activity classification. Under such circumstances a more cautious design seemed to be more advisable (at least as a temporary solution). Therefore the basic structure of NACE Rev.1. (referring to divisions) was adopted in an unaltered form but in some well-founded cases the detailed categories (groups and classes, respectively) were created according to the actual division of labour in Hungary.

Regarding the full-adaptation of NACE Rev.1. in 1998, it can incidentally be mentioned, that in the meantime the aforesaid problem of big, multi-activity enterprises was mostly solved by the structural changes of the economy. But as far as the proper monitoring and classifying of small- and medium-sized businesses are concerned, it has to be considered that in many cases not only the scope of their activities is unstable, but their individual existence is doubtful as well (although the whole stratum of small businesses showed rapid development in the recent few years).

It is well-known that reclassifying the statistical units according to a new activity classification demands great efforts from every participant. Taking into account that the financial resources of the Hungarian Central Statistical Office have been diminished significantly, the actual reclassification of statistical units had to be managed economically and at the same time without burdensome processes, as far as data suppliers were concerned.

In 1991, in accordance with the significant modifications (generally enlargements) of the new activity classification, all in all more than 120 000 (reporting) statistical units (enterprises, co-operatives, limited liability companies, etc.) should have been reclassified, while the number of sole proprietors (including craftsmen, artisans, professionals, etc.) exceeded 800.000 units. Performing this task, various procedures were applied to the different groups of the statistical units.

Reclassification of old economic units was managed by the Central Statistical Office automatically, if homogeneous character of the activity allowed to use correspondence tables or the necessary information could be provided from the annual surveys and/or from other data sources. In other cases enterprises were asked for additional information referring to the exact distribution of sales by industries in the previous year. New economic units established in the second half of 1991 have instantly been classified in a parallel way, according to the 1991 and 1992 versions, simultaneously.

The close co-operation with the tax authorities proved to be a crucial question, because the huge majority of the units was not registered earlier for statistical purposes; for example, the reclassification of sole proprietors based on the Tax Office's information system. It contained data about 338 professions, of which 324 professions could be classified unambiguously in the adequate classes of the new activity classification.

The conceptual differences between the former and present product classifications

Harmonization of product classifications has considerable traditions in Hungary. During the last three decades, Hungarian statistics has developed a well-proportioned product classification which reflected every important technological phase of production processes. Beside unified product nomenclatures, the classification of buildings and constructions and that of services were elaborated and regularly used, not only for statistical but also for some administrative purposes. This expertize was likely appreciated internationally, too when from the CMEA countries (beside Czechoslovakia) the representative of Hungary had been invited to take part in the UNSO/SOEC Joint Working Group which delt, from 1977 to 1989, with the revision of ISIC Rev. 2. and the preparation of the Central Product Classification.

The former Hungarian Nomenclatures of Industrial and Agricultural Products – which were valid from 1968 to 1995 – included all raw materials, semi-finished and finished products which originated both from domestic production and import. The basic principle of these classifications was unification based on industrial origin. Thus, in accordance with them, comprehensive product-balance reports could be accomplished covering all sectors of the economy, regarding production, domestic and foreign trade, transport, material and technical supply. Monitoring the detailed data of consumption and investments was also based on the unified content of the aforesaid product classifications.

As far as the actual, internationally harmonized product classifications are concerned, their most important conceptual invention is to provide foreign trade classifications (i.e. Harmonised Commodity and Coding System and Combined Nomenclature, respectively) with an outstanding, basic position. Therefore the new systematical interrelation among the product classifications means that the elements of HS and CN have been used as

building blocks for CPC, CPA, PRODCOM and thus for the new Hungarian Domestic Product Classification, too. So, applying these harmonized product classifications for data inquiries, the diverse stages of commodity flows (import, export, domestic production, intermediate and final use) can be represented in an interrelated statistical data system and the results can provide a connected framework for international comparisons.

In some exceptional cases there were slight differences between the basic structure of the former Hungarian industrial product nomenclature and that of the national activity classification. It happened, for example, when the activity classification delineated the domains according to the raw material used, while the product classification stressed on the first place the user-needs, i.e. the uses to which the goods were put. (For example furniture, sport goods, games and toys.) The new product classification establishes an unequivocal link with the appropriate class of the activity classification, because the first 4-digits of both code-systems are adequate and furthermore the subcategories of the CPA were taken into account as starting points of the more detailed breakdowns. Thus the new product classification will conceptually be linked to the activity classification in accordance with the industrial origin criteria.

Some special features of the adaptation process

In order to ensure comparability – as far as it was possible – between the categories of the former and present product classifications and to take into account the special needs of Hungarian enterprises, the Central Statistical Office requested proposals from representatives of the most important Trade Associations and from a few other experts. In connection with industrial product chapters about 40-45 entrusted people (including also a few experts of customs tariffs and product standards) co-operated with the HCSO in the preparatory phase. The experts often submitted proposals referring to further subdividing of a PRODCOM heading in order to preserve some important features of the former product classification but in strict condition that all demands raised by PRODCOM had to be satisfied (according to 1:1 or *n*:1 relationships). Experts were obliged to give exact proposals regarding the individual DPC-items (including code-numbers, names and measurement units) and further to elaborate two-directional conversion-keys, between the former and the new (proposed) Hungarian product classifications, and between DPC–CN, respectively.

Finally, the industrial part of the Domestic Product Classification covered about 11-12 thousand items at the lowest level. The number of the similar agricultural items came close to 2 thousand.

Elaboration of the Domestic Product Classification was considerably supported by the computer background of the Hungarian Central Statistical Office: first of all by checking the completeness of the draft and eliminating occasionally overlapping elements.

Completeness of the product-range was controlled in two different ways, namely comparing every item of the draft:

1. with international standards,
2. with elements of the former Hungarian product classifications.

1. In case of comparing industrial items of the DPC with that of the PRODCOM, checking process was two-directional: *a*) whether each DPC-item can be coupled only with one PRODCOM-item: *b*) whether each PRODCOM-item was represented at least by one DPC-item.

By comparing the list of DPC-items with that of CN-items, it could be controlled whether the whole adequate range of the CN-items was included in the draft of the DPC. (It has to be taken into account that regarding agricultural, sylvicultural or energy products this was the only way to control completeness of the draft making use of an international standard.)

2. Other important possibility for checking the completeness was given by comparing the list of DPC-items with the present Hungarian classifications of industrial, agricultural and sylvicultural products, respectively.

It is worth mentioning that comparisons in question should be carried out on the possible lowest levels of the adequate classifications.

Further important point was that at the same time the aforesaid control system also produced (and partly checked) the necessary conversion keys between the national and international product classifications or between the old and new Hungarian nomenclatures.

A searching system, especially developed for supporting the elaboration of the DPC, rendered to display possible optional items and relations of the product classifications (stored in the ORACLE data base). Searching could be executed according to product code numbers or names or optional (textual) parts thereof.

The Domestic Product Classification and the conversion keys (belonging to the lowest level of items) were published not only in printed form but also on disquettes, in order to make the transformation of business records by the enterprises easier and quicker. To comply with user's need, a detailed alphabetical index was also published in 1997.

The permanent maintenance of comparability with the relevant EU classifications belongs to the regular tasks. The yearly changes are published firstly in the Official Journal of the HCSO and on disquettes. Printed publication of the yearly modifications depends on the numbers of the items in question.

The most effective forms of international assistance

According to my experiences, the adaptation of international classifications belongs to the most labour-consuming tasks, especially nowadays when – instead of using conversion keys for the elimination of differences – the accepted strategy is the direct adjustment of national practice to international demands. The significant achievements of Hungary in this field cannot be summarized without acknowledging the great help given to us by international institutions and fellow-workers, too.

First of all, I should like to mention the three seminars organized by the European Commission for Europe dealing not only with general methodical problems but giving practical answers to the questions raised by the representatives of transition countries.

Bilateral connections (consultations abroad and advisory visits of counterpart-experts from the Statistical Offices of Western countries) proved to be especially useful because they helped to a great extent the better understanding of special theoretical and practical

issues and besides provided more direct impressions about the statistical practice of the leading institutions.

Some experiences for further consideration[1]

– In small countries the problem of confidentiality may cause relatively major obstacle. Data on industries with few (usually less than three) units or with the predominance of one or two big units cannot be published. In such a way, the advantage gained by more detailed activity or product breakdowns gets lost by the lack of published data. Besides, with a high rate of non-specialized enterprises, a too detailed activity classification may have substantial drawbacks in terms of feasibility, costs and analysis.

– In order to use local units or local-kind-of-activity units to a proper extent for classification purposes (instead of enterprises), bookkeeping practice had to be substantially developed because, for the time being, it cannot provide all necessary data for calculating value added at this level.

– In data collection referring to industrial or some agricultural products classification, the principle of industrial origin can be enforced only to a limited extent, because many HS/CN headings (used as 'building blocks') compress several products originated from different activities (for example products of agriculture and food industry, etc.). In my opinion, elimination or at least moderation of these new problems in production statistics cannot be imagined without greater empathy in the development of more homogeneous HS/CN headings.

[1] The views expressed are those of the author and do not necessarily reflect the opinion of the Hungarian Central Statistical Office.

THE PERCEPTION OF QUALITY SIGNS IN MACROECONOMIC PROCESSES

FERENC KOZMA

The economic history of humanity has been, the history of its chasing quantities. This is especially true for the last centuries of our history which were spent under the magic spell of modernization, industry and market. It is merely the honour I feel to homo sapiens that prevents me from comparing ourselves to a host of locusts, to say nothing of the very great difference between people and locusts shown also in the fact that the latter ones devour the vegetation of their living-space with equal intensity, they know nothing about the terminologies of 'the upper ten thousand (high society)' or 'the strata lagging behind'. But – perhaps – fortunately, we know them. If the whole population of the Earth ate the body of Mother Earth with as much intensity as dictated by the individual, business and state demands just as the claims and possibilities of the upper ten thousand, there would already be nothing left of it. However, by the fact that we have made the differences in the disposition of production factors and goods extremely unequal (the specific GDP-differences which did not reach the decimal order in the XIXth century, now exceed even the centesimal as well), there have been planted on our planet interest and potential differences of the kind that makes the race for the quarries of the lacerated body of Mother Earth a constraint. If mankind continues to progress in this way it will lead to its impossibility of performance. Either the Earth will be used up from beneath us or we will tear each other to pieces in our fight for the last bites of the partly-destroyed nature.

There would be a historic change, a 180-degree turn is needed: only by its accomplishment could the human race show that in relation to its adjustment to the imperatives of life it has arrived at the same level of development as, let us say, the rats have. If it fails to do so, it will not escape the fate of the dinosaurs.

These menaces that would even make a good prophesy of Esaias of the Bible are rather strange in the usual style of a statistical journal, I admit. I do not intend to frighten and I do not either wish to incite to do 'a mass penance'. I merely want to raise with all of its seriousness the problem choking all of us; that is we must always keep an eye in some ways on the processes taking place in the society in order to be able to understand them, to establish the means of the influence and corrections we need to carry out and to be able to put into action them reasonably if it becomes necessary. In the situation described above with prophetic ardour, we would first of all need to be able to perceive

qualities, the complicated syndromes of life, their feedback interrelations as well as the effects shown as a function of time together with their probable significance. Our present perceiving and measuring systems are not suitable, better to say they are not prepared for this task. Let me mention only the most important correlations.

A) Speaking of economic development we usually content ourselves with setting the specific GDP values side by side temporally or spatially; we do so being aware of the fact that time series of several years awfully distort even the quantitative relations and it is almost impossible to compare specific values set side by side of several economies despite the ingenious and estimable efforts. In other words the present stock of instruments is compelled to exist together with grave compromises even in the field of the measurement of pure quantities. In addition to that all of us know that 'the state of development' or 'the course of development' are far more complicated phenomena to be characterized by the more or less reliable indicators of the per capita economic performance of the population. Be the data producer or the data user very pretentious, they will complete this common indicator with some other ones like – let us say – that of the values of per capita savings, consumption, *R+D* expenses etc., in order to grade the per capita GDP index which in its globality is the average value of everything and the specialities of whose coming to being are secret. It is presumable then that the USD 30,000 per capita GDP-value of some desert OPEC-country might not mean the same degree of development as the miserable USD 4,000 to 6,000 GDP-values of the CEEC countries. What makes us nervous, unsatisfied and 'unhappy' is the fact that we are unable to make quality perceptible in another way than as points of transformation of quantitative changes. At the end of the XXth century, however, this is only in some cases and only very relatively true. In most of the cases it is simply not true: or if it is, we usually do not have the key of the criterion also conceivable quantitatively the arrival of which to the critical point would indicate that the change in the quality that we have been looking for, has taken place.

B) In order that mankind should not run towards its degradation, it will really have make the former mentioned 180-degree turn in its behaviour. In the regions of the highest economic performances and at the same time of the highest consumptions – commonly called as the 'Centre' – we will have to reorganize the economic apparatus on the basis of an energy and raw-material saving and pollution free paradigm which is entirely different from our present approach or attitude and all these will require not only investment, but a quite different system of economic success criteria, reward and punishment mechanisms as well as impulses relating to the direction, the quality and the intensity of the economic activity. From the management of the enterprises and even from the economic policies of different levels it will require 'Credo'-s that differ entirely from the present ones. The garniture of production factors which still produces goods for the market of the consumer society in a hot contest with each other and surrounds these with clouds of services farther than the eye can reach will in all probability become iron scrap, a flock of botchers. It will have to be recreated on the basis of a brand-new paradigm. Simultaneously the specific quantity of the goods consumed by the Centre will probably have to be reduced radically while entirely restructuring consumption in order that the reduced volume should not bring about mass distress. Health and hygiene will come to the front on the one hand and education–knowledge–culture on the other hand. Comfort

and prestige will unanimously be subordinated to them whereas such values like e.g. social tolerance, existential and civil security, the right of the man to pursue a reasonable activity either for earning his living or for self-realization will dash forward. All these criteria will hardly be measurable by such indicators as e.g. 'per capita sales turnover of retail trade' or 'per capita expenses of the state budget on welfare and social allowances'. The prodigalism-free welfare the establishment of which we cannot avoid withouth assuming life-danger, will hardly be characterizable by some of its representative items taken at random and it will not be quantificable in its complexity either. The economic structure which will be able to establish the basis for such a life quality will probably be measurable in all of its molecules: however, its capability for this task will not be shown by the mass of these molecules but by its structure and co-operation qualities i.e. by nothing but quality factors. This again will not be measurable by the traditional stock of instrument disponibles.

C) You must not shut your eyes to the fact that the World will only be able to carry out this change of the economic–social paradigm if meanwhile the Centre pays its historical debts back to the people in poverty should they be found even in the most highly developed economies (i.e. in the 'pheripheric xenoliths/inclusions' of the Centre!) or, in the narrow sense, on the periphery. However, this closing-up is mainly a quantitative task in the course of which the fateful and secular backwardness in the specific GDP, consumption, savings, investments, *R+D*, nutrition, living space, comfort etc. should be eliminated. As mentioned above, this elimination is physically impossible by the extension of the way of life of the Centre on the peripheries. In other words: this process, if it will come to being at all, cannot be carried out by the formation, analysis and use as decision criteria of the traditional quantitative indicators: it would lead to catastrophe. This process full of quantitative criteria can also be controlled exclusively by the perception of quality: the complexly problems caused by the quality criteria will be as complicated as in case of the change of the economic paradigm within the Centre.

D) The 180 degree change of direction will go together with the failure of economic axioms. Let me mention an example of the most important ones only: it is the process chart according to which the production factor package penetrates to economy (to enterprises, national economies, world economy, it is all the same in this respect) where it changes into some sort of a saleable product the rentable production of which is the aim of being of the economy (workshop, enterprise, nation, world) and all those that fall out during the technological–logistical–consumption process are disturbing only to such an extent that they will have to be cleared away some time. The world in which humanity will be forced if it wants to survive, will not know the concept of waste.[1]

To a huge extent, perhaps globally we will return to the factor management model which was common on the small farms even several hundred years ago according to which 'everything is good enough to be used for something' as a consequence of which the by-products, the waste or rubbish of a technological (service, consumption) process can be used as basic material of another process. In addition to the reduced and restructured consumption of the Centre and to the rational improvement of the life quality of the

[1] There was a anecdote on the Victorian age prognosis according to which London would be drowned in the horse dung in some years: but motor cars came in between and the prognosis failed. The inhabitants of London suffocate in the waste gas now.

periphery just closing up, this economic structure not producing rubbish will save Mother Earth from the fullest and irreversible evisceration and the society from people falling upon each-other's throats thus shortening their process of annihilation. This model is, however, a model of harmonic clinging to one another of nature and economy shorter. The so-called 'internals' and 'externals' do not separate here, there is no starting point on the basis of which you could measure them both individually and in their interaction. At present the situation is quite simple: the economic process comes to being if its expected result is rentable. The utilization of the waste must also be rentable, in particular on the basis of the same criteria as 'the target action'. If littering down is not rentable for a dairy-farm then the produced stable-litter will be fluid, it will flow into Lake Balaton and it will make the water eutrophic. If it is not worth for the dairy-farm processing the liquid stable-litter with zeolite, it will rather pay the fine sometimes but it will not produce a waste-free economic cycle like its small-farmer ancestor did. Finally, I apologize for the frivolous comparison, the entire society will 'have to drink as it has brewed' (namely the water of Lake Balaton in this example) because it either bathes in dirt or purifies the water of Lake Balaton (for a while) from the taxes paid. This is a huge problem and, given the present economic axioms, it is impossible to solve it. The removal of the waste-materials of technologies, organizations and families by their full-scale processing is not rentable, whatever we should do. In other words, the paradigm itself is wrong, it does not meet the requirements of the conditions of life of the end of the XXth century. Our observation system can in a way follow up the damages and it can provide excellent evidence to the one causing the damage why it is beyond his interest to help it and it can provide excellent evidence to the authorities on which basis they should collect money for fine which, after putting it into the large pot of the budget, they will then spend heaven knows for what purpose. Naturally, real damages can be estimated but it does not lead to the solution: another one will deem it in another way, it may even turn out that Lake Balaton should pay indemnification to the dairy farm.

E) The economic–social process the output (outflow) result of which is the reproduction of the living conditions of mankind will have to be planned. We must not give up the mechanisms of market economy, but we have to take notice of the fact that merely the market and the intervention of the economic policy sticking closely to the system of impulses of the market, i.e. the monetarism do not work in the life-saving direction: the market – sui generis – induces the process whose historical consequence has been this tendency of autolysis. The strategy of survival and further development will keep on the one hand the system of mechanism of the market in its dominant role as regulator of short-term economic and exchange processes and on the other hand, as an agent of strategic programs i.e. the society will recode its own ideas to the language of money to create the personal interestedness of the economic units and the producing–consuming persons in the performance of the strategy of survival and further development. Both spheres, i.e. the short-term, market dependent sphere and the long-term, conscious social plan dependent sphere will interact and fuction as each other's control. The strategic impact of social scale will be based on the repeated analyses of the economic–social processes, on their preestimations carried out from time to time and it will lead to elaboration of alternatives and varieties of actions controlling and correcting themselves continuously and to operating middle-term and short-term means packages of the economic

administration inducing their realization, respectively. Thus neither the Soviet-type balance systems of directives nor the request lists compiled by world-saving 'bel espirits' or by vote-hunting political parties should be underdsood by strategic planning.

Our traditional stock of instruments for perception and analysis is not capable of the formulation of such ideas comprehending great time spaces and a complicated system of correlations. The present state can be characterized either by some entirely aggregated and simplified indicators or by casually assembled ('holey') system of data, set up almost at random which is immobile i.e. the changing of the individual parameters does not reordinate the whole system as a consequence of which the various 'scenarois' can be performed only if you put contingent subjectiv statements or presumptions into that system. This does not relate to the input-output tables but these can be used to a rather limited extent just because of their sectoral character. Namely, strategic issues generally do not emerge in sectoral dimensions but either in units comprehending some segments of several sectors ('technical–economic cultures', groups of enterprises, vertica spanning over several sectors, partnerships comprehending lesser or greater aggregates of the national economy etc.) or in given factual projects of national economics or of smaller size. Let us say that the plan for a complex utilization of the bio-mass, produced by the living creatures of the country – a tipical strategic theme of the national economy – is only conceivable very inexactly with the aid of the system of input-output tables. It is just as impossible to prepare a series of 'scenarios' for regional integration using this method: it is too general for the estimation of the values of the individual alternatives and/or varieties which can be the message of the calculations based upon it while its calculation results are too precise. But the matrix practically cannot be filled with dimensions other than sectoral ones.[2]

Do all these mean that in the work of strategic planning the operations with quantified pieces of information do not have reason for their existence? Is it not worth making calculations? This is obviously not the case: you will only have to get rid of your overexpectations concerning indicators, time series and comparisons. My practical experience makes me suspect as if this 'data fetishism' played the role of the 'unquestioning faith' replacing the responsible considerations and torturing decision-making dilemmas: what we had prognosticated on the basis of the processed data it usually did not come true, consequently the decision upon which we had based the situation and vision we stated with the help of our data, either proved to be entirely false or it needed time-wasting or expensive corrections. But it was not our fault, the data were incorrect. A serious, 'scientific' decision cannot be made but on the basis of quantitative criteria. It has come full circle. Next time we start to work with a mass of data of even more details and finer methodology: but the result is the same.

It is probable that the character of this work would require another basic conception: in our quality-centric world, while gathering, selecting and processing our data we should make an effort to perceive the qualitative features of the phenomena and processes just taking place directly before us.

[2] In my book entitled Egyén, vállalat, állam (Individual, Enterprise, State) published in 1984 (Kossuth Könyvkiadó. Budapest. 208 p.) I tried to outline a matrix describing the market relations of the enterprises, a matrix enabling to draw a map of the network of technical–economic cultures and an input-output system showing the market relations of intellectual products: now I know that it was an Utopian idea.

Even if we make sure of the reality or of the clamant necessity of that, we can hardly come up to it. We have no beaten track for it. For such an observation no routine has been formed yet. Everything has to be invented again, you have to start always from the zero point. This can be done in the research work but it by no means facilitates the work of the strategic planning workshops. Moreover, you have to calculate with aversion and antipathy: though the apparatus of the economic policy widely uses non-quantificated information but it is a practice to receive it 'from pocket' and to build it so into their conceptive activity. That is to say they exist together with the fact that the information of this type is sporadic and semi-legal. Science, however considers two kinds of sources authentic: one is the official figures in connection of which I have explained my scruples above, the other one is the statements of the other specialists. Everything existing besides them is at least suspicious. Great intelligence services have been compelled to obtain certain information by computer processing of huge masses of unofficial data originating from riff-raff sources and the results used to prove to be strikingly real.[3]

Naturally, you have to keep in mind that this method requires great technical erudition, a large number of assisting staff, methods of procession and evaluation other than the usual ones, that is it is not inexpensive at all. It by all means requires consideration if the workshops of economic strategy should not gradually build up the conditions for it either within their own organization or within the network of research institutes attached to them. The basic aim is to make it possible to observe quality and feed-backs at the points which have a strong influence on the key-points of the strategy without exposing strategies to evaluations of others who consider them under other conditions, from other points of view and driven by other interests. You should draw water from the Danube at the Black Forest and not somewhere at Adony (a little settlement in Hungary).

A considerable part of rough data can be obtained by the right way of inquiring on the one hand and by the intuitive abilities and large experience of the analysers on the other hand. These are by all means necessary because even computers processing thousand million elements of information spit out drivels if this intuition based on experience does not exist in the background of their selecting and processing programs. The computerized data processing can, however, provide only semi-products for strategic workshops. The phase of the analysis at which the normative statements must already be excluded, is further left to the living brains.

The series of possible responses are generally looking for an answer to the following three types of questions:

– what is the present situation?
– what this situation is expected to be?
– what will we be expected to do then?

Generally, you do not get a single answer to your questions. If it were not so, the world would be a quite simple 'gadget', indeed. On the other hand, every valuable re-

[3] The CIA had used this method for the observation of the social and economic processes of the former Soviet Union, it subscribed to all of the publications of the press issued on the territory of this vast country and all of their articles were selected, systematized and evaluated by computer. In this way it could observe all events and processes which were omitted from the news services for whatever reason, even if not 'to five places of decimals' but to an extent of probability that at least helped the agency to form its opinion. Strategic planning generally does not need either a greater accuracy than that or if yes, it can be done by partial calculations.

sponse relating either to the estimate of situation, to prognoses or to possible actions, have to be weighed in a way from the point of view of our own interest, priorities and, especially in case of our prognoses, from the point of view of the chance of reality. Thus the three questions mentioned above are in a more precise drafting as follows:

– what is the chance of my seeing right what I call 'situation'?
– how important is the given phenomenon in the system of my interests and expectations?
– how great is the chance of its taking place?
– to what extent does its ensuing have an influence on my future interests and expectations?
– how large is my freedom of action in the field of the given decision?
– what is the value of the given decision as compared to my optimal interests and expectations?

In other words, I do not evaluate mechanically the mass of collected, systematized, selected and preprocessed data, I do not become captive of the mass of information. I do not fall into the error against which the Chinese proverb warns: 'When the finger shows the direction, the simple-minded stares at the finger.' First of all I have to resign my mind to the fact that I cannot get the only right answer to any of my questions, I have to calculate with a series of 'series of scenarios' and I will have to systematize even them.

If I do not put some facilitating means into this process of decision-making, something that protects me from 'phosphene', I will be lost. Let me describe now what I generally do in such cases. Maybe, it is primitive as compared to the possible up-to-date solutions, it might be similar to the XVIIIth century trucks of mines running on wooden beams as rails as compared to the present express-trains. Nevertheless, I do not think it needless to introduce it because it can be applied even under conditions 'as poor as a church mouse' and because as a basic idea it can be built into the up-to-date evaluation systems as well.

In most cases the evaluation of the (systematized and preprocessed) data does not require more than being classified in one of the existing categories. If there were a much larger demand than that for the fineness of judgement, I would not be interested in its *quality* but in its *size*. This, however – as I have tried to convince the reader of it above – is a premature issue or an issue of a low order or it is simply disturbing or distractive, it is impossible to give an evaluable response to it.

If it is so, to determine it, it is perfectly enough to classify the fact (F), prognosis (P), decision, alternative, let us say, in five categories such as: positive at high degree, faintly positive, neutral, faintly negative and strongly negative. Just like a school-mistress would do. After her I have named this conception-systematizing method a 'school-mistress method'. The individual 'marks' can have a lot of meanings: for example 'faintly positive' (a 'good' 4 mark where 5 is the best) may be 'bigger', 'more favourable', 'more multiplying' etc. than the average. Namely, it is moderately nearing the level that my interests and priorities require from the phenomenon or process in question. 'Positive at high degree' (a 'very good' mark) indicates the most favourable situation for me. 'Neutral' suggests an average, unchanging phenomenon without any characteristic features. According to the meaning the negative indications represent the unfavourable quality of the phenomenon observed.

At this point the 'school-mistress method' of comparison comes to an end. It is not advisable to approach the evaluation of a complex phenomenon by averaging.

Estimate of Situation and Prognosis of the Agrarium

Criteria	1978	1998	2018	
			F	P
Natural capacities	5	5	5	4
Oecological influence	2	3	3	3
Mechanical facilities	5	3	3	2
Generation level of facilities	5	3	4	2
State of applicability of facilities	5	2	3	1
Buildings, roads, plantations	4	2	3	2
Irrigation systems, water establishments, artificial channels	3	2	3	1
Land improvement	5	2	3	1
Seed-corn, propagation material, breeding material	5	3	3	2
Intensity of plough-land cultivation	4	3	3	2
Proportion of plough-land and horticulture	3	2	2	1
Intensity of horticulture	5	4	3	2
Harmony of plant cultivation and animal keeping	4	2	3	1
Intensity of animal keeping	3	3	3	2
Internal harmony of the structure of animal keeping	3	2	3	2
Harmony in animal keeping and folder production	5	5	5	3
Labour force capacities: quantity	2	5	4	5
Labour force capacities: qualifications, work morale	5	3	3	2
Seasonal fluctuation of employment	4	2	2	1
Research - development basis	5	2	2	1
Level of technical management	5	3	3	1
Level of business management	4	3	4	2
State of vocational training	5	4	3	2
Level of transport	3	3	4	3
Relation between trade and production	4	2	3	1
Dynamics of domestic demand: bulk commodities	4	2	2	1
Dynamics of domestic demand: quality goods	5	2	3	1
Producer price flexibility	3	2	2	2
Position in foreign markets: volume, security	5	2	2	1
Position in foreign markets: terms of trade, efficiency	4	2	2	1
input flexibility	2	2	2	1
Imports competition position of food-stuffs	5	2	2	1
Own accumulation ability of enterprises of the agrarium	4	1	1	1
Additional possibilities and conditions for raising of capital	4	1	2	1
Subvention possibilities	3	2	2	1
Income tax	3	4	3	2
Way of obtaining know-how from domestic research bases	5	2	3	1
Know-how transfer and acceptance: by industry	3	1	2	1
Way of obtaining know-how: from abroad	2	3	4	2
Internal division of the agrarium: production, processing, auxiliary plant	4	1	2	1
Size and structure of agricultural units	5	2	2	1
Relation between agriculture and background industry	4	1	3	1
Relation between agriculture and manufacturing	4	1	2	1
Relation between agrarium and settlements	5	3	4	2
Level of the economic political management of agriculture	4	2	3	1
Political status of the agrarium	5	2	3	1

Note: F – Fact;
P – Prognosis

For in the work of preparation of the estimate of situation, prognosis and strategy at national economic level you have 'to classify' thousands of data grouped and combined somehow. If you further average them you will approach to the indication 'without any characteristic feature' according to Gauss' rule of normal distribution. This is beyond reason and this is not even our aim. We are not interested in if the favourable or unfavourable features and prospects of our economy or society will finally come to the value of +/- = 0 but we are interested in what system the favourable and unfavourable situations taking shape at the factual points, the prospects and possible decisions will be merged.

Instead of averaging I rather suggest map making. Put the 'marks' of phenomena or processes being in relation of cause and effect or action and reaction or in some kind of functionality near each other, create 'heaps' of them, then put these heaps, too, near each other according to how they depend upon each other, what influence they have on each other, how they probably exclude each other. We can indicate the various 'marks' by different colours or shades. This seems to be a minor technical detail, but in reality it is a very important thing. Since, at the final evaluation what is generally needed is a so-called 'brain attack' i.e. a collective speculation rather than simple comprehension in keeping several hundreds or thousands of individual 'marks' in mind. It is impossible to conceive if you have to turn over all the time the leaves of an exercise-book of several dozens of pages and meanwhile with the help of your forefinger to look for, let me say, those 15 to 20 'marks' by which, the size of the agricultural workshop, the degree of mechanization-chemicalization, the food-preservation ability of the country and the development of the terms of trade of the international agricultural market may be characterized as situtation, prognosis or series of preliminary decision-alternatives at the same time. If all these are at our disposal in form of curves, we can see and deem the details in their correlations during the considerations. If, for instance, the 'marks' of the agrarium show individually and as correlative groups as well as a whole the favourable colours or shades, they are characterized and dominated by these colours, then the quality and importance of the agriculture and food industry as a whole are considerable, their prospects are favourable.

In other words the strategic considerations will deviate to some of the agrarian-centric strategic variable. Without the 'school-mistress' method and curve we would lose our way in the labyrinth of numerical data of the traditional information system and we would have to miss a mass of information which cannot (or only in an unreliable way) be made numerical.

From what I have described in this essay you are requested, while preparing the macro-economic decisions, to take very seriously solely the presented problem, in other words the direct availability, perceivability as an unavoidable problem of the qualitative side and complexity, mutual determinedness being present in economic and social movements. The rest, 'school-mistress' and curves, are only illustrations and report on how I struggle to solve the problem because I cannot and do not want to avoid it. During these struggles I have found several times that my 'school-mistresses' and curves proved to be right. In spite of this I have a dream that with the aid of modern informatics more reliable methods based on wider fundamentals which can be better managed will be elaborated for the perception, processing and preliminary evaluation of the qualitative signs of macro-economic processes.

REGAL: EXPERT SYSTEM FOR MULTIPLE LINEAR REGRESSION ANALYSIS*

BÉLA SIPOS – TIBOR KISS

REGAL – Expert System for Multiple Linear Regression Analysis, fulfils the task to transfer the expertise of the given area to the user, and it takes the model building easier. This paper analyses distributed lag models with the help of REGAL.

There are frequently stochastic type relationships in the area of the social and natural sciences. The spread of computers and computer sciences needs the software that is able to quantify these relationships. Regression analysis fulfils an outstanding role in this area. A computerised scientific method lays double claim: computer knowledge and the familiarity of the given scientific area, namely statistics in this case. REGAL also needs both types of knowledge, however, it strives to minimise them in the following way:

a) The program guides users throughout the program in order to facilitate its handling, and it always informs them what to do in given situation.

b) REGAL facilitates model building with constant help that can be general and specific knowledge as well, such as the explanation of the current model. The basic knowledge of the statistical methods allows – for the orientation of the user amongst the possibilities – to build up a correct regression model. The program unifies double expertise: the scientifically established, published knowledge of experts of mathematical statistics, and the expertise of those teachers of Janus Pannonius University – JPU, Faculty of Economics – who are familiar with the theoretical and practical side of this area.

The program is unique within this area, apart from those that were described above:

a) It examines the conditions of the regression system step by step; it shows the results of the statistical tests, then it warns the user to modify the model in the case of significant difference and it provides a modified estimation if it is necessary.

b) It provides probability levels for the better solution of the given problem where it is necessary and possible.

Data input part of the program has its own spreadsheet part, but at the same time it allows for managing other program data outputs (e.g. Dbase III, Lotus l-2-3, EXCEL), because it stores data in text files.

REGAL is applicable for analysing regression and time series models. The ordinary least square method (OLS) is used for parameter estimation. Transformation of data is

* The article was written in the framework of T 014722 and T 023058 research program of Hungarian Scientific Research Fund (OTKA).

also available. Following from the transformation possibilities, REGAL is able to estimate linear and linearisable models, such as half logarithmic, polynomial, lagged, *S* shaped, seasonal ones. A CESTRANS auxiliary program allows for CES function estimation in two steps with the help of REGAL. Average and marginal values are also available for performance evaluation. Lagged connections can also be modelled, where the reason and the consequence are split in time. Some types of qualitative data can also be used, e.g. in the case of wage regression. Detailed theoretical basis and examples are provided in the book of *Sipos, B.*: Company Forecasting.[1]

Model building

The first step in model building process is the specification that means the selection of dependent variable (Y) and independent variables (X), and the correct form of the function (f). However, the assumption of the distribution of the random variable can also be considered as specification. In this stage the model builder uses a priori information first of all. She or he applies pre-studies and knowledge which are in relationship with the studied phenomenon.

In this stage essential elements have to be handled, and database has an outstanding role. The quality and structure of database can influence the real specification. It is important to consider that the statement of the specification is always only a hypothesis that need further control and examination. Important stage in model building is the parameter estimation. This is a statistical part of it. It is important from the point of view of parameter estimation how to describe the regression relationship: with one or more variables; with one or more equations. A question that frequently emerges is: how does the model fit to different statistical conditions, determined by the OLS or other procedures? Finally it should be stated, that the results could only be hypothetical results. These hypotheses have to be controlled in the statistical control stage. This stage would influence the specification and the parameter estimation stage as well. The model builder decides whether to accept the model with a certain confidence, or not. He or she could change the model or the parameter estimation procedure. These decisions would need the repetition of the whole estimation procedure.

Regression models can be used basically for two types of tasks:

a) analysis of events,
b) forecasting.

That is: estimation of the value of parameters or the dependent variable. In the first case, with the so-called basis examinations, the objective is the analysis of the relationships between variables. In the second case – especially in the case of forecasting – it is also an important information, what elements are essential to influence significantly the process in the future.

In the verification stage the model is compared with reality. This is not merely a technical process. Economic, professional control is needed to decide whether variables

[1] *Sipos, B.*: Vállalati prognosztika. Janus Pannonius Egyetemi Kiadó. Pécs. 1995. 225 p. This book, together with the REGAL software, got the award of 'The most significant publication of the year' in 1996, given by the rector of JPU.

are correctly chosen, and the process is properly modelled or not. During verification the model builder can frequently get information that influence the earlier stages, such as specification.

Computations, parameter estimation of the model

After data input, a simple or stepwise regression can be asked for. In the case of simple regression, parameter estimation will be executed with all the selected variables, while in the case of stepwise regression only those variables are included step by step, where the variable can improve the explanation power of the model significantly (at 5 per cent significance level). This is evaluated by partial F-statistics, and the R^2 coefficient measures the models' effectiveness. Partial F-statistics and the referred probability levels are displayed by REGAL, and it recommends to include a variable where this probability value is the smallest and is smaller than 0.05 (5 %).

Results can be examined and analysed with REGAL globally, and in details as well. The summary screen after the computations diplays the global understanding of the estimated model. Multicollinearity, autocorrelation, homoscedasticity test, the multiple R square and test of normality can be seen in one window. If the users see OK in all the five test results, and the estimated partial coefficients are significant (on the basis of the calculated t-statistics value) then the regression model can be used for both analytic and forecasting purposes, because it fulfils the theoretical conditions of a regression model.

If any of the evaluation is BAD or questionable, then the model can be modified in the appropriate section of the program. E.g. in the case of significant autocorrelation, the user can ask for a special estimation, eliminating autocorrelation problems. These characteristics of the program will be used later in the discussion of distributed lag models.

Results of the current model can be seen globally, but also in details in the 'detailed analysis' part of the program. Results can be saved and printed from this menu item.

Estimation of Distributed Lag Models

In real economic life, it frequently appears that the effect of an economic event (or process) can not be recognised immediately, only later, with a certain lag in time. Typical example is the investment and the production (or sale) relationship between import and export prices. One group of models serves description or analysis of economic events, consequently it attempts to describe a given (or assumed) state (e.g. optimisation problem that looks for optimal production program with fixed prices and costs, and resources and demand). These models are called static models. Another group of models investigates the underlying motions in an economy (e.g. factors of economic growth). It answers the question: how to influence the actual state of events by the state of its own events or of other events. These models are dynamic models. Dynamic relationship means to investigate relationships of variables in different points of time. Static models can only model stable end state. Static relationships exist only for a short period of time. In the opinion of the classical Newton physics, the motion is continuos, consequently it can be described by a continuos function, and the influential factors take effect immediately, without lag. This tool is not effective in the case of economic processes, because

1. observations are connected to discrete and fixed time points. The result of measurement can be different in this way, if daily, weekly, monthly, quarterly, or yearly data are used; *2.* reaction time is not infinitely small, but finite, or even very long.

The modern physicists (Plank, Einstein, Heisenberg, etc.) re-evaluated the idea of time and motion. They mean that neither the motion, nor the time is continuos.

The reasons for lag (where the effect and reaction are split in time) are the following.

1. Recognition lag: The observation, registration, summation process need time (e.g. we do not buy durable articles frequently).
2. Decision lag: making and executing decisions need-time.
3. Technological lag (production time is the reason for it).
4. Lag because of inertia of processes.
5. Speculative lag.
6. Other reasons, e.g. organisational lag, slowness of bureaucracy, etc.

In econometrics *Alt, F. L., Fisher, I.*, and others investigated the question in the second half of 30s' by separating the short and long term effect of independent variables, and estimating the long term effect. These models are not proved theoretically, therefore they are called naiv models. The research of distributed lag (DL) models took place in the 50s'. Among the researchers are *Koyck, L. M., Almon, S., Solow, R., Nerlove, M.*

Simple and compound models can model lag. In the simple model an event depends on the earlier state of another event. However, this earlier state should be a determined length of time. In the compound case, the investigated event (dependent variable) depends on the much earlier events of other events (independent variables). E.g.:

$$y_t = f(x_{t-1}, x_{t-2}, \ldots, x_{t-k}) \qquad /1/$$

where

k – is the biggest assumed lag that can be infinite as well.
If $x = y$, then there is an autoregressive scheme.

The basic equation of compound lag model is (in linear case):

$$Y_t = \alpha + \beta_0 X_t + \beta_1 X_{t-1} + \beta_2 X_{t-2} + \ldots + \beta_k X_{t-k} + \varepsilon$$

where:

Y_t – is the dependent variable (explained variable),
X_{t-i} – is the value of independent variable, in $(t\text{-}i)$ period of time, where i – 0,1,2,...k is the lag,
ε – is error term, non-autocorrelated, with normal distribution, zero mean, constant variance,
α, β_i – are regression coefficients.

Parameters of this function are difficult to estimate in practice because of the necessary existence of multicollinearity and autocorrelation. On the basis of a priori knowledge and economic facts, limitations should be introduced: it should be assumed that there is a certain regularity with which independent variables influence dependent variable. This is the concept of distributed lag, when a limitation is applied to regression coefficients, e.g. it is assumed that these coefficients (βs) are decreasing by geometric pro-

gression (this is the traditional distributed lag model); or βs will increase at the beginning, and decrease afterwards.

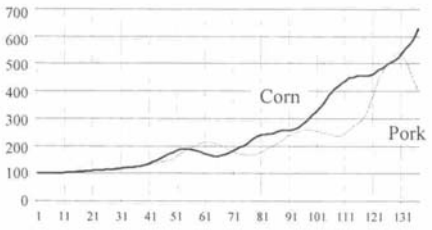
The most important Distributed Lag Models

The most important models and processes are demonstrated with the help of the following example. Databases are:

X – crumbled corn, monthly average price from 1985 VIII. 1. to 1997. XII. 31, 149 monthly values,
Y – pork, monthly average price on animal markets, for the same time period.[2]

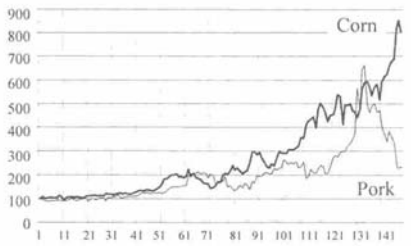
The lagged relation can be seen well from the figures below: corn prices (price movement, peaks) are followed by pork price movement. It means that pig breeders have increased cost, and will raise their prices. The reason for this lagged connection is technological, in this case it is the breeding period.

Figure 1. Monthly process of corn and pork moving average values
(137 monthly data)



January 1986 – 31 July 1997

Figure 2. Moving average prices of corn and pork
(149 monthly data)



August 1985 – 31 December 1997

Source: The corresponding volumes of Statisztikai havi közlemények (Central Statistical Office. Budapest.).

Simple Lag Models

Simple Lag Models are those where an event depends on its own (or other events') earlier values, but the length of this period can be determined.

$$Y_t = f_{(X_{t-i})} \qquad /2/$$

where

Y – is the dependent variable,
X – is the independent variable,
t – is the period of time (e.g. year, quarter, etc.),
i – 1, 2, 3…k is the lag.

[2] 12 element moving averages are calculated. They were divided by the first data and multiplied by 100 in order to make the two data series comparable.

In linear case:

$$Y_t = \alpha + \beta X_{t-i} + \varepsilon_i \qquad (i=1, 2, 3, \ldots j) \qquad /3/$$

If i=2 :

$$Y_t = \alpha + \beta X_{t-2} + \varepsilon_t \qquad /4/$$

For i = 1, 2, 3, 4, and 5, equations are created where the names are: LIN1, LIN2, LIN3, LIN4 and LIN5 respectively. Testing procedure is running for all the models. Theoretical conditions are tested: whether the model is significant (R^2 , F-statistics), or not, when the estimated regression coefficients are significantly different from zero; independent variables are linearly independent, therefore the probability of multicollinearity is below the limit; there is no significant autocorrelation; the model is homoscedastic, the variance of residuum is constant. If there are more models fulfilling these conditions, the model where the fit is better is accepted: the R^2 value is larger. LIN0 means zero lag. Results are summarised in Table 1.

Table 1

Summary results of Simple Lag Models

Statistics	LIN0 (i=0)	LIN1 (i=1)	*LIN2 (i=2)*	LIN3 (i=3)	LIN4 (i=4)	LIN5 (i=5)
R^2	0.62	0.65	0.68	0.70	0.71	0.71
	OK	OK	OK	OK	OK	OK
D–W-statistics	0.2	0.2	0.21	0.27	0.26	0.26
	BAD	BAD	BAD	BAD	BAD	BAD
Homoscedasticity	h=2.96	h=2.92	h=2.74	h=2.56	h=2.53	h=2.51
	p=1	p=1	p=1	p=1	p=1	p=1
	OK	OK	OK	OK	OK	OK
α	10.3	8.8	7.3	6.47	6.95	7.57
t-statistics	1.5	1.345	1.16	1.07	1.86	1.26
	BAD	BAD	BAD	BAD	BAD	BAD
β_{t-i}*	7.4	7.6	7.7.	7.87	7.9	7.93
t-statistics	15.5	16.6	17.7	18.7	18.3	18.8
	OK	OK	OK	OK	OK	OK

In the case of significant autocorrelation estimations, the ordinary least square method can be misleading. If the origin of autocorrelation can be found in the non-explained part of the regression model, iterative parameter estimation is reasonable instead of the modification of the model. A transformation with the help of the autocorrelation coefficient results in reduced autocorrelation value. This procedure can be described in the following way:

$$y_t - \tilde{\rho} y_{t-1} = \beta_0 (1 - \tilde{\rho}) + \beta_1 (x_{1t} - \tilde{\rho} x_{1t-1}) + \ldots + \beta_k (x_{kt} - \tilde{\rho} x_{kt-1}) \qquad /5/$$

This procedure is known as Cochrane-Orcutt (CORC) iteration procedure.[3]

[3] See in *Hajdú, O. – Herman, S. – Pintér, J. – Rédey, K.*: Ökonometriai alapok. Tankönyvkiadó. Budapest. 1987. 59–61. p.

While β_k (i=1,2,...k) regression coefficients can be directly evaluated, β_0 parameter has to be transformed in order to fit to the original model.

$$\beta_0(1-\hat{\rho}) = \alpha_0$$
$$\beta_0 = \alpha_0 / (1-\hat{\rho})$$

There is significant autocorrelation in all of the models. Applied CORC methods were inefficient, because the value of the *D–W*-statistics has not improved properly, and the explanation power of the model decreased at the same time. Therefore these models are not used for forecasting purposes. However, it can be determined that a 3-period lag seems to be the most efficient.

Naiv Distributed Lag Models

The model, elaborated by *Fisher, I.*,[4] is called naiv distributed lag model. Equation is based on a short cut theory: the effect of X variable on the Y variable is the largest one in the first period, and decreasing afterwards. Selection procedure is the same as before.

Fisher's equations:

1. Fisher 1 (*F*1)

$$Y_t = \alpha_0 + \beta_1(2X_t + X_{t-1}) + \varepsilon_t \qquad /6/$$

Let:

$$F_1 = (2X_t + X_{t-1})$$
$$Y_t = \alpha_0 + \beta_1 F_1 + \varepsilon_t$$

2. Fisher 2 (*F*2)

$$Y_t = \alpha_0 + \beta_2(3X_t + 2X_{t-1} + X_{t-2}) \qquad /7/$$

Let:

$$F_2 = (3X_t + 2X_{t-1} + X_{t-2})$$
$$Y_t = \alpha_0 + \beta_2 F_2 + \varepsilon_t$$

3. Fisher 3 (*F*3)

$$Y_t = \alpha_0 + \beta_3(4X_t + 3X_{t-1} + 2X_{t-2} + X_{t-3}) \qquad /8/$$

Let:

$$F_3 = (4X_t + 3X_{t-1} + 2X_{t-2} + X_{t-3})$$
$$Y_t = \alpha_0 + \beta_3 F_3 + \varepsilon_t$$

Results can be transformed back in all cases into the original variables. Parameter estimation of α_0 is neglectible.

[4] *Fisher, I.*: Note on a short-cut method for calculating distributed lags. *Bulletin de l'Institut International de Statistique*. 1937. No. 3.

The results of model estimations are presented in Table 2.

Table 2

Results of Fisher's models

Name	F1	F2	F3
R^2	0.64	0.65	0.72
	OK	OK	OK
D–W-statistics	0.14	0.12	0.12
	BAD	BAD	BAD
Homoscedasticity	h=2.98	h=2.97	h=2.69
	p=1	p=1	p=1
	OK	OK	OK
α_0	8.34	7.45	3.94
t-statistics	1.2	1.1	0.65
	BAD	BAD	BAD
β_t	2.53	1.28	0.81
t-statistics	16.1	16.44	19.2
	OK	OK	OK

Autocorrelation is significant in all the models; the filtering procedure has not been efficient, therefore these models are not used later.

Alt-method[5]

In stage 1 Y_t value is explained by X_t value; in stage 2 by X_{t-1}, and so on, until the model is relevant.

1. Alt-method in stage 1: Alt1

$$Y_t = \alpha_0 + \beta_0 X_t + \varepsilon_t \qquad /9/$$

2. Alt-method in stage 2: Alt2

$$Y_t = \alpha_0 + \beta_0 X_t + \beta_1 X_{t-1} + \varepsilon_t \qquad /10/$$

Results of calculations are depicted in Table 3. They prove, that Alt methods are not appropriate in this case, because R^2 values do not differ significantly from zero. Alt's first method is the same as LIN0 which was shown before, therefore only the results of Alt2 method are:

R^2	0.65	Multicollinearity x^2	162	β_1	1.3
	OK		p=1.0	*t*-statistics	0.78
D–W-statistics	0.16		BAD		BAD
	BAD	α_0	8.07	β_2	6.34
Homoscedasticity	h=2.95	*t*-statistics	1.2	*t*-statistics	3.82
	p=1		BAD		OK
	OK				

[5] *Alt, F.L.*: Distributed Lags. *Econometrica.* 1942. No. 10.

Reversed V Lag Models

Weights increase for a certain time period, and decrease afterwards. This type of distribution of weights is called reversed *V* lag models.[6]

One method of estimating this type of reversed *V* lag models is elaborated by *Solow, R. M.*, and is called Pascal distributed lag model.[7] Koyck worked out the second method.[8] These types have common theoretical roots.

Equation /2/, which is the basic equation of distributed lag models, can be rewritten as:

$$Y_t = \alpha + \beta(w_0 X_t + w_1 X_{t-1} + w_2 X_{t-2} + \ldots + w_k X_{t-k} + \ldots) + \varepsilon_t \qquad /11/$$

where w_i are relative weights, a type of probability; consequently in equation /11/ the weights multiplied by the β result in the expected value (i=0,1,2,3,.....∞).

w_i weights (i=1,2,...k) in the case of Pascal distribution (negative binomial distribution) are the following:

$$0 \le w_i \le 1 \qquad \beta \sum_{i=0}^{\infty} w_i = 1 \qquad w_i = \binom{r+i-1}{i}(1-\lambda)^r \lambda^i = \frac{(r+i-1)!}{i!(r-1)!}(1-\lambda)^r \lambda^i \qquad /12/$$

Considering, that n elements' k class combination is:

$$\binom{n}{k} = \frac{n!}{k!(n-k)!}$$

where:

r – is the order of distribution; positive integer value: 1, 2, 3 ...,
i – is the lag, 0, 1, 2, ...k,
λ – is the parameter, estimated from the model.

For example, in the case of i=2:

$$w_2 = \binom{r+2-1}{2}(1-\lambda)^r \lambda^2 = \frac{(r+2-1)!}{2!(r-1)!}(1-\lambda)^r \lambda^2 = \frac{(r+1)r}{2!}(1-\lambda)^r \lambda^2 \qquad /13/$$

Equation /11/ can be rewritten as:

$$Y_t = \alpha + \beta(1-\lambda)^r \left\{ X_t + r\lambda X_{t-1} + \frac{r(r+1)}{2!}\lambda^2 X_{t-2} + \ldots + \frac{r(r+1)(r+2)\ldots(r+k-1)}{k!}\lambda^k X_{t-k} + \ldots \right\} + \varepsilon_t =$$

$$= \alpha + \beta(1-\lambda)^r \sum_{k=0}^{\infty} \binom{r+i-1}{i} \lambda^i X_{t-i} + \varepsilon_t$$

[6] *Vető, Istvánné*: A dinamika vizsgálata autoregressziv és osztott késleltetésű modellekkel. Központi Statisztikai Hivatal. Budapest. 1980. 47 p.
[7] *Solow, R. M.*: On a Family of Lag Distributions. *Econometrica*. 1960. No 2. 393–413. p.
[8] *Koyck, L. M.*: Distributed Lags and Investment Analyses. North-Holland Publishing Co. Amsterdam. 1954. 100 p.

If r=1 then

$$w_i = \binom{r+i-1}{i}(1-\lambda)^r\lambda = (1-\lambda)\lambda^i$$
$$(1-\lambda)\beta = \beta_i$$

the Pascal distribution is reduced to geometric lag distribution. If the value of r increases, then the turning point of the increasing period occurs at larger lag period. Geometric lag model is, using Equation /2/:

$$Y_t = \alpha + \beta_0(X_t + \lambda X_{t-1} + \lambda^2 X_{t-2} + \ldots + \lambda^k X_{t-k} + \ldots) + \varepsilon_t$$

Multiplied by β_0, and solved the equation of $(Y_t - \lambda Y_{t-1})$, Koyck's first method is derived:

$$Y_t = \alpha + \beta_0 X_t + \beta_0\lambda X_{t-1} + \beta_0\lambda^2 X_{t-2} + \ldots + \beta_0\lambda^k X_{t-k} + \ldots + \varepsilon_t \qquad /14/$$
$$\lambda Y_{t-1} = \lambda\alpha + \beta_0\lambda X_{t-1} + \beta_0\lambda^2 X_{t-2} + \beta_0\lambda^3 X_{t-3} + \ldots + \beta_0\lambda^k X_{t-k} + \ldots + \varepsilon_{t-1}$$

consequently:

$$Y_t - \lambda Y_{t-1} = \alpha(1-\lambda) + \beta_0 X_t + (\varepsilon_t - \lambda\varepsilon_{t-1}) \qquad /15/$$

because the other members will be eliminated. It can be seen, that in /15/ the value of the error term depends on the previous error term, and it has the autocorrelation problem in itself. Traditional *D–W*-statistics is not appropriate for testing this autocorrelation,[9] consequently the calculated *D–W*-statistics is only an informative test. However, this problem in practice is not so serious, especially if the sample size is big.[10]

A function is derived with the rearrangement of this equation, that is appropriate for estimation, considering, that

$$\alpha(1-\lambda) = \varpi$$
$$Y_t = \varpi + \beta_0 X_t + \lambda Y_{t-1} \qquad /16/$$

Parameters in /14/ can be estimated with OLS, with the help of the following relationship:

$$\varpi = \alpha(1-\lambda)$$
$$\alpha = \frac{\varpi}{(1-\lambda)}$$

λ value is derived from the model, because it is the regression coefficient of Y_{t-1}, while β_0 is the regression coefficient of X_t. It can be seen, that the quotient of any two neighbouring elements is a constant λ value that can have values between 0 and 1.

[9] *Kiss, T.*: Koyck és Solow modelljének felhasználása a döntéselőkészítésben. *Statisztikai Szemle*. 1985. No. 10. 1001–1011. p.

[10] *Hunyadi, L.*: Megosztott késletetésű modellek. *Szigma*. 1980. No.1–2. 57–68. p.

Function that is appropriate for analysis and forecasting is:

$$Y_t = \alpha + \beta_0 X_t + \beta_0 \lambda X_{t-1} + \beta_0 \lambda^2 X_{t-2} + \ldots + \beta_0 \lambda^k X_{t-k} + \ldots + \varepsilon_t \qquad /17/$$

Using the sum of β parameters, the accumulated effect is also available. An example for this is: if the independent variable is the sum of the investments in operation, then the accumulated effect is 1, because usually all of the investments will be in operation after a while.

$$\beta_0 (1 + \lambda + \lambda^2 + \lambda^3 + \ldots) = 1$$

Let the sum of the geometric sequence be s, with q_0 starting value (β_0 in this case), and q is the quotient of two neighbouring elements (λ in this case) which is constant.

$$s = q_0 \left(\frac{q^n - 1}{q - 1}\right) = \beta_0 \frac{\lambda^n - 1}{\lambda - 1} = \beta_0 \frac{1}{1 - \lambda} = 1 \qquad \beta_0 = 1 - \lambda$$

because

$$\lim_{n \to \infty} \lambda^n = 0$$

where $0<\lambda<1$.

In this example the result of the estimation of Koyck's first model (Pascal distribution, r=1):

$$Y = -0.37 + 0.135 X_t + 1 Y_{t-1}$$

λ=1, consequently the assumption of a geometric sequence is not proved. The measure of multicollinearity is high; the other tests were adequate.

Koyck's second model [11] differs from the first, because X_t and X_{t-1} variables have arbitrary weights,[12] and the geometric progress starts only afterwards. Because of the basic conception of geometric progression:

$$Y_t = \alpha + \beta_0 X_t + \beta_1 (X_{t-1} + \lambda X_{t-2} + \lambda^2 X_{t-3} + \ldots + \lambda^{k-1} X_{t-k}) + \varepsilon_t$$

is the appropriate equation. The task is the calculation of α, β_0, β_1, and λ parameters. Multiplied by β and rearranged the equation, creating $Y_t - \lambda Y_{t-1}$:

$$\begin{aligned}
Y_t &= \alpha + \beta_0 X_t + \beta_t X_{t-1} + \beta_1 \lambda X_{t-2} + \beta_1 \lambda^2 X_{t-3} + \ldots + \beta_1 \lambda^{k-1} X_{t-k} + \varepsilon_t \qquad /18/ \\
Y_{t-1} &= \alpha + \beta_0 X_{t-1} + \beta_1 X_{t-2} + \beta_1 \lambda X_{t-3} + \beta_1 \lambda^2 X_{t-4} + \ldots + \beta_1 \lambda^{k-1} X_{t-k-1} + \varepsilon_{t-1} \\
\lambda Y_{t-1} &= \lambda\alpha + \lambda\beta_0 X_{t-1} + \lambda\beta_1 X_{t-2} + \beta_1 \lambda^2 X_{t-3} + \beta_1 \lambda^3 X_{t-4} + \ldots + \beta_1 \lambda^k X_{t-k-1} + \lambda\varepsilon_{t-1} \\
Y_t - \lambda Y_{t-1} &= \alpha(1 - \lambda) + \beta_0 X_t + (\beta_1 - \lambda\beta_0) X_{t-1}
\end{aligned}$$

[11] *Griliches, Z.*: Distributed Lags: A survey. *Econometrica.* 1967. No. 1. 16–49. p.; *Sipos, B.*: Industrial Price Forecasting. IGK. 1982. No. 4. 40–45. p.

[12] See Note 9.

After rearrangement:

$$Y_t = \alpha(1-\lambda) + \beta_0 X_t + (\beta_1 - \lambda\beta_0) X_{t-1} + \lambda Y_{t-1}$$

Estimation of Y_t dependent variable with the help of X_t, X_{t-1}, Y_{t-1} independent variables:

$$Y_t = \varpi + \beta_0 X_t + \mu X_{t-1} + \lambda Y_{t-1} \qquad /19/$$

where ϖ, β_0, μ and λ help to calculate β_1 and α values:

$$\beta_1 = \mu + \lambda\beta_0, \quad \alpha = \frac{\varpi}{1-\lambda} \quad \text{and} \quad \beta_i = \lambda \cdot \beta_{i-1}, i = 2,3,4,\ldots$$

The estimated function is:

$$Y = -0.568 - 0.518X_t + 0.757X_{t-1} + 1Y_{t-1}$$

λ=1, consequently the conclusion is the same as it happened to be in the case of Koyck's first model. The measure of multicollinearity is high; the other tests were adequate.

Koyck suggests a modified estimation to decrease autocorrelation, because Y_{t-1} is the independent variable in the model. The error term has autocorrelation as well. The modified estimation is also available in the REGAL software:

$$Y_t - \rho Y_{t-1} = \varpi(1-\rho) + \beta_1(X_{1t} - \rho X_{1(t-1)}) + \ldots + \beta_k(X_{kt} - \rho X_{k(t-1)}) \qquad /20/$$

where ρ is the first order autocorrelation coefficient (correlation coefficient between ε_t and ε_{t-1} residuum). The original constant parameter can be calculated by:

$$\varpi(1-\rho) = c, \quad \varpi = c/(1-\rho)$$

The average length of lag is:

$$\sum_{i=0}^{k} \beta_i \Big/ \sum_{i=0}^{k} \beta_i$$

The meaning of $\sum_{i=0}^{k} \beta_i$, that is the sum of parameters is: increasing X variable with 1 unit results in that amount of increase in k periods (e.g. quarters) in the value of Y dependent variable.

Let $r = 2$. In this case the equation of Pascal lag is (Pascal 2):

$$y_t = \frac{\beta(1-\lambda)^2}{(1-\lambda L)^2} x_t + u_t \qquad /21/$$

where

L – is the lag operator,
r – is the order of distribution,
u – is the error term.

It can be seen that in /22/ the coefficients of y_{t-1} and y_{t-2} contain λ and only λ. This fact causes estimation problem,[13] where estimating λ can be calculated in the following.

$$\begin{aligned} y_t(1-\lambda L)^2 &= \beta(1-\lambda)^2 x_t & y_t - 2\lambda y_{t-1} + \lambda^2 y_{t-2} &= \beta(1-\lambda)^2 x_t \\ y_t(1-2\lambda L+\lambda^2 L^2) &= \beta(1-\lambda)^2 x_t & y_t &= 2\lambda y_{t-1} - \lambda^2 y_{t-2} + \beta(1-\lambda)^2 x_t \end{aligned} \qquad /22/$$

Write equation /22/ in the following way:

$$y_t = ax_t + by_{t-1} + cy_{t-2}$$

Estimation of coefficients λ can be computed:

$$\lambda = \frac{b \pm \sqrt{b^2 - 4c}}{2} \qquad /23/$$

where

$0<b<2$,
$-1<c<1$
$1-b-c>0$, and
$b^2 = -4c$

The average lag is:

$$\theta = \frac{b+2c}{1-b-c}$$

where $b = \lambda_1 + \lambda_2$, $c = -\lambda_1\lambda_2$; λ_1 and λ_2 are two roots for λ. In the example:

a = -0.074, b=0.9101, c=0.1014

Conditions are not fulfilled, because $1-b-c < 0$. Therefore it is not worth calculating either the value of λ, or the average lag.

Almon's polynomial Distributed Lag Models

Almon assumed,[14] that weights of regression models, which contain predetermined lag period, follow a polynomial,[15] e.g. weights can be estimated by a linear function:

$$\begin{aligned} \hat{y}_t &= a_0 + b_0 x_t + b_1 x_{t-1} + \ldots + b_k x_{t-k} \\ b_0 &= d_0 + d_1 \\ b_1 &= d_0 + 2d_1 \\ &\vdots \\ b_k &= d_0 + (k+1)d_1 \end{aligned}$$

[13] See Note 11.
[14] *Mundruczó, Gy.*: Alkalmazott regressziószámítás. Akadémiai Kiadó. Budapest. 1981. 171–178. p.
[15] *Kiss, T.*: Almon osztott késleltetésű modelljének felhasználása a döntéselőkészítésben. *Statisztikai Szemle*. 1986. No. 2. 161–175. p.

If the original b_0, $b_1 \ldots b_k$ parameters are replaced by their estimations, then the following equation is created:

$$Y_t = \alpha + d_0 \sum_{i=0}^{k} X_{t-1} + d_1 \sum_{i=0}^{k} (i+1) X_{t-i}$$

Let:

$$\begin{aligned} D_0 &= \sum_{i=0}^{k} X_{t-i} \\ D_1 &= \sum_{i=0}^{k} (i+1) X_{t-i} \\ Y &= \alpha + d_0 D_0 + d_1 D_1 + \varepsilon_i \end{aligned} \qquad /24/$$

Let $k = 2$

$$D_0 = \sum_{i=0}^{2} X_{t-i} = X_t + X_{t-1} + X_{t-2}$$

$$D_1 = \sum_{i=0}^{k} (i+1) X_{t-i} = X_t + 2X_{t-1} + 3X_{t-2}$$

The estimation can be calculated in this way; Y is the dependent variable, D_0 and D_1 are independent variables, while parameters of α, d_0 and d_1 are estimated by the OLS.

In the example:

$$Y = 6.51 - 3.49 D_0 + 3.049 D_1$$

The model has significant autocorrelation and multicollinearity, therefore it can not be used for analytic or forecasting purposes.

Results of the models described above (Koyck 1 and 2, and Almon) are shown in Table 3.

Autocorrelation values of the two Koyck models are acceptable and, because of the sample size, in spite of the discussed one, bias is acceptable. Multicollinearity values are significantly large, that is a warning against analytic purposes. However, models can be used for forecasting purposes assuming that the relationship between independent variables remain unchanged.

These models have a drawback, that is X_t value should be forecasted in a way that would take an additional error in the extrapolation of Y value. In this case it is assumed that the last actual value will be repeated in the following period (X_t). Extrapolation is performed within the model, in other words the last period's value will be extrapolated (providing that last period's data is not known), which allows to check the validity of extrapolation.

The used X value is 14.2, that is the data of the 148th month (the month before the last month). This value is X_{t+1}, for extrapolating Y_t value for the 149th month. The used Y_{t-1} value is 318.8 that is also the value in month 148. Extrapolated values are depicted in Table 4.

Table 3

Results of Koyck's and Almon's models

Name	Koyck 1	Koyck 2	Almon
R^2	0,9798	0.979	0.686
	OK	OK	OK
D–W-statistics	2.15	2.04	0.14
	OK	OK	BAD
Homoscedasticity	2.129	2.16	2.85
	p=0.828	p=0.878	p=1.00
	OK	OK	OK
Multikollinearity x^2	61.7	228.16	350
	p=1.00	p=1.00	p=1.00
	BAD	BAD	BAD
α_0	-0.38	-0.56	6.05
t-statistics	-0.22	-0.34	1.02
	BAD	BAD	BAD
β_1	0.135	-0.51	-3.5
t-statistics	0.73	-1.26	-1.42
	BAD	BAD	BAD
β_2	1.00	0.757	3.05
t-statistics	49.56	1.783	2.05
	OK	OK	OK
β_3		0.994	
t-statistics		47.4	
		OK	

Table 4

Extrapolation with Koyck's models

	Month	X_t	Y_{t-1} value	Y_t value
Extrapolated Y – Koyck 1	149	14.20*	318.8	321.81
Extrapolated Y – Koyck 2	149	14.20*	318.8	319.8

* Accepted, as estimated X_t value from previous period.

The actual Y value in month 149 is 300 which means a big difference from the extrapolated value. Koyck's second model provided the better estimation, but the lower value of the confidence interval (5 per cent significant level) is 311.17, which is far higher than the actual value.

In the case of Koyck's models the estimation of an expected geometric lag was not successful, because the value of λ was 1 in both cases. That can also be the reason for the fact, that the extrapolation was not successful. Obviously, a sudden change in Y – that the model can not follow – may also be the reason.

As a summary it can be ascertained that the usage of distributed lag models for explaining the connection between the prices of corn and pork was not successful, because none of the models provided appropriate results.

PUBLIC OPINION SURVEYS IN HUNGARY, 1980–1997

JULIA SZALAI

The aim of this paper is to give an overview on the ways in which public opinion surveys have affected the shaping of administrative reforms in post-1989 Hungary. It is hoped, that by looking at these reforms through the window of surveys, some insight will be gained on the in-depth changes in governance throughout the recent past. The origins of the gradual alterations in adminstration date back to the times of late-socialism. Due to a long period of 'preparatory' expert discussions and public debates about the continuation of those cautious reforms that had been initiated in the early 1980's, Hungarian society entered the 1990's with rather elaborated and widely shared ideas about the necessary transformation of public administration in its move towards a democratic order. By this time, the core elements of the new approach to governance had been crystallised and were supported by the consenstic political values of openness, accountability and service to the public. In spring 1990, these fundamental principles provided guidance to the formulation of the first acts of the newly elected Parliament to launch the radical restructuring of the entire administrative system. In line with these legislative deeds, new institutions were set up within a fortnight and a number of new laws limited the 'rights' of the central bodies of governance (ministries, police, state-offices, etc.) to intervene from above. The institutional and legal framework of a new democracy was thus created within an exceptionally short time. However, to fill the framework with meaningful content proved to be a more difficult task. Hence, after several years of experience, it is justifiable to ask a few questions about the actual outcome of the reforms that have been undertaken. The first of these questions relates to the essence of the transformation: how far do the structural changes in administration really serve the two major tasks of moving from a command-regulated economic order to a market-based one, and from a top-down control over politics to the bottom-up representation of interests? Secondly, what forms exist for expressing the needs of the various segments of 'the public', and what is their route to the decision-making bodies and administration? Thirdly, do public opinion surveys play any role in giving weight to diverse social, economic and political interests?

These are those major questions that the paper attempst to respond to by discussing some decisive steps of administrative reforms as reflected in a range of public opinion surveys. After an overview on the history and the significant features of public opinion surveys, their implementation, evaluation and regular monitoring will be presented. Be-

cause of the limited extent of the article the use of public opinion services in policy cycle as regards health-care reform, budgetary reform as well as the images and the purity of public organisations are not dealt with.

Brief history and some current features of public opinion surveys

By the 1980s, regular measurement of public opinion as a useful (and necessary) preparatory tool in the decision-making process became acknowledged not only by professional circles, but also by the authorities of the Communist Party. The Party-sponsored surveys in those days served to 'pre-test' the reactions of the various social groups to those planned actions that the Communist Party was already determined to take. In other words, public opinion polls provided a quick 'barometer' for politicians and their results were used to legitimise either increased caution, or, on the contrary, the need for speeding up the reforms. Thus, officially commissioned surveys were centred around issues in the forefront of the reforms: first of all, they had to test people's attitudes toward the continuation of economic changes in the direction of marketisation. In addition, a number of polls were designed to measure people's optimism/pessimism toward the foreseeable future, their observations on the functioning of a range of public institutions from health-care to the educational system and their expectations from the social services, etc.

Since all these issues were highly politicised, it goes without saying that public opinion surveys were under the strict control of the Communist Party. The main organisation in charge of running them was the Mass Communication Research Centre (MCRC), an institution financed rather generously, directly from the state budget and subordinated to the Party-nominated President of the Hungarian State Television and Radio Broadcasting Company. The results of its surveys were not published until the late 1980's. However, some of the conclusions (backed with 'cited' scattered data) could appear under the name of authors otherwise employed by the Centre. Despite all the ambiguities of the authorities, public opinion research was highly rated as an important source of information and as a reliable tool for measuring public approval of the reforms. In acknowledgement of their usefulness, an ever widening circle of social science research institutes was entrusted to investigate an extensive range of issues from centrally allocated resources. Thus, from the mid-eighties onwards, apart from the MCRC, public opinion surveys were conducted either independently, or in conjunction with other empirical investigations in nearly all major social science research institutions and also in the Central Statistical Office. These surveys were financed exclusively from public funds, either in direct contract between the research-team and one or another organ of the Party or the state administration, or through the slowly evolving schemes of grants for research in service of governance. In the latter cases, the degree of freedom to publish the research results was greater, but strict control was gradually lifted also in cases of directly sponsored investigations. When, after more than two decades of closure, sociology departments were re-opened in the major universities in the 1970s, due to the strong traditions of empirical research in Hungarian sociology, survey methods were taught from the outset as inherent parts of the curricula. The professional knowledge in running opinion polls was further extended by those internal courses that the leading researchers of the MCRC organised for their permanent interviewers and research assistants. With this well-established ex-

pertise in the background, it is hardly surprising that after 1989, the increased need for public opinion research has been easily satisfied, at least from the viewpoint of trained personnel available.

However, the collapse of socialism generated in-depth changes in the organisational arrangements of survey research. In 1991, the prestigious MCRC was closed down because of its earlier party-affiliation. Its leading researchers went into private business and within a short time, four major research-centres were set up as the offshoots of MCRC. Three out of the four new organisations – Medián, Sonda Ipsos and Modus – are privately owned. The fourth – Public Opinion Research Centre – belongs to the Hungarian Academy of Sciences and is financed partly from the state budget, partly from research-grants applied for in open competition. This latter offspring of the former MCRC is engaged in theoretical work, but also runs opinion-surveys on relatively small samples. Beside the four successors of the MCRC, a number of research institutions appeared on the market of opinion-surveys. However, most of them run polls in addition to their basic activities (media-studies, customer service, market-research, environmental studies or 'ordinary' sociological work). In most of the cases, these surveys are one-time thematic investigations with no follow-up, adjoined to the focal subject of the project (the themes vary from topics such as local environmental issues to views on social stratification, the changing labour market, private business, entrepreneurial habits, changes in household economies and lifestyles, to choices in the school-system, patterns of occupational mobility, work satisfaction, etc., or to some 'classical' subjects of market-research such as studies of consumer satisfaction or evaluation of certain types of business). Regularly repeated polls are much less frequently carried out and even then only on a narrow thematic basis. However, the two major privately owned public opinion centres – Medián and Sonda Ipsos – do such work in order to follow the changes in voting behaviour and general political attitudes.

Although it is difficult to make numeric estimations, the topical composition of public opinion surveys has greatly changed in the period under review. In comparison to the earlier focus on attitudes toward the economic reform, the most important novelty is surely the current dominance of polls measuring trends in people's voting behaviour, political thinking and especially, in their attitudes towards the various parties. Willingness to participate in the elections, popularity of the parliamentary parties and the leading politicians, public support for the programmes of the competing political actors are among the topics of these surveys, some of which have been repeated regularly and simultaneously by the two most respected agencies, Medián and Sonda Ipsos. These regular polls are financed by the press (the leading newspapers and journals have their 'own' centres to work with). In addition, the parties also commission regular polls – though the findings are rarely published but are kept for internal 'orientation'. Another recurrent topic of the polls (never investigated before 1989) is the evaluation of governance: again, it is mainly a few newspapers that commission surveys of this type. Alongside them, the widespread needs of local governments dominate the scene. They approach the public opinion centres with requests to get feed-back either about the acceptance of certain local programmes or about the general evaluation of the work of the elected bodies and the offices of the municipality. A further bunch of public opinion polls consists of surveys on people's economic expectations and their views on the progress of certain elements of

ongoing economic restructuring (here again, it is the mass media who show the greatest interest in such investigations, though some of them are run from research grants.) In addition, the trade unions should be mentioned among the sponsors of opinion polls. From time to time they commission research on 'classical' topics of unionism, such as issues of welfare, views on unemployment and poverty, people's occupational expectations or their reactions to the anticipated changes in the administration and delivery of certain social services.

A striking feature of the topical distribution of surveys is the very low representation of studies on 'elite-views' among them. According to the unanimous information provided by the major poll-centres, investigations on the visions, reform ideas, expectations and views of those in key-positions of decision-making and management are commissioned only at the local level of public administration or in different organisations of public services (mostly in health-care). In contrast to the public sphere, these types of surveys are, however, 'customary' phenomena in the business-world.

Summing up the above, one can report the gradual acceptance of polls as sources of information either as 'pre-tests' of foreseeable reactions to future reforms, or as evaluations of the outcome of institutional changes of the recent past. In general, macro-level bodies of decision-making rely less on survey-results than local authorities do. It seems that the closer those designing the changes are to those being 'subjects' of them, the richer the utilisation is of the empirical findings of population-surveys (polls included among them) in determining the concrete steps, priorities and the time-table of the reforms.

In the followig, some of the most decisive spheres of administrative reform will be outlined and the major findings of public opinion polls investigating people's views about them will be discussed.

The performance of institutions, government and public administration

The recent history of democracy has been short in Hungary to be sure about its unconditional acceptance by all citizens and all political agents. Therefore, it is essential to know: to what extent do people support these institutions which are there to safeguard it? How far has the functioning of these new institutions met people's expectations – have they developed trust in them, or has the degree of distrust increased over time? By raising these comprehensive questions, changes of the general political climate are approached – an issue which is important and interesting enough to account for broad public resonance. Thus, it is not surprising that the domestic and foreign press, the different television and radio broadcasting agencies and a range of independent foundations are willing to sponsor regularly repeated surveys to get as detailed responses as possible. However, it is worth noting that so far, central government has not commissioned such investigations. Although the evaluation of its work is a recurrent topic in these types of polls, success or failure of the institutions of the state apparently is not rated on public assessment, those in power measure efficiency in different terms. As subsequent surveys immediately after the first free elections showed convincingly, there is a certain degree of discrepancy between lay and official expectations on performance. While people hold in high esteem those institutions which seem to stick to their own rules and are open to

public control and criticism, the administration's own evaluation would appreciate bureaucratic virtues, loyalty and the strength of its political support in the first place.[1]

The yearly published summary reports of the major public opinion survey centres give further insight into the nature of this departure. When approached with the direct question: 'how important are politics to you', the great majority would respond by saying 'I do not care'. People usually regard politics as 'dirty', 'disgusting', 'full of hatred and quarrels', a sphere where 'the actors follow just their own particular interest' etc. Despite their negative views on politics in general, Hungarians are, however, exceptionally well informed, both about the institutions and the major actors in current political life. In addition, they would give quite high trust to these institutions, even if they do find problems in their current functioning. This controversial relation to politics is reflected also in people's voting behaviour: though the prognoses had anticipated a definite decrease in participation in the second elections in 1994, in fact, the rates actually outweighed those of the first ones in 1990. At the same time, political events (meetings organised by the parties, broadcasting of the sessions of Parliament, organised mass-demonstrations etc.) are usually followed with disinterest and neither do the parties report substantial increase in their membership. All in all, people would regard politics as a matter of professionalism: they refuse the noisy self-made figures and would choose instead those who had proved to do a good job previously.[2]

Another general thread of political thinking is people's distrust in the parties as representatives of different ideologies, interests and political strife. While the support given to the abstract concept of multi-party based democracy is high, the actual embodiments of the concept are not very welcome. People usually do not see decisive differences among the various party-programmes, though they would correctly rank the parties either on the liberal-conservative, or on the ruling-opposition divide.[3] The simultaneous surveys of the major poll-centres unanimously confirm that Hungarian society trusts most those institutions in service of the democratic order which are neutral in their party-affiliation.

Although detailed questions have rarely been asked about the evaluation of the work of the local governments in the above mentioned regular public opinion polls on the general 'state of the arts' in public administration, the 'ranking' of the municipality amongst the institutions in the service of the citizens is still asked in the monthly surveys of both Medián and Sonda Ipsos. As a measure of general satisfaction, it is worth noting that local governments are among the institutions enjoying a high degree of trust. In both sets of surveys, their average scores (on a scale rating the institutions between 0 and 100) have been around 50-57 in the years under review, and in contrast to Parliament, the government, ministries, trade unions or the parties, their good rating has not changed too much over time. The relatively favourable placement of community-level governance is mainly due to the fact that people really feel the change in this regard. While central institutions still prove to be too much distanced and alienated from them, they definitely see more political opportunities to influence the decisions of the municipalities.

[1] *Bruszt, L. – Simon, J.*: A „választások éve" a közvélemény-kutatások tükrében. In: Politikai Évkönyv, 1991. Ed.: *Kurtán, S. – Sándor, P. – Vass, L.* Ökonómia Alapítvány. Budapest. 607–647. p.; *Rabár, F.*: Nyílt levél. i. m. 672–675. p.

[2] *Biró, L. – Bokor, Á. – Hunyadi, Zs.*: Fejezetek a Szonda Ipsos 1994. évi közvéleménykutatásaiból. In: Politikai évkönyv, 1994. Ed.: *Kurtán, S.– Sándor, P. – Vass, L.* DKMKA. Budapest. 667–688. and 698–714. p.

[3] *Hann, E.* és szerzőtársai: A politikai közvélemény a Medián kutatásainak tükrében, 1991–1994. In: Politikai évkönyv, 1994. Ed.: *Kurtán, S.– Sándor, P. – Vass, L.* DKMKA. Budapest. 1994. 719–757. p.

Views about reform at the local level

As pointed out earlier, the re-shaping of community-level governance belonged to the core-elements of administrative reforms of the 1990s. The two local elections in 1990 and 1994 were accompanied by extensive public interest. This is clearly reflected by the rather high rates of participation on both occasions (the respective ratios were over 50 per cent in the 1990 and 44 per cent in the 1994 elections, with marked variations according to the type of settlement in favour of the villages). Issues related to local government were followed with great concern from the outset. People had high expectations of the new institutions of local-level administration. In their view, the elected new municipalities should firstly embody the rights of the community. In addition, they should guarantee the autonomy of decisions on all internal matters, assist rapid economic advancement and safeguard high standards of a wide range of services for people's daily use.

As also mentioned above, the top-down decentralisation of power and authority was accompanied by a grandiose programme of property-distribution in the hope of creating a stable base for autonomous economic activities. In accordance with the clear liberal drives of the new economic policy, serious attempts were made to reduce the economic weight of the state by delegating a number of earlier centrally performed tasks to local levels. Thus, local authorities were appointed to administer all welfare programmes and also the greater bulk of compulsorily delivered public and social services. To perform their new tasks, they were designated as the owners of the municipal infrastructure in assistance of the various provisions. It was also hoped that by reducing the regulatory role of the central state, further economic advantages would emerge: the actual presence and the costs of bureaucracy and administrative activities would drop, hence, moveable resources for other purposes would be liberated. In this design of a liberal turn, macro-economic claims for efficiency seemed to be in full harmony with the micro-level political demands for disengagement from dictates and control from above. Thus, decentralisation appeared to have an impact much beyond the technical implications of management and administration. It was seen as a straightforward route to democracy and economic prosperity.

The actual execution of these ambitious reforms has been followed from the outset by a range of surveys. Changes in local finances, the diverse policies on service delivery, changing priorities according to the social composition of the settlements, the ordering of the economic tasks and steps of technical developments, variations in the professional considerations on job-creation, welfare-policy, educational and health-policy etc. were among the topics for closer investigation. In conjunction with the collection of hard facts about budgeting and staff-recruitment, most of these surveys also made enquiries about the views of the different bodies in local administration. The surveys were either financed from research-grants or sponsored by the local authorities themselves. Simultaneous opinion-polls were not carried out, neither were surveys of the same nature repeated over time.

Surveys revealing the acceptance of short and longer term policies of the municipalities also usually ask questions about their performance. A recurrent finding of these investigations is the rather good evaluation of the work of the elected councillors and the different local committees. People acknowledge professionalism and give approval even

to restrictive local measures if they 'get the point' in well-founded and clear steps towards economic advancement. It is important to note that party-politics at the local level is generally refused. Communities wish from 'their' self-elected bodies to put aside ideological and political differences and work to come to some sort of compromise on common local matters. In accordance with this orientation, the number of party-affiliated councillors is rather low in the municipalities, and one finds a number of 'strange' coalitions on the local boards unimaginable on any of the higher fora of decision-making.

Amid the favourable general atmosphere, 'outsiders' and those in the various bodies of local governance are in agreement to refuse an increase in local taxes (all three past central governments made attempts to reduce budgetary support and convince the local authorities to make more efforts to raise funding within their community), and would rank the earlier mentioned different functions of local governance rather similarly. When asked about the competing tasks of political representation, the embodiment of community-rights, the administration of decentralised tasks of governance or the provision and distribution of public infrastructure, they give clear priority to the last set of tasks. The overwhelming majority sees self-governments as responsible bodies meeting the welfare needs of their community and providing a number of public and social services. At the same time, they would give them less bureaucratic tasks and would refuse the fact that these bodies should be more preoccupied with economic management and finances.

All in all, local level administration seems to be much more supported by the public than the central state-administration. The locally elaborated programmes reflect the priorities and needs of the community better, therefore, they enjoy a higher degree of support both by the elite and the electorate. Given this rather favourable general climate, regular surveys of the field could provide useful results that should be explored in the preparation of decisions on central schemes for job-creation, infrastructural investments and in the targeted comprehensive programmes for reducing the still remarkable regional inequalities.

Views on EU-integration

After four decades under full-fledged Soviet rule which had been driven by the logic of the cold war, the collapse of socialism suddenly opened the historical chances to renegotiate Hungary's geo-political position. The issues at stake were manifold, ranging from the country's military belonging to the future character of her political, economic, social and cultural life. Although the Communist rule openly oppressed or, at least, strongly de-favoured any such attempts, the deliberate effort to maintain the European traits of society had been an integral part of the daily life of families and local communities throughout the entire period of socialism. Thus, despite all attempts from above to establish the notion of the Iron curtain also in the 'otherness' of various socio-cultural aspects of the prevailing way of life, people's European self-identification has found its way in thousands of Westernised patterns from housing to the most frequent leisure activities to food consumption and the 'Western' style of dressing. This decade-long prehistory of informally sustained 'Europeanism' has to be identified behind the fact that claims to constitute a political and economic order compatible with people's cultural self-definition received nationwide approval among Hungarians around the turn of 1989–

1990. In this context, it is not surprising that all political parties emphasised as one of their very first priorities to start negotiations with the European Union (then EC), NATO and other regional organisations about membership in the important bodies of supra-national policy-formation and decision-making.

However, when facing the huge amount of work that has to be done to pave the road toward representation on the various European boards, initial enthusiasm of the society has somewhat been cooled down. It turned out that neither the prevailing legal system, nor that of education, social security, economic management or the technological regulations of production are compatible with those applied in the Western part of the continent. Thus strong efforts have to be made for a purposeful conversion of all these systems of administration and the process still might take years – if not decades. The foreseeable difficulties did not challenge, however, the publicly supported commitment of the subsequent governments to start the necessary reforms. As parts of the long preparation of full 'entrance into Europe', a number of steps were taken straight after the enactment of the first government in 1990. On the one hand, new institutions and organisations were founded to be the 'professional' bodies in charge of co-ordination among the various governing agencies from the particular aspect of 'Europeanisation'. On the other hand, administrative reforms in all the important public spheres have been permanently observed and re-formulated in the light of regulations taken by the European Union. A corner-stone of the process was the handing over of the 'European questionnaire' in 1996. This event opened the gate to more concrete negotiations between the government and the administration of the EU about the 'schedule' of co-ordinated programmes in preparation of formal membership.

Unlike most other spheres of the ongoing administrative reforms, the proceedings taken to attain Hungary's integration into the European Union have been seriously and regularly monitored by government-financed public opinion surveys. In the recent past, a number of simultaneously run investigations have been commissioned to measure the level of knowledge which various groups of Hungarian society have about the structure of policy-formation and decision-making at the European level, people's evaluation about the nations/regions having the greatest impact on the future of the country, and also their changing attitudes concerning the personal and nationwide consequences of membership. Among these surveys, the most comprehensive ones are the yearly 'Eurobarometer'-studies run in 19 Central and Eastern European countries. In the case of Hungary, it is the MODUS Consulting Ltd. which is responsible for the field-work and the comparative analysis. In addition to the uniform parts of the questionnaire repeatedly run in all participating countries, MODUS also puts up for investigation some of those Europe-related questions which are important for domestic concern in the first place: this set of country-specific questions aims at measuring changes in attitudes toward the inflow of foreign capital, modifications in people's political orientation on the cosmopolitan/autarchic scale and their perceptions about the improvement/worsening of Hungary's development in a longer-term perspective. As the trends of the past years show, parallel to the decrease of full support of neo-liberal economic policy, fears to enter the European market without strong protective policy of the government have been on the increase. Although the majority would still 'vote' for joining the European Union, claims to make more efforts for better training and a deliberate labour market policy to prevent margin-

alisation of the Hungarian labour force have become stronger. In accordance with their more endangered perspectives, it is mainly elderly rural people and urban unqualified workers who see more negative than positive aspects of the ongoing 'Europeanisation', and who openly fear Hungary's future EU-membership.

Hungary on the road to Europe

In Fall, 1996, Sonda Ipsos made a series of public opinion surveys to measure general knowledge about and attitudes towards European integration. The surveys were commissioned by the Ministry of Foreign Affairs and were financed from funds of the PHARE Programme. The study embraced samples of four different social groups which were selected as particularly important ones from the point of view of building up a purposeful government-strategy on the dissemination of information about policies to attain Hungary's EU-membership. The groups singled out for closer investigation were the following: the young, those living in backward rural-agricultural areas, journalists and adults 'in general'. These groups were represented by the following samples: 1,400 respondents were randomly selected from the cohorts aged 16-29; a geographically concentrated sample of the size of 1,000 individuals was chosen to represent the rural-agricultural population; a small sample of 250 journalists was interviewed to reveal the views of those working in various fields of mass communication; and a 'key-sample' of 3,000 individuals aged 18 or above was selected with the classical random methods to gain information about attitudes of the adult population in general.

In accordance with the findings of other surveys, this series of investigations also found that most Hungarians have a positive attitude toward future membership in the EU. Differences behind the average are self-explanatory: the young and middle-aged groups are stronger supporters than the elderly; urban professionals gave more approval than village-dwellers; those in industry and various services saw future membership more advantageous than agricultural labourers. When asked about the reasoning to join the EU, people gave mostly economic arguments – cultural and political ones were less frequently mentioned. As to the future political formation of a united Europe, the relative majority (46 per cent of the 'adult-sample') spoke of a European Confederation, while somewhat less support was given (with 38 per cent of the 'votes') to a 'European United States'. In accordance with these ideas, people thought that trading, environmental or monetary policy are all-European matters, while issues of social policy, education, defence of the borders, or transport should be left at national levels of decision-making.

The surveys showed a relatively high level of knowledge about the foreseeable changes in spheres of employment, property-relations, education, migration or communication. However, information about the organisational structure of the Union proved to be of very low standard. Even less known were the procedures of election to the European Parliament, the symbols of 'Europe', or those recent regulations which have been taken on monetary union.

As to the expected hopes, Hungarians foresee a strengthening of national identity and increased respect for Hungarian culture as a result of future membership. A high proportion of respondents also rates better chances for the country in foreign affairs and in international interest-representation, and a substantial improvement in the general eco-

nomic conditions. As to the disadvantages, the majority fear an increase in the already disturbing phenomena of crime, alcoholism, drugs, suicide, etc. In addition, some domestic problems came up as a cause for great concern. Causes for dismay were the expectable further cuts in social spending, and also the deepening of social and regional inequalities between more and less adaptive parts of society.

Signs of a relatively high degree of solidarity were expressed not only with fellow-Hungarians, but also on the international scale. People proved to be very critical of all 'separatist' actions and of any manifestations of competition among the Central European governments. The vast majority sees Hungary's future in the context of the region, and thinks of the attainment of formal EU-membership together with other 'Visegrad-states'.

In light of these surveys, the spheres to improve dialogue between the government and society appear with great clarity. As a result of the investigation, a 'programme on the advancement of communication' was elaborated by the Office of the Prime Minister in summer, 1997. Starting with August 1997, the major dailies, public radio broadcasting and the Hungarian State Television launched different series on a number of economic, financial, labour market, social, educational and cultural aspects of future integration. These series aim at raising awareness of the specificity of certain policy-areas in the EU, and also at disseminating information on those political and bureaucratic procedures which shape the actions of the Hungarian Parliament and the government in order to take a step further towards membership.[4]

Views on gains and losses of economic reforms

Although the reforms to attain higher efficiency and better performance of the economy had an exceptionally long history in Hungary (dating back to the late 1960s), the collapse of socialism has brought about fundamental changes in the conditions determining the space and scope of steps to be taken towards genuine economic advancement. The unstoppable decline of production from the early 1980s onwards made it clear that production can hardly be further increased amid the given structural conditions of a command-economy. The potential of the cautious reforms proved to be exhausted: the continuation of economic development required fundamental change in the prevailing property-relations. However, such a claim touched upon the strongest political taboos of the socialist regime. Thus, all the radical ideas built on the dominance of private ownership seemed to remain in the drawers forever. But with the systemic changes of 1989–1990, the chances of realising them changed from one moment to the next. On the basis of the ready-made programmes also outlining the necessary legal, financial and organisational steps required for a successful economic transformation, significant measures were taken immediately after the elections of 1990.

The most important amongst them were the acts and regulations on privatisation. Besides the legal acknowledgement of private capital, a number of monetary measures were introduced to speed up the conversion of earlier state-run firms into private business and the formation of small enterprises on the ground of informal production of the second

[4] *Csepeli, Gy. – Závecz, T.*: Várakozások, remények, félelmek: az Európai Únió képe a magyar közvéleményben. In: Politikai évkönyv, 1997. Ed.: *Kurtán, S.– Sándor, P. – Vass, L.* DKMKA. Budapest. 650–669. p.

economy. Thus, within six years, private property became dominant and in 1997 more than 60 per cent of productive assets were in private hands. The expansion of private ownership has been accompanied by a drastic change in the composition of production: the once painfully underdeveloped service-sector has grown to become a decisive part of the economy, now providing some 60 per cent of GDP.

Besides privatisation, strong actions were also taken in foreign trade. The generous subsidies given to the export of Hungarian products were to inspire increased productivity, but also aimed at gaining sufficient returns for the payment of Hungary's gigantic foreign debts. The same goals were served by liberating the prices of practically all domestic products from their heavy central subsidies. At the same time, full liberalisation of the import side of trading was aimed at orienting production towards better adaptation to external challenges.

Further elements of the reform served to develop the formerly missing commercial banking sphere: a substantial injection of central funds and international loans helped to modernise the financial system rapidly which is badly needed to invigorate economic growth. Institutional changes in banking have also been accompanied by a liberalised monetary policy.

It must be said that all these changes have taken place amidst a serious production crisis. Thus, radicalism in shortening the period of transition toward a market-economy had to be counteracted by a number of strong measures to mitigate the negative effects of the process – first of all, to control inflation and the rise in unemployment. In this context, the establishment of central and regional institutions of industrial relations became an important element of the reform-process. Despite all the efforts, the greater part of Hungarian society has, however, experienced a remarkable decline in real income and a formerly unknown degree of uncertainty in recent years. Thus, 'economic reforms' mean mostly negative experiences for the majority. These experiences greatly influence people's perception of the changes and are clearly reflected in the views expressed in the numerous public opinion polls on the subject.

A widespread feeling of insecurity has been signalled recurrently by a number of surveys. When asked about perceptions of economic changes, the two aspects where people express fear are the limited hopes to preserve their place of work and to maintain a given standard of living. Year by year, the anticipated rates of unemployment exceed the actual number by some 30-35 per cent. Expectations for substantial loss of income are also high, though less so, when asked about personal future. People see more opportunity for their own personal efforts to gain additional resources than for 'them above'. In other words, people's evaluation about the general state and future perspectives of Hungarian society seems to be somewhat gloomy. It is the intensification of personal efforts which remains the only source of hopes for improvement. Surveys on economic expectations also show that with the passing of time, nostalgia for the relatively secure financial situation people experienced around the late 1980s has been increasing. At the same time, they do not want a command-economy. When asked about their most preferred system of economic regulation, hardly anyone approves of 'socialist' management, while the support of a free market , and, especially, of a 'mixed' economy is on the increase. Similarly, people approve denationalisation and privatisation, though they would like to see more state-actions to ensure more recognition of the interest of 'rank and file' employees

also in private business. Obviously, these 'averages' of public opinion hide great variations according to the level of schooling, occupation, place of living, and, above all, the actual standard of living. In general, urban professionals (men somewhat more than women) are strong supporters of radical steps toward marketisation, and they are the least critical of austere measures in service of the longer-term goals.[5] The former middle-classes of qualified blue- and white-collar workers are usually half-hearted 'voters' of the reforms. In full accordance with their greatly changing personal conditions and perspectives, their varying positive response-rates in the subsequent polls indicate a high degree of hesitation: on the one hand, they see themselves as partial winners of the changes, on the other hand, the gains seem to wither away easily if central protection decreases too rapidly. It is the elderly, the unskilled, the long-term unemployed, and, above all, the Roma who identify themselves as the greatest losers where change is concerned and expect further deterioration of both their personal and 'class' situations. Nevertheless, even they do not wish a return of the old times. What they would like to see are more actions from central administration to counteract the negative aspects of the transition with more efficient measures in social policy.

Location of survey knowledge

As the previous chapters indicate, the actual use of survey results is rather limited in contemporary Hungary. The causes are manifold. Firstly, it is only in a minority of the cases that survey-results are available to the public. The majority of investigations run by the most professional major poll-centres is commissioned either by private business or by the political parties in which case, the contracts usually have strict publication limits. As can be seen from their yearly reports, surveys for open publication make up, at most, a quarter of the work of the four biggest survey-centers (Medián, Sonda Ipsos, Modus, Marketing Centrum). In all cases, it is exclusively the press-commissioned polls which can be published in their entirety and without limitation. In addition, surveys commissioned by one or another ministry are put up for 'summary-report' in the yearly published Political Yearbooks (however, in these cases, partial censorship is exercised by the authorities). Thus it can be said that democratic discourse and the establishment of the painfully missing culture of political argumentation is relatively poorly served by public opinion research at present.

The second source of under-utilisation is the rather widespread distrust in the findings of opinion-polls. Because of the relatively short history of independent research, 'bad news' from one or another survey is taken as an example of 'secret' political predilection of the reporting survey-centre and heavily attacked in the press. Given the low standard of general knowledge about sampling and data-processing, such attacks certainly destroy the prestige, popularity and powerful use of survey-research.

The third factor behind under-utilisation is the uncertainty of finances. Since opinion-polls are to measure people's views at a given time, their findings are not for long-term use – except when repeated. Regular surveys would require regular commissioning. However, amid the general shortage of resources, organisations or agencies rarely have

[5] *Hann, E.* és szerzőtársai: A politikai közvélemény a Medián kutatásainak tükrében, 1991–1994. In: Politikai évkönyv, 1994. Ed.: *Kurtán, S.– Sándor, P. – Vass, L.* DKMKA. Budapest. 1994. 719–757. p.

funds for repetitive surveys. Thus, in most of the cases, polls are just one-time surveys which lose relevance within a relatively short time and it is considered to be rather difficult to build longer-term reforms based on their results.

What follows for the actual 'mapping' of the availability of survey-results is a rather anarchic and geographically scattered picture. Practically all the ministries, many local governments and a wide range of various other institutions in the public domain commissioned surveys during the past but the detailed reports are in their files and are inaccessible to the public. On the other hand, the major poll-centres (as agencies contracting for the execution of the different surveys) possess the data-files but are not authorised to put it into data-archives for 'independent' research. Given this situation, it is also hard to know how much opinion surveys have influenced decision-making, how much they were explored for monitoring the work of one or another agency or to what extent they have shaped longer-term policy-formation. The only source of responses for such questions is the series of Political Yearbooks, where the major poll-centres give summary-reports of the main results of investigations run in the preceding year. Since only surveys with unlimited access can be used for the purpose of these reports (these are the ones commissioned mostly by the press), information is rather limited in scope. The recurrently reported topics are the following: perceptions of the work of the key-institutions of public administration; views on the government and its policy priorities; changes in party-orientations; modifications in people's voting behaviour and their evaluation of major political and economic decisions.

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As the paper hopefully demonstrated, in principle, opinion-surveys can provide useful tools to inform those in charge of bringing about administrative reforms. The surveys might orient them towards expected reactions to one or another measure that they are to take, may help to monitor changes in the work of different public institutions and might also provide feed-back on the sources of satisfaction and dissatisfaction in different segments of society. Both the standard of professional knowledge and the organisational structure of the leading survey-institutions are proper guarantees for the validity of the information that those interested in exploring the findings of public opinion polls might expect. However, a better utilisation of opinion-surveys as tools to assist administrative reform would require further conditions: the commitment of public organisations to publicity and their efforts to initiate public discourse around the findings that the different surveys 'measure' on their work.

SOCIAL CARE PROVIDED BY LOCAL GOVERNMENTS

ISTVÁN HARCSA

The transition into market economy has created completely new conditions from the point of view of the livelihood of the Hungarian households. The transition has a significant number of winners, but a far greater mass is represented by those social strata who, because of the deteriorating living conditions, may be regarded as the losers of the process. The social net of protection struggling with many problems tries to help the situation of these strata within the framework of the country's load-bearing capacity. According to law, the care for the population in need of social aid is the basic task of local goverments.

This study provides an overview, on the basis of a pilot survey presenting the activities of the local governments in the domain of social care and presents a picture on the most important characteristics of the families receiving assistance.

The size of the sample of the pilot survey is well characterised by those data which – in the case of the more important entitlements to assistance – compare the proportions of the sample to the basic population of the country. So for example in 1994, 195 thousand persons on the average (in December 213 thousand) received the supplemental unemployment benefit. In the pilot survey in 1994, there were 17.9 thousand (in 1996 34.5 thousand) households in which at least one person received supplemental unemployment benefit, i. e., family-level data were received from about approximately 6 per cent of the basic population. The proportion of the households surveyed in the sample represented also 6 per cent and also over 4 per cent in the case of home maintenance and of the provisional financial aid, respectively. The proportions in the sample are also similar in the case of the other kinds of assistance. Naturally, for the analysis – besides the pilot survey – information relating to the full scope of the beneficiaries of aid was also used.

According to a World Bank Report,[1] in 1993 some 23 per cent of the Hungarian households were receiving some kind of social assistance. Numerous facts point out that the mass of those in need has grown further over the past period and consequently, the data from the 1994–1996 pilot survey already provide a review of this greater mass.

Several surveys have shown that different kinds of aid provided by the local governments envisage primarily the poor strata. The data to be presented later confirm these statements. The already mentioned World Bank Report adds to all of this that 'In spite of

[1] Poverty and social assistance in Hungary. World Bank. February 1996.

the fact that in Hungary, proportionally different kinds of social aid reach a higher percentage of households, they continue to be inefficiently targeted: they exclude from the circle of entitlements certain persons really in need, while a part of the benefits leaks to socio-economic groups which need it less'. [2]

However, it is also a fact that these very financial social aids which have greatly contributed to the income differences have not became bigger. Taking this also into consideration, the opinion of the experts is that social assistance might reduce poverty to a greater degree, if, on the one hand, the sources allocated for this purpose would be increased to some extent and, on the other hand, they would be better targeted.

The facts show that with regard to the composition of the families the part of the society receiving support includes mostly strata of peculiar situations. Among them, in 1996, the proportion of households of lone people was 54 per cent, and that of one parent with one child 15 per cent. Consequently, one could say that among the circle of persons receiving support the predominance of fractional families is characteristic, since the proportion of families of this type is nearly twice as high as regards to the whole of the population. The proportion of the households with higher number of members, i. e., of five and five-plus members dropped from 10 per cent in 1994 to 8 per cent in 1996, which may indicate a certain change in the practice of local governments. This is a relatively large decline.

Studying the composition of those receiving support by age, it could be ascertained that between 1994 and 1996 the proportion of the elderly (aged 70 years and over) increased but, as a matter of fact it was exactly in the case of this stratum that the average yearly amount of support dropped the most significantly.

On the basis of income conditions it can be determined that the bulk of those receiving support is poor and, subsequently, they live under the subsistence minimum. The monthly per capita income in these households was 8319 HUF in 1994, and 10.400 HUF in 1996 respectively. (These figures refer only to those households in which the size of the incomes is known and which make up 80 per cent of the survey sample.)

Table 1

Per capita monthly net income according to settlement types 1994–1996

Type of settlement	1994	1995	1996	1996 as a percentage of 1995.
	HUF			
Total	*8 319*	*10 130*	*10 400*	*103*
Budapest*	11 015	13 208	12 952	98
County seats	8 601	9 332	10 092	108
Other towns	7 930	10 887	10 429	96
Villages	6 850	9 329	11 057	119

* Data in respect of 1994: Budapest I. District, 1995: Budapest I. and XII. District. In 1995, the per capita income in Districts I. and XII. was HUF 13.326 and 13.159 respectively.

Taking into account the rate of inflation – in 1996 – the real value of the income was only 79 per cent of that in 1994. Especially grave is the situation of those families which

[2] See Note 1. 46 p.

before receiving support had no incomes at all (in 1996 17 per cent) and further of those in which the monthly per capita income remained under 5000 HUF (12 per cent). It is a remarkable feature that the rise in the per capita income in the smaller urban and in the rural areas was much more intensive than in the greater urban ones. It may be rightfully presumed that between 1994–1996 the income situation of the residents of small urban areas and of rural areas did not change favourably than in the greater urban areas and consequently, in the case of households receiving support, the relative income position of their members could be improved only if the modification of income limits were taken into consideration by the local governments when providing support.

Table 2

The distribution of households on the basis of per capita net monthly income 1994–1996
(per cent)

Net monthly income per capita	Type of settlement				
	Total	Budapest*	County seats	Other towns	Villages
			1994		
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Under HUF 5.000	10.1	3.0	8.2	14.2	8.9
HUF 5.000– 6 700	12.0	5.8	11.3	15.0	6.0
HUF 6.701– 8.400	11.1	10.4	10.4	13.9	4.9
HUF 8.401–10.400	10.6	15.0	9.7	13.4	3.8
HUF 10.401–11.900	5.0	10.8	4.9	5.6	2.2
HUF 11.901–13.300	3.0	8.4	3.1	2.8	1.3
HUF 13.301–x	3.5	13.3	3.6	3.2	1.0
Unknown	21.3	5.5	25.5	9.1	44.1
No income	23.4	27.8	23.1	22.7	27.8
			1995		
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Under HUF 5.000	9.0	1.0	8.8	12.0	7.5
HUF 5.000– 6.700	9.4	1.6	10.5	10.1	6.3
HUF 6.701– 8.400	14.2	4.0	16.1	14.3	8.6
HUF 8.401–10.400	9.2	5.6	9.1	10.9	5.5
HUF 10.401–11.900	6.3	5.6	6.1	7.3	3.6
HUF 11.901–13.300	5.3	5.9	5.0	5.7	4.6
HUF 13.301–x	14.6	25.3	10.8	19.4	9.4
Unknown	10.4	13.1	12.9	5.1	9.1
No income	21.6	38.0	20.6	15.1	45.4
			1996		
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Under HUF 5.000	11.6	8.7	11.2	13.4	9.8
HUF 5.000– 6.700	8.1	1.9	8.4	8.6	8.9
HUF 6.701– 8.400	16.5	4.2	18.9	14.5	15.5
HUF 8.401–10.400	11.1	6.0	11.8	11,2	10.3
HUF 10.401–11.900	6.4	4.7	6.4	6.9	5.7
HUF 11.901–13.300	5.9	4.3	6.0	6.0	5.4
HUF 13.301–x	21.1	38.6	20.3	21.2	14.3
Unknown	2.6	5.6	2.6	2.1	2.1
No income	16.7	26.0	14.3	16.2	27.9

* Data in respect of 1994: District I. only, 1995: Districts I and XII of Budapest.

The bad financial conditions can decisively be accounted for by the rather low number of persons having income from work among those who are receiving support. Taking the heads of households as a basis, in 1994 the proportion of those with incomes from work was merely 12 per cent. An important characteristic is that the household-composition has a serious effect on this proportion. So, for example, the proportion of the households receiving income from work is about 40 per cent among the households with a married couple and one child, 10 per cent among the lonely pers ons aged 30-59 and 5 per cent among the lonely ones aged under 30. On the basis of these facts it may be stated that among them the lonely persons of working age constitute one of the groups with the most uncertain existence. The other group of similar situation is constituted by households of other, mixed composition; in case of them the respective value is 6 per cent. Their situation is aggravated by the fact that most of these households have many members and consequently, live under ever worse conditions than the poor. It is worth mentioning that, as far as income conditions are concerned, there are significant differences between the people living in urban and rural areas. Namely, according to facts in greater urban areas those in need have mostly a more solid existential basis than those in smaller localities. At the same time it is also true that in the smaller localities a farm and, in general, wider possibilities of farming may provide significant supplementary sources for those living there.

Table 3

Per capita monthly net income of households according to number of members in household 1994–1996

Number of members in household	1994		1995		1996	
	HUF	per cent of average	HUF	per cent of average	HUF	per cent of average
Total	*8 319*	*100*	*10 130*	*100*	*10 400*	*100*
1	9 145	110	11 520	113	12 142	118
2	8 007	96	9 566	94	10 207	98
3	7 488	90	7 808	77	8 594	83
4	7 250	87	7 532	74	7 579	73
5	6 969	84	7 782	77	7 100	68
6–9	6 489	78	6 369	63	7 148	69
10–x	5 782	70	5 108	50	4 493	43

Table 4

Net monthly per capita income per household by number of entitlements, 1994–1996

Number of entitlement	1994		1995		1996	
	HUF	per cent of average	HUF	per cent of average	HUF	per cent of average
Total	8 319	100	10 130	100	10 400	100
1	8 725	105	10 258	101	10 832	104
2	8 273	99	10 272	101	10 063	97
3	7 537	91	9 730	96	9 346	90
4–x	6 889	83	9 367	92	8 704	84

So far relatively little information has been collected as to the amount of support received by families from the local governments and, consequently, information in this respect is of special importance. On an annual level – taking financial aid as a basis – families included in the pilot survey received, in 1994 and in 1996, an average of 28,400 and 30,100 HUF, respectively. However, the dispersion behind this average amount is rather significant. In 1996, the annual amount of aid given did not reach 10,000 HUF in the case of one third of them. Actually, the aid received from local governments may be regarded as a decisive source of income in the case of those families where this amount was over 50,000 HUF. Assistance of such an amount was received by 21 per cent of the benefited households (in 1996). In 1995, the proportion of the households receiving lower amounts dropped somewhat while the proportion of those receiving aid in kind increased significantly. This circumstance also contributed to the reduction in the amount of aid paid to one household by 4,700 HUF over the period under review. Consequently, the local governments have given more scope to aid in kind, hoping to be in a position to alleviate more effectively the tensions arising from the scarce sources and, respectively, from the increasing needs.

Table 5

Total annual support for the households by the number of members in household

Number of members in household	1994		1995		1996	
	HUF	per cent of average	HUF	per cent of average	HUF	per cent of average
1	17 570	64.6	16 626	68.6	19 364	64.4
2	26 053	95.8	25 079	103.5	27 948	93.0
3	29 685	109.1	28 859	119.1	34 855	115.9
4	39 813	146.3	44 571	183.9	47 724	158.8
5	51 101	187.8	55 953	230.9	72 427	240.9
6–9	74 098	272.4	73 759	304.4	91 124	303.1
10–x	161 336	593.0	123 321	508.9	149 000	495.6

It can be considered as a general characteristic that the more family-members a family consists of the higher is the proportion of payments of over 50,000 HUF. So, for example, among the households of lonely persons the proportion of those receiving aid over 50,000 HUF is 13 per cent (in 1996), while the respective proportion is 63 per cent among the households consisting of 6 to 9 members.

Studying the frequency of the various entitlements to assistance – by types of localities – a specific practice of the local governments may be identified. According to the 1994 data we can draw the conclusion that the local governments of the rural areas mostly preferred provisional solutions (here the proportion of provisional aid was higher than in the urban areas). On the other hand, in the urban areas regular child benefit and home maintenance support have become the most wide-spread.

By 1995–1996 the situation changed considerably. A considerable fall in the proportion of households receiving temporary support may be identified as a general trend: in 1994 still more than half, while in 1996 only a bit more than one-third of the households received temporary aid. The decline in the aid of this kind was the greatest in the rural

areas. On the other hand, in the case of certain allowances a broadening of the range of households concerned may be observed. So, in the case of the home maintenance support and of the public health care provision on the ground of equity this range grew from 6 to 16 and from 7 per cent to 11 per cent, respectively. All this allows to draw the conclusion that the efforts made by the local governments providing aid are mostly meant to 'react' to the phenomena arising from the deterioration of subsistence conditions (in rising of public utility fees and price of pharmaceuticals). At the present stage of the investigation, of course there is no information available about these efforts to find out whether they have really succeeded in improving efficiency at the same time as well.

Table 6

Proportion of households receiving over HUF 50 000 in annual support, 1994–1996
(per cent)

Denomination	Proportion of households receiving over HUF 50.000 annual support		
	1994	1995	1996
Number of members			
One	10.0	10.5	12.6
Two	16.0	16.3	19.2
Three	17.8	17.8	26.0
Four	28.6	34.1	38.1
Five	39.2	42.8	54.0
Six-nine	54.6	54.0	62.7
Total	*17.6*	*16.2*	*21.0*
Per capita income			
Under HUF 5.000	36.8	31.1	39.3
HUF 5.000–6.700	27.0	25.0	35.0
HUF 6.701–8.400	14.8	26.6	41.2
HUF 8.401–10.400	7.9	7.5	18.2
HUF 10.401–11.900	3.9	4.6	10.3
HUF 11.901–13.300	2.9	3.5	6.1
over HUF 13.301	3.5	3.6	3.9
Unknown	21.2	20.6	23.7
No income	13.8	8.1	13.9

The improvement of this activity is shown also by the fact that the number of assistances provided to one family has decreased (from 6 to 5). Furthermore, the practice according to which the lower the per capita income is the greater the number of entitlements for providing assistance, is, seems to be forced back. Already 1995, the income situation had a great impact on the number of entitlements to assistance.

The data for 1994–1995 confirm the trend identified also in other articles dealing with the subject, that the local governments make remarkable efforts to apply the principle of 'only one kind of assistance for one family'. However the pilot survey has also revealed that the local governments have validated this effort – presumably by introducing more strict supervision – primarily in the case of households of more complex, mixed composition and, consequently, a remarkable deterioration took place in the position of households belonging to this category as compared to that of others in need. It may there-

fore be said that the local governments were rather selective in their adopting the principle of 'only one kind of assistance for one family'.

Table 7

*The distribution of entitlement by type of benefit**

Entitlement	1994	1995	1996
Household receiving only one type of benefit	60.1	64.0	63.9
Of which			
Home maintenance support	3.0	6.5	6.6
Supplemental unemployment benefit	9.0	10.5	9.5
Regular child benefit	5.6	4.4	4.1
Temporary support	27.7	18.7	19.5
Transport assistance for the handicapped	6.4	6.4	5.7
Regular social benefit	0.7	0.9	0.4
Public health care	1.2	10.0	8.7
Public health care (equity)	0.8	0.8	0.7
Support for funeral	3.2	3.0	3.4
All other benefit	2.5	2.8	5.3
Household receiving more than one benefit	39.9	36.0	36.1
Of which			
Home maintenance support + temporary support	2.6	2.8	3.5
Home maintenance support + other support	1.8	4.3	3.9
Supplemental unemployment benefit + temporary support	5.5	4.1	3.3
Supplemental unemployment benefit + other support	7.7	7.6	6.8
Regular child benefit + temporary support	4.7	2.6	3.1
Regular child benefit + other support	3.7	3.3	3.7
Transport assistance for the handicapped + temporary support	1.9	0.9	0.8
Transport assistance for the handicapped + other support	4.0	4.0	2.9
Regular social benefit + any other support	0.4	0.7	0.5
Public health care + temporary support	2.1	2.1	1.6
Public health care + other support	0.8	0.7	0.7
All other benefit	4.4	2.9	5.3
Total	*100.0*	*100.0*	100.0

* Cash and in kind together

However it deserves attention that a trend, opposite to that mentioned above, is being outlined on the basis of the data. Namely, in the case of families with children and of those bringing up their children alone, the circle of those who have received several types of aid simultaneously has broadened significantly. All this leads us to draw the conclusion that the local governments have somewhat modified their supporting strategies. On the basis of available information, however, it is still impossible to give a satisfying answer whether their effort has or has not been successful in every field. It is important to mention, that by 1996 the effort made to apply the 'only one kind of assistance for one family' principle had been stopped.

According to the data there is a rather close relationship between the entitlement of assistance granted to the head of the household and the income situation of the household. Among families receiving different kinds of assistance, the households of the un

employed belong to the poorest. The circumstances of those receiving regular child benefit or regular social benefit is somewhat more favourable, though a significant part of them – on the basis of their incomes – also belong to the poor strata. Those people receiving transport assistance for the handicapped and the home maintenance support live under more favourable financial conditions in comparison with other strata of those who are receiving aid. Consequently, it may be ascertained that behind the various entitlement to assistance there is a more or less well definable financial situation.

Finally, it is worthwhile to mention that there is a representative survey (from the year 1997 200 local governments have taken part in it) which provides the kinds of possibilities of analyzing poverty.

The most important result is that by the help of the data one can see the share of households recewing different benefits from the local goverment. On the basis of the pilot survey we can calculate that the share of these households was 31 per cent in 1996. This figure was very close to the estimations (25–30%) calculated in the poverty surveys.

As the data collection system is based on a special computer data recording, we have a good possibility to follow the 'life cycle in need' i.e. from the data of entering the social assistance system till the date of leavig it, namenly the change of the fluctuation.

Besides this, the comptuter data recording provides a proper opportunity – in the frame of surveys – to investigate the different target groups in need and to analize the effects of socio-political measures.

WELFARE SUPPORT AND POVERTY IN HUNGARY, 1992–1997*

PÉTER SZIVÓS – ISTVÁN GYÖRGY TÓTH

In this study, which is one stage in research series going back many years, we attempt to describe the nature of the connection between welfare benefits and the trends in poverty indicators.

The study examines the changes in income distribution in the mid-1990s, with special focus on the evolution of relative poverty. We show the movement of the real and nominal values of the poverty thresholds employed, and attempt to colour the description of the evolution of poverty with a calculation of additional measures besides the traditional ones. The next part presents some new calculations showing the effects of welfare benefits on poverty.

PROBLEMS OF MEASUREMENT

In our earlier work we attempted to examine the distribution of welfare benefits and the changes in distribution over time. In examinations of this kind preliminary decisions on a number of methodological issues have to be made at the beginning. Here, without going into details we mention only a few.[1]

The incomes of households may be compared in a number of different ways. As one extreme, no difference is made between households as to their size. It is clear that this approach gives no way for taking family size into account when assessing earning capacity or consumption demands. For example, it treats as one household a one-person household, a household where there are many children, and a household where there are possibly several generations. Behind this is the assumption that the living expenses of a household do not change as the family gets bigger. On the other hand, assuming per capita incomes means that the living expenses increase at the same rate as a family size. In the literature of income inequalities, both of these methods are used. However, we

* The first version of this study was prepared within the framework of research co-operation between TÁRKI and the Hungarian Ministry of Public Welfare in the drawing up of the Medium-term Social Policy Strategy. This study was undertaken with support of the European Commission's Phare ACE Programme grant No. P96-6014-R. The data used in the study come from the data base of the Hungarian Household Panel.

[1] *Tóth, I. Gy.*: A jóléti programok szerepe a szegénység enyhítésében. In: Társadalmi riport, 1994. Ed.: *Andorka, R. – Kolosi, T. – Vukovich, Gy.* TÁRKI. Budapest. 1994. 107–136. p.; *Tóth, I. Gy. – Andorka, R. – Förster, M. F. – Spéder, Zs.*: Poverty inequalities and the incidence of social transfers in Hungary, 1992–1993. TÁRKI. Budapest. 1994. 73 p.

shall probably get nearer to the truth if we use an approach somewhere between these two extremites.

According to the logic of equivalence scales, an increase in the size of a family means an increase in its living costs, but not at the same rate as the increase in the family's size. For some households, then, equivalence scales attach diminishing weight to an increase in family size. As formally expressed, a multi-member family has an income equivalent to a single-member family when $j=h/N$, where j is the income of a single-member household, h is the total income of the household being examined and N is for indicating needs differring with the size of the family. In the literature it is regarded as proven that the co-efficient indicating the needs of a family can be well expressed using the formula $N=S^e$, where S is the size of the family/household.[2]

In what follows, we calculate personal equivalent incomes according to three different equivalence scales, and the poverty rates calculated on the basis of these incomes. In the case of the e=0.73 scale we assume in practice that the first member of the household is 1, the second 0.7 and the third 0.5 as consuming units. Secondly, we use an equivalence scale which is more restrictive than this (e=0.55). This means that compared to those indicated so far, additional family members are given less weight as consumers. Last but not least, we calculate poverty rates on the basis of incomes per capita. This is prompted by very important social policy considerations, even if, from the statistical point of view, it might be more correct to give analyses made on the basis of equivalent incomes. First and foremost is the fact that in social policy, in practice, the criteria for entitlement to certain benefits is determined on the basis of per capita income. Therefore, before formulating any kind of actual social policy proposal, the implications of examinations conducted on the basis of per capita income need to be looked at.

Two additional methodological issues are worth mentioning. The first is the kind of poverty threshold to be used when assessing the extent of poverty and the role of welfare benefits in its alleviation. The second is the kind of poverty indicators to be used.

There is no space here to analyse the various concepts of poverty and the advantages and disadvantages of these. (This subject is dealt with in a whole series of articles.[3])

In the following, we will use three poverty thresholds. On the one hand we shall regard as poor those whose per capita or equivalent income belongs to the bottom quintile (the bottom 20 per cent) of all such incomes. This measurement is not suitable for an examination of the size of poverty, since, by definition, 20 per cent of the population will always be in this bottom quintile. On the other hand, it is suitable for an examination of the composition of poverty, as well as for an examination of how the number of those living below the poverty threshold is represented by the upper limit of this quintile changes according to how individual social policy benefits featured in the incomes of individuals.

[2] *Buchmann, B.* et al.: Equivalence scales, well-being, inequality and poverty: sensitivity estimates across ten countries using the LIS database. *Review of Income and Wealth*. 1988. No. 34. 115–142. p.; *Förster, M. F.*: Measurement of poverty and low incomes in a perspective of international comparisons. OECD Labor Market and Social Policy Occasional paper. No. 14.

[3] Among others, *Fábián, Z.*: Review of the social science research into poverty in Hungary. TÁRKI. Budapest. 1995. 69 p.; *Andorka, R. – Spéder, Zs. – Tóth, I. Gy.*: Developments in poverty and inequalities in Hungary, 1992–1994. TÁRKI. Budapest. 1995. 67 p.; *Szivos, P.*: Jövedelmek és jövedelemegyenlőtlenségek alakulása az utóbbi néhány évben. *INFO-Társadalomtudomány*. No. 28. 21–29. p.; *Galasi, P.*: Szegények és gazdagok. TÁRKI. Budapest. 1995. 19 p. and *Galasi, P.*: A jövedelemegyenlőtlenségek változása Magyarországon 1987, 1992–1994. MTA Világgazdasági Kutató Intézet. Budapest. 1995. etc.

The other two measurements greatly depend on the actual pattern of income distribution. On the basis of these we can regard as poor those who (calculated on the basis of the various equivalence scales) live on an income less than half the average and half the median income. What is in favour of the choice of an average is the fact that certain international comparative studies, with which we would like to have comparable data, use this measurement. Against it, as we shall see later on, is the fact that the average, especially in the case of the smaller samples, is very sensitive to the extreme values. For this reason, the use of a median income seems to be more suitable.

In studies dealing with poverty in Hungary, the poverty rate and – less often – the poverty gap are the indicators which regularly appear. The first expresses ($H=p/n$) the proportion of poor people within the population, and is therefore the simplest and most readily understood type of poverty measure. Its big disadvantage, however, is its complete insensitivity to the intensity of poverty. This intensity – which in other words is the depth of poverty – is measured by the poverty gap, and by its relative version which shows the distance of the average income of the poor from the poverty threshold. The formula for this may be expressed as

$$I=1/p\cdot \Sigma_{i=1,p}((k-y_i)/k)$$

where

p – is the number of poor people,
y_i – is income of the poor,
k – is the poverty threshold.

The aggregate poverty gap – $\Sigma_{i=1,p}k-y_i$ – gives the minimum aggregate amount needed for the poor to rise above the poverty level. The poverty gap, however, is always insensitive to changes taking place in the number of the poor as long as the average income of the poor is unchanged. In order to combine the complementary characteristics of the two indices, the normalized version of the aggregate poverty gap can be used. This gives the amount of income to be redistributed from the non-poor to the poor if all of the poor are to rise to the level of the threshold.

Besides the above indicators, in the literature on the poverty of the last 15–20 years, many additional proposals have been made which are contained in a number of excellent summaries in Hungarian.[4] In the following, we shall rely on these papers and on the indicators worked out in them.

Neither the above two indicators (the poverty rate and the poverty gap), nor a combination of the two gives any information on the scale and seriousness of poverty among the poor, in other words, they do not take account of inequalities of income among the poor. For example, let us take two income distributions A=(1,2,3,4) and B= (2, 2, 2, 4), with the poverty line being 3. The poverty rate is 75 per cent and the average poverty gap is 0.33 in both cases, and at the same time the poorest person in the A distribution has half the income of the poorest person in the B distribution. Let us suppose that a B distribution comes about with a redistribution from the least poor to the

[4] *Hajdu, O.*: A szegénység mérőszámai. KSH Könyvtár és Dokumentációs Szolgálat. Budapest. 1997. 99 p.; *Seidl, Ch.*: Poverty measurement: a survey. In: Welfare and efficiency in public economics. Ed.: *Bös, D. – Rose, M. – Seidl, Ch.* Berlin–Heidelberg. 1988. and *Ravallion, M.*: Poverty Comparison. World Bank. (Manuscript.) 54 p.

most poor in the *A* distribution. The poverty indicators we have examined so far are insensitive to such a redistribution. The poverty index proposed by *A. Sen* is appropriate from the point of view of the above criteria. The formula which bears his name is

$$P_s=H(I+(1-I)G_p),$$

where

H – is the poverty rate,
I – is the average rate of poverty gap,
G_p – is a measurement of income inequality among the poor on the basis of the Gini coefficient.

This index contains the information relating to the extent and intensity of poverty and to inequalities among the poor as well. The smallest value of the indicater is 0 and its highest is 1; 0 if there are no poor at all and 1 if everyone's income is zero. Insofar as the income of all the poor is the same, this income is the lowest possible, the more its value approaches the poverty rate, the higher the proportion of the poor is, and the more the value approaches the average poverty gap. A modification of the index was suggested by *S. Anand* who said that not only the incomes of the poor should be taken into account when measuring poverty, but the incomes of the non-poor as well. The intensity measurement proposed by him compares the distance between the threshold value and the average income of the poor with the average income of the population as a whole. This index can be interpreted as the proportion of total incomes of the non-poor that needs to be transferred to the poor to lift them to the level of the threshold. The Anand measurement differs from the Sen measurement only in one constant, which is a quotient of the poverty line and the average income of the population as a whole.

Despite all their advantages, these indicators do not satisfy the requirement of additivity. They do not ensure that the poverty index relating to the population as a whole can be compiled as a weighted average of indicies relating to sub-populations, or, the other way round, that it can be decomposable from the 'complete' index.

A relatively simple measure satisfying the above requirement is the Foster – Greer – Thorbecke index, which is built on a conception of a weighted poverty gap. Its formula is the following:

$$P_{FGT}=1/n\Sigma_{i=1,p}((k-y_i)/k)^{\alpha},$$

where

$\alpha \geq 0$,
p – is the number of poor people,
n – is the population size,
y_i – is income,
k – is the poverty threshold, α the value of the calculation parameter.

The greater the value of α, the greater the weight attached to the poorest of the poor. In the case of $\alpha=0$, it is weighted with the poverty rate. If $\alpha=1$, the weight is the product of the poverty rate and the average poverty gap, while when $\alpha=2$, the poverty gap is weighted with itself. Referring back to the earlier mentioned *A* and *B* distributions, the values of *FGT*(2) are 0.14 and 0.08 respectively.

WELFARE BENEFITS AND THE PROFILE OF POVERTY

Welfare benefits came first into the center of attention in the first half of the 1990s, because at the time of the recession they amounted to more than 30 per cent of Gross Domestic Product. Hungarian social expenditures at that time exceeded the OECD average.[5] Then, partly because of the stablization package, in 1996–1997 welfare expenditure fell back dramatically.[6]

Table 1

Some principal characteristics of cash social benefits

Money benefits	In the year of				
	1992	1993	1994	1995	1996
	HUF billion				
Family allowances	91.8	108.9	110.6	101.6	95.7
Unemployment benefits	48.4	59.1	52.4	50.1	47.2
Pensions	314.9	392.9	477.4	553.4	633.9
Social assistance	18.3	22.3	24.9	29.2	33.3
Total (of above four)	473.5	583.1	665.3	734.4	810.1
Total income	2050.8	2350.9	2888.6	3560.3	4366.1
	Nominal change, 1992=100.0 per cent				
Family allowances	100.0	118.6	120.4	110.7	104.2
Unemployment benefits	100.0	122.0	108.3	103.5	97.5
Pensions	100.0	124.7	151.6	175.7	201.3
Social assistance	100.0	121.7	136.0	159.4	181.6
Total (of above four)	100.0	123.1	140.5	155.1	171.1
Total income	100.0	114.6	140.9	173.6	212.9
Price index (CPI)	100.0	122.5	145.5	186.6	230.6
	Change in real value, 1992=100.0 per cent				
Family allowances	100.0	96.8	82.7	59.3	45.2
Unemployment benefits	100.0	99.6	74.4	55.5	42.3
Pensions	100.0	101.8	104.2	94.2	87.3
Social assistance	100.0	99.3	93.4	85.4	78.7
Total (of above four)	100.0	100.5	96.5	83.1	74.2
Total income	100.0	93.6	96.8	93.0	92.3
	Shares of cash social benefits in total incomes				
Family allowances	4.5	4.6	3.8	2.9	2.2
Unemployment benefits	2.4	2.5	1.8	1.4	1.1
Pensions	15.4	16.7	16.5	15.5	14.5
Social assistance	0.9	0.9	0.9	0.8	0.8
Total (of above four)	23.2	24.7	23.0	20.6	18.6

Source: TÁRKI Social Policy Data Base.

[5] *Tóth, I. Gy.*: A jóléti rendszer az átmenet időszakában. *Közgazdasági Szemle*. 1994. No. 4. 313–341. p.; Social and labour market policies in Hungary. OECD. Paris. 1995. 189 p.

[6] *Lelkes, O.*: Az állam szociális kiadásai Magyarországon 1988 és 1996 között. TÁRKI. Budapest. 1997. 15 p.

Before we examine the influence of this on the income distribution of poverty and welfare benefits, we should like to present a few characteristics of the four-benefit system covered by our analysis: family allowances, unemployment benefits, pensions and social assistance.

In the period between 1992–1996, the total nominal amount spent on these four benefits rose by 70 per cent. The total sum spent on pensions increased somewhat more, doubling in nominal terms. Unemployment benefit expenditure showed no increase even in nominal terms (see Table 1). Of course, the developments in incomes as a whole were influenced by changes in the number of benefit recipients, as well as by changes in the average values of the benefits. The proportion of households receiving pensions rose by a few percentage points and indexing was also in operation. As a result, this benefit was the one which lost the least of its real value. In the case of unemployment benefits, the proportion of those benefiting decreased. Also, due to changes in legislation, the average amount of the payment fell to two-thirds during this period. The real value of family allowances also suffered a significant fall, to less than half. Here primarily the fall in average values was decisive.

Since disposable income increased more rapidly in nominal terms, benefits and decreased less than the cash benefits in real terms, the role of these benefits in income composition decreased. While in 1992 the four benefits under discussion made up 23 per cent of total household income, by 1996 this figure had fallen to 19 per cent. Family allowances and unemployment benefit lost the most value, but to some degree so did pensions, which were of much greater importance. The significance of social assistance remained about the same. These structural changes are supported by the findings of the Hungarian Household Panel,[7] so we shall rely on these series of data in our analysis.

Income distribution and poverty

The study, as we have indicated, shows data on those living on incomes below the poverty threshold calculated on the basis of the bottom quintile, half of the average, and half of median income. The empirical differences between these three poverty lines are shown on the basis of data relating to the Hungarian income distribution in the years 1992–1997, using a number of poverty measurements. The data and the calculations are everywhere prepared by using the data base of the Hungarian Household Panel.

Income distribution in Hungary, as generally, is skewed towards the left. In other words, the lower regions of the income distribution contain population cohorts of significant size. In the upper tail, on the other hand, those groups whose incomes are significantly higher than that of the average 'pull apart' the field. This can clearly be seen in Figure 1, where the income distribution data for 1992 can be examined. This feature of income distribution is also shown by the fact that the average income in 1992 exceeded the median income by 15 per cent. The difference remained largely the same throughout the period (although in 1995 the difference reached 20 per cent).

Comparing income distribution data through subsegment years in a period of considerable inflation, price adjustment of household incomes should be made. In the

[7] *Szivós, P. – Tóth, I. Gy.*: A háztartások jövedelmi szerkezete, egyenlőtlenségek, szegénység és jóléti támogatások. In.: Zárótanulmány. Jelentés a MHP 6. hullámának eredményeiről. Ed.: *Sik, E. – Tóth, I. Gy*. TÁRKI. Budapest. 1998. 252 p.

period between 1992 and 1997, inflation led to a fall in the real value of the different poverty thresholds. Out of the three thresholds, the greatest fall in real value (33%) in the period examined was the poverty threshold defined as the upper limit of the bottom quintile.

Figure 1. Number of persons belonging to the different per capita income categories, 1992

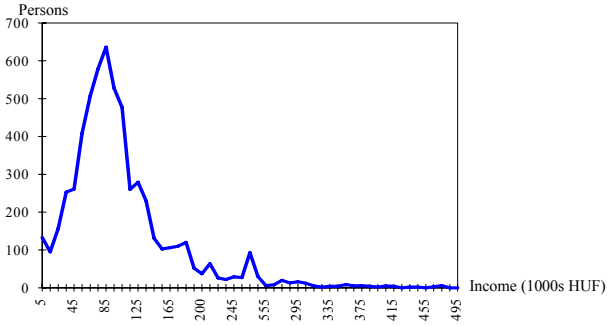


Figure 2. Real values of poverty thresholds, at 1991/1992 prices

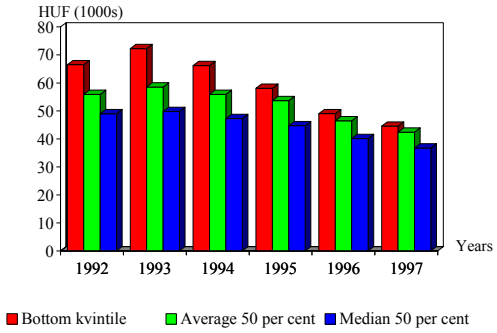
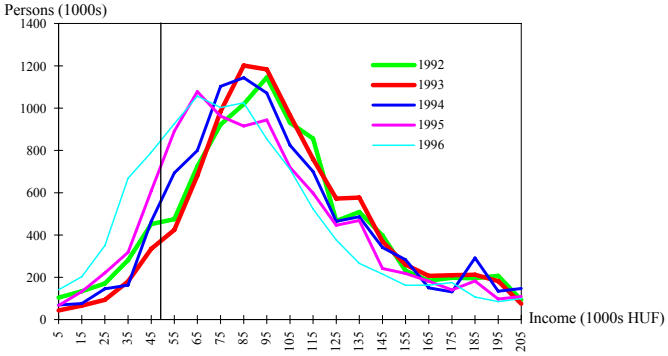


Figure 3. Income distribution at 1991/1992 prices, 1991/1992–1995/1996
(Base period: April 1991–March 1992)



Source: Hungarian Household Panel, Waves I–VI. Inflation indices always compare the later March–March average with the earlier March–March average. Thanks are due to *István Bedekovics* for the calculations.

The fact that income distribution shifted leftwards is also shown by the diagram which depicts the distribution of the real incomes in individual years compared to this poverty threshold (half of the 1992 median) (see Figure 3). It is obvious from this that in thes successive years the fall in real incomes afflicted larger and larger population groups below the 1992 poverty threshold.

The development of relative poverty rates can clearly be shown by the presentation of cumulative distribution of social groups below the given income levels in the function of the increase in incomes. For the sake of simplicity, with the help of density functions only for 1992 and 1996, we can examine how the change in, or changing of, the poverty thresholds employed affected the proportion of poor people in a given population (see Figure 4). The vertical line placed on the diagram represents half of the median income in 1992. We can also see that in the 1992 density function, this value implied a poverty rate of 18 per cent, while in the 1996 distribution of income it implied a poverty rate of some 25–30 per cent. We can also see that near the above mentioned value cumulative frequencies rise somewhat steeply. This indicates that even a relatively small change in the poverty threshold affects comparatively significant population groups. On the other hand, with the help of a horizontal line placed on the Figure 4 at the 20 per cent value of cumulative distribution, the fall in the real value of the upper limit of the bottom quintile can be seen.

Figure 4. Cumulative distribution of persons on the various levels of per capita income in 1991/1992 and 1995/1996

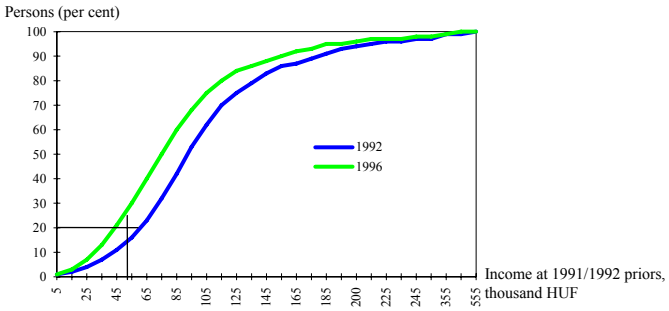
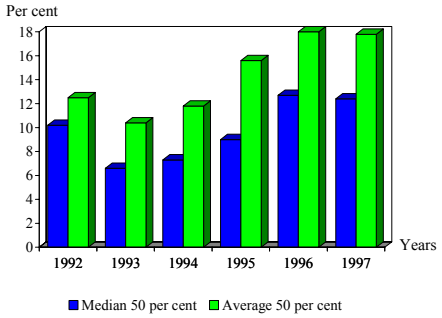


Figure 5. Poverty rates of persons for different poverty thresholds defined on the basis of per capita incomes



Source: Hungarian Household Panel, Waves I and V. Inflation indices: As in Diagram 3.

The former mentioned movements in the characteristics of income distribution are also present in the increase of poverty rates. The proportion of poor people increased according to all three definitions over the period (see Figure 5 and Table 2). The increase in relative poverty was especially significant in 1995 and 1996; on the other hand, we can speak of some decrease and almost no movement in 1997.

As we have already mentioned, poverty headcount, however, is just one measurement of poverty. In addition to this, new information is provided by data which show the nature of income distribution within the group of the poor.

For all three thresholds we can find that the average poverty gap was approximately 30 per cent in the last years (see Table 2). This value is higher than the one given in the World Bank poverty assessment report[8] which used the Household Budget Survey carried out by the Hungarian Central Statistical Office, where poverty in Hungary was described as 'shallow'. Nevertheless, this is not surprising, since the Panel, despite all its limitations, spans a relatively wider range of income distribution than the Household Budget Survey.[9]

However, the 'depth' of poverty is not simply a statistical or sociological question. In aggregate the difference between the incomes of poor persons and the poverty threshold, equals the amount of money needed for all poor persons to enjoy an income on the level of the poverty threshold. Figure 6. shows the Hungarian population ranked by household incomes per person. It can clearly be seen that incomes per person are somewhat unequal in the lower regions of the distribution, than in the upper part of income distribution.

The horizontal line in Figure 6 represents the poverty threshold. (This is half of the median income, which in 1992 was HUF 49 000.) The size of the area between the horizontal line and the actual income distribution curve represents the area which would need to be filled for the poor to reach the poverty threshold (this is called the poverty deficit). Comparing the thus-defined poverty deficit with the incomes of the non-poor, we arrive at a measure which further colours the description of poverty.

The third column of Table 2 shows that the rate of such a redistribution would be rather slight. The raising of the lowest incomes to the upper limit of the bottom quintile would necessitate a redistribution of approximately 3–4 per cent of the total income of the non-poor. According to our estimates, this would have been 85–90 billion HUF in 1996, which would have been the equivalent of twice the social assistance paid out that year. This is in line with those statistics which (using other data and other methodology) have so far been aimed at determining the poverty deficit.[10]

However, the situation is not so simple. The amounts indicated in the above denote only direct costs of a minimum income guarantee, but the total costs are appreciably more than this. Apart from the administrative costs, three factors would make its actual use extremely expensive. To begin with, a minimum income guarantee would mean a 100 per cent implicit marginal tax for those living below the poverty threshold, namely it would be a matter of indifference to them whether they acquired their income through work or through asssistance.

[8] Hungary: Poverty and Social Transfers. A World Bank Country Study. World Bank. Washington DC. 85 p.

[9] *Andorka, R. – Ferge, Zs. – Tóth, I. Gy.*: Valóban Magyarországon a legkisebbek a jövedelmi egyenlőtlenségek? *Közgazdasági Szemle*. 1997. No. 2. 89–112. p.

[10] *Szivós, P.*: The evolution of poverty in Hungary, 1987–1992. (Manuscript.) 1994. 36 p.

Table 2

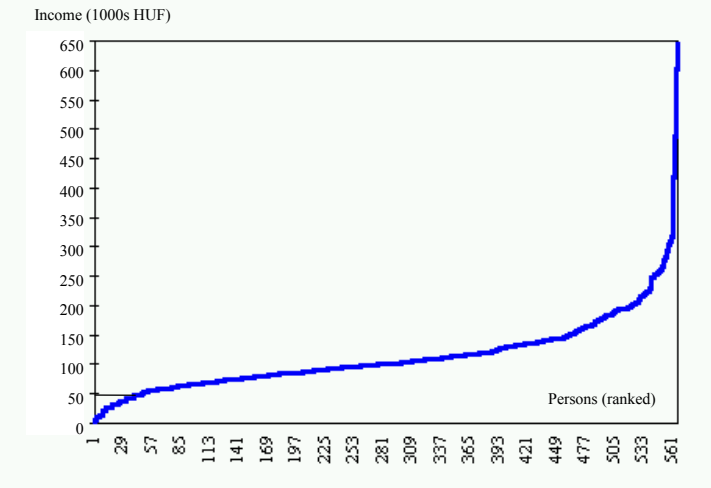
Trends in individual indicators of poverty

Years	Poverty threshold		
	50 per cent of average income	50 per cent of median income	Upper limit of the bottom quintile
	Poverty rate: Proportion of persons with per capita income less than the given poverty threshold		
1992	12.8	10.2	20.0
1993	10.4	6.6	20.0
1994	12.1	7.4	20.0
1995	15.8	9.0	20.0
1996	18.3	12.8	20.0
1997	17.8	12.4	20.0
	Poverty gap-ratio: Average income shortfall in terms of the poverty threshold (per cent)		
1992	33.2	31.3	30.9
1993	26.5	27.0	25.0
1994	26.3	26.7	26.2
1995	29.0	33.4	27.9
1996	29.8	29.9	31.2
1997	31.1	32.6	30.8
	Rate of poverty deficit to the total income of the non-poor		
1992	2.2	1.4	3.8
1993	1.4	0.8	3.2
1994	1.6	0.8	3.2
1995	2.3	1.3	3.1
1996	2.8	1.7	3.4
1997	3.0	1.8	3.5
	Sen index × 1000		
1992	59.7	46.5	88.4
1995	66.3	42.2	81.8
1996	77.8	55.7	87.5
1997	78.0	55.8	87.5
	FGT(2) × 100		
1992	2.16	1.66	3.05
1993	1.02	0.80	2.10
1994	1.40	0.92	2.21
1995	2.20	1.51	2.62
1996	2.60	1.90	2.97
1997	2.64	1.93	2.94

The notions used in Table 2 are:

Poverty rate: $H=p/n$,
Poverty gap-ratio: $I=1/p\cdot \Sigma_{i=1,p}((k-y_i)/k)$,
Poverty deficit/income rate: $\Sigma_{i=1,p}k-y_i / \Sigma_{i=p->n}y_i$,
Sen index: $P_s=H(I+(1-I)G_p)$ (G_p – the inequality among the poor measured by Gini coefficient),
FGT index: $P_{FGT}=1/n\Sigma_{i=1,p}((k-y_i)/k)^{\alpha}$, ($\alpha$ – the value of the calculation parameter, $\alpha>=0$).

Figure 6. The income of persons ranked according to per capita annual incomes, 1992



Source: Hungarian Household Panel, Wave I. Sample taken from the Panel's data base

For the reason mentioned before, the non-benefit derived incomes of the poor must also be added to the redistribution costs. Secondly, a supplementation would prompt to reduce the efforts of those who are just above the poverty threshold to acquire income through work. Namely, for them the marginal costs of undertaking work could significantly exceed the marginal incomes which the undertaking of work would bring. For this very reason, it could be expected that some of those who would otherwise have been above the poverty threshold could slip down.

Finally, supplementation is accompanied by tax costs. These taxes burden the incomes of those who are well above the poverty threshold. The disincentive effects stemming from an increase in taxation and the extremely high implicit marginal tax rate could undermine the moral foundations of the market economy even among those affected by these measures indirectly or only to a negligible extent. Consequently, a guaranteed minimum income could lead then to a situation accompanied by disincentive effects, in other words its social costs could significantly exceed the optimal level.[11]

We however, introduced the poverty deficit conception as a statistical measure rather than a social policy proposal. In this sense, the methodological status of the poverty deficit as a measurement is similar to that of the Robin Hood index.

Among other indicators, we also use the Sen index, which, in addition to those so far, namely the poverty rate, the poverty gap and their derivatives, also incorporates income inequality among the poor. The values for this indicator are to be found in the fourth column of Table 2. According to this indicator poverty did not increase, or did not increase as significantly as it could have been expected on the basis of the increase in the poverty rate. Since the average poverty gap changed differently from 1992 to 1997 according to the different thresholds, and since income inequality among the poor

[11] *Gál, R. I.*: A társadalombiztosítási programok ösztönző hatásai. *Közgazdasági Szemle.* 1996. No. 2. 128–140. p.; *Semjén, A.*: A pénzbeni jóléti támogatások ösztönzési hatásai. *Közgazdasági Szemle.* 1996. No. 10. 841–862. p.

decreased with all three thresholds, this indicator, arising as the product of all these effects, shows a smaller increase. To investigate the reason for the decrease in differences among the poor while an increase in the inequality characterizes the population as a whole, will require further research.

Another index calculated is the Foster – Greer – Thornbecke (FGT) index (used in the literature with the parameter α=2), of which an important characteristic is the fact that it places a greater weight on the poorest than the earlier indicators did, with the result that it reacts more sensitively to the changes taking place in their ranks. This is the explanation for the fact that the year 1993 – which from a number of aspects did not conform with the trends – behaved 'strangely' here too, falling the index to half. Comparing the beginning and the end of the period examined, its value increased by some 20 per cent in the case of the poverty thresholds represented by half of the average income and half of the median income, while falling a certain amount using the upper limit of the bottom quintile.

Between the last two periods, there was almost no difference with regard to the level of the FGT index.

Poverty indicators before and after transfers

What kind of role do welfare benefits play in the reduction of poverty? We attempted to provide an answer to this question in an earlier study (see Note 1). Now, reformulating the question a little but essentially following our earlier thinking, we shall, as in Szivós's article,[12] investigate the extent to which individual welfare benefits are capable of reducing poverty indicators.

Table 3

Poverty rates of persons in 1995–1996, on the basis of personal equivalent incomes, according to different equivalence scales and poverty thresholds

Equivalence scale (*e*)	Total income	Without family allowances	Without unemployment benefits	Without pensions	Without social assistance
	Poverty threshold: 50 per cent of average income				
0.73	15.3	20.5	16.5	32.8	15.7
1	18.0	22.7	19.8	36.4	18.4
0.5	15.0	20.6	16.3	31.2	15.3
	Poverty threshold: 50 per cent of median income				
0.73	9.6	15.3	11.1	26.5	9.7
1	12.7	18.0	14.3	29.9	13.3
0.5	8.8	14.7	10.6	25.8	9.4
	Poverty threshold: Upper limit of bottom quintile				
0.73	20.0	24.9	21.6	41.6	20.6
1	20.0	25.6	22.1	43.1	20.4
0.5	20.0	25.6	21.1	40.0	20.7

[12] *Szivós, P.*: A munkanélküliek jövedelempótló támogatása. *Statisztikai Szemle.* 1996. No. 11. 894–907. p.

This thinking is built on a very simple assumption. First, we examine the size of the poverty indices calculated on the basis of the various poverty thresholds when the various benefits are included in total incomes, and then we calculate their size when these benefits are taken out, leaving the thresholds unchanged. This is shown by Table 3 with regard to 1995–1996, applying various equivalence scales and poverty thresholds.

In the second column of Table 3, we can find the proportion of those whose monthly income is less than the given level of income. The different equivalence scales give different poverty rates, since the poverty rate is senstive to the equivalence scale employed in a measure dependent on the household structure.[13]

The third column of Table 3 shows the size of poverty rates with unchanged poverty thresholds but for total incomes minus family allowances. Using all three equivalence scales, the poverty rates shown in the third column of Table 3 are substantially higher than those shown in the preceding column. All this is broken down in Table 4 on the basis of income per capita for the year 1996–1997, according to the number of children. Table 5 presents the changes in the FGT index.

Table 4

The poverty-reducing effects of family allowances:
Poverty rates with family allowances and without them, 1996–1997

Income – family allowance	Total	Noumber of children under 18 years				
		0	1	2	3	4 and more
	Poverty threshold: 50 per cent of average income					
Total income (1)	17.8	4.9	13.5	23.4	47.9	62.8
Total income – family allowances (2)	21.8	4.9	18.8	30.2	52.2	81.3
2/1	1.22	1.00	1.39	1.29	1.09	1.29
	Poverty threshold: 50 per cent of median income					
Total income (1)	12.4	2.6	8.9	15.7	33.3	56.3
Total income – family allowances (2)	16.5	2.6	10.8	22.9	47.8	68.8
2/1	1.33	1.00	1.21	1.46	1.44	1.22
	Poverty threshold: upper limit of bottom quintile					
Total income (1)	20.0	5.7	15.7	26.9	51.4	70.8
Total income – family allowances (2)	23.5	5.7	19.6	32.1	57.7	87.4
2/1	1.18	1.00	1.25	1.19	1.12	1.23

In the absence of family allowances in 1996/97, the poverty rate of those under 16 would have risen from 31.7 per cent to 39.2 per cent using half of the average income as the poverty threshold, and from 23 per cent to 32 per cent using half of the median income as the poverty threshold. This latter poverty rate would have shown a 37 per cent increase. The investigation according to the number of children showed a jump in the

[13] See Note 1. and *Atkinson, A. – Rainwater, L. – Smeeding, T. M.*: Income distribution in the OECD countries. OECD Social Policy Studies. No. 18. Paris. 1995. 164 p.

poverty rate of those with two children, while the FGT index shed light on the serious situation of those with 3–4 children.

Table 5

The poverty-reducing effects of family allowances:
FGT index with family allowances and without them, 1996–1997

Income – family allowance	Total	Noumber of children under 18 years				
		0	1	2	3	4 and more
		Poverty threshold: 50 per cent of average income				
Total income (1)	2.638	0.645	1.631	2.939	6.482	15.288
Total income – family allowances (2)	4.518	0.705	2.202	4.604	13.027	30.323
2/1	1.71	1.09	1.35	1.57	2.01	1.98
		Poverty threshold: 50 per cent of median income				
Total income (1)	1.925	0.510	1.173	2.067	4.601	11.469
Total income – family allowances (2)	3.587	0.561	1.627	3.305	10.245	26.396
2/1	1.86	1.10	1.39	1.60	2.23	2.30
		Poverty threshold: upper limit of bottom quintile				
Total income (1)	2.942	0.711	1.844	3.333	7.283	16.589
Total income – family allowances (2)	4.903	0.775	2.477	5.165	14.088	31.932
2/1	*1.67*	*1.09*	*1.34*	*1.55*	*1.93*	*1.92*

Table 6

The poverty-reducing effects of unemployment benefits:
Poverty rates before and after unemployment benefits, 1996–1997

Income benefits	Total	Unemployed	Not unemployed
	Poverty threshold: 50 per cent of average income		
Total income (1)	17.8	27.4	17.0
Total income – unemployment benefits (2)	18.7	30.3	17.8
2/1	1.05	1.11	1.05
	Poverty threshold: 50 per cent of median income		
Total income (1)	12.4	20.8	11.7
Total income – unemployment benefits (2)	13.4	22.8	12.6
2/1	1.08	1.10	1.08
	Poverty threshold: upper limit of bottom quintile		
Total income (1)	20.0	30.0	19.3
Total income – unemployment benefits (2)	21.3	33.1	20.2
2/1	1.07	1.10	1.05

Leaving the logic of the analysis unchanged, we performed calculations of exactly the same type on unemployment benefits, pensions and social assistance, in addition to family allowances (see Tables 6–9).

Table 7

The poverty-reducing effects of unemployment benefits:
FGT index before and after unemployment benefits, 1996–1997

Income benefits	Total	Unemployed	Not unemployed
	Poverty threshold: 50 per cent of average income		
Total income (1)	2.599	5.186	2.418
Total income – unemployment benefits (2)	3.142	6.511	2.854
2/1	1.21	1.26	1.18
	Poverty threshold: 50 per cent of median income		
Total income (1)	1.900	3.899	1.755
Total income – unemployment benefits (2)	2.380	5.107	2.146
2/1	1.25	1.31	1.22
	Poverty threshold: upper limit of bottom quintile		
Total income (1)	2.969	5.697	2.708
Total income – unemployment benefits (2)	3.467	7.049	3.160
2/1	1.17	1.24	1.17

Table 8

The poverty-reducing effects of pensions: Poverty rates before and after pensions, 1996–1997

Income pensions	Total	Pensioners	Non-pensioners
	Poverty threshold: 50 per cent of average income		
Total income (1)	17.8	5.5	21.9
Total income – pension (2)	44.0	77.3	32.8
2/1	2.47	14.05	1.50
	Poverty threshold: 50 per cent of median income		
Total income (1)	12.4	3.2	15.5
Total income – pension (2)	37.2	72.6	25.3
2/1	3.00	22.69	1.63
	Poverty threshold: upper limit of bottom quintile		
Total income (1)	20.0	7.1	24.5
Total income – pension (2)	46.4	78.8	35.5
2/1	2.32	11.10	1.45

Without family allowances, the income poverty risk of persons living in households with children would have increased significantly, but to a varying extent.

Table 9

The poverty-reducing effects of pensions:
FGT index values before and after pensions, 1996–1997

Income pensions	Total	Pensioners	Non-pensioners
	Poverty threshold: 50 per cent of average income		
Total income (1)	2.599	0.374	3.398
Total income – pension (2)	18.582	50.719	7.763
2/1	7.15	135.61	2.28
	Poverty threshold: 50 per cent of median income		
Total income (1)	1.900	0.210	2.502
Total income – pension (2)	17.048	48.625	6.418
2/1	8.97	231.55	2.57
	Poverty threshold: upper limit of bottom quintile		
Total income (1)	2.969	0.457	3.780
Total income – pension (2)	19.189	51.485	8.316
2/1	6.46	112.66	2.20

The risk of those living in single-child households falling beneath the poverty threshold as determined by the upper limit of the bottom quintile would have risen from 15.7 per cent to 19.6 per cent in 1996–1997, and the risk of those living in a two-child household, from 27 per cent to 32 per cent. The poverty risk of those living in three-child households would have risen from 51 per cent to 58 per cent. The poverty rate of those with four or more children, which is high even with familiy allowances, would have risen still more, from 71 per cent to 87 per cent. From these figures we can conclude that, although the incidence of receipt of family allowances favoured middle income groups before it was reformed into a means tested scheme, the erosion of family allowances, nevertheless, has had a greater effect on those with lower incomes. This is supported by the trends in the FGT index, which shows a very significant rise, differentiated according to the number of children and primarily among those with three or more children. Among those with one or two children, a 30–60 per cent rise is discernible for all three thresholds. This indicates that the effectiveness of family allowances as a program of income support could have increased by making it income dependent (more precisely by making the net family allowance income dependent, namely by taxing family allowances) and by combining this with the differentiation by the number of children.

Of the four types of benefit investigated, the ‘withdrawing’ of the unemployment benefit and social assistance would, according to earlier examinations, have had the least dramatic effect, which stems from the relatively minor importance of these two benefits. We found for 1992–1993 that the poverty risk of those households where the head of the household was unemployed would have risen by some 25 per cent (from 41 per cent to 51 per cent). One half of households where the head of the household was unemployed were households where total elimination of unemployment benefit would not have been accompanied by a fall to below the absolute poverty threshold. The ‘withdrawing’ of social assistance, on the other hand, would in practice not increase the poverty risk of the

population as a whole. Of course, this does not mean that the abolition of social assistance would not cause serious problems for the very poor. On the contrary: it would clearly do significant harm to the situation of those who are already poor, as well as harming the income position of households who now could not be described as poor, but not so much that these would fall below the fixed poverty threshold.[14]

Now with these more recent calculations, we can arrive at similar conclusions, although now it is not the poverty rate of households that is being examined, but that of persons. Despite this we can see that even a small 'withdrawal' of unemployment benefit and social assistance would increase the poverty rates and the FGT index, but the Sen index would not rise more than 20–30 per cent and 9–13 per cent respectively at the time the two benefits are 'witthdrawn'. Especially surprising is the very small increase that would have characterized the withdrawal of social assistance. Further investigations will be necessary to explain the reason for all this.

Table 10

Summary data: Poverty rates with and without welfare benefits

Years	Poverty threshold	Total income	Without family allowances	Without unemployment benefits	Without pensions	Without social assistance
	HUF	per cent				
	Poverty threshold: 50 per cent of average income					
1992	55910	12.5	18.1	14.7	28.1	13.2
1993	71805	10.4	14.1	12.9	33.5	11.3
1994	82600	11.8	16.5	15.3	36.8	12.6
1995	95758	15.6	22.6	17.0	34.4	16.2
1996	106919	18.0	22.7	19.8	36.4	18.4
1997	118532	17.8	21.8	18.7	44.0	18.8
	Poverty threshold: 50 per cent of median income					
1992	49000	10.2	13.7	11.9	25.1	10.8
1993	61050	6.6	10.2	9.1	28.0	7.3
1994	69823	7.3	11.6	9.7	30.8	8.0
1995	79803	9.0	14.8	10.8	26.7	9.5
1996	92350	12.7	18.0	14.3	29.9	13.3
1997	102750	12.4	16.5	13.4	37.2	13.6
	Poverty threshold: Upper limit of bottom quintile					
1992	66502	20.0	27.1	22.3	40.6	20.9
1993	88586	20.0	25.9	22.7	49.4	20.8
1994	97840	20.0	24.6	22.4	49.6	20.8
1995	103600	20.0	27.0	21.9	43.4	20.9
1996	112800	20.0	25.6	22.1	43.1	20.4
1997	124600	20.0	23.5	21.2	46.4	20.9

Had there been no pension, the poverty risk of pensioners would have risen to 79 per cent as compared to a 7 per cent probability of belonging to the bottom quintile.

[14] See *Tóth, I. Gy.* Note 1.

Moreover, 77 per cent of them would have fallen not only below the quintile barrier, but also below 50 per cent of the average income. At the same time a withdrawing of pensions would also have significantly increased the poverty risk of those households in which the head of the household is below pension age, as well as the risk of those who, although not pensioners themselves, live in households where one or more pensioners are living. There is a multifaceted explanation for all this. On the one hand, as we have seen on the basis of earlier investigations, in the income composition of households where the head of the household is of pension age, the proportion of income derived from pensions exceeds 70 per cent. This proportion is even higher in the case of pensioners living alone and in the case of pensioner couples. Because of this, a fall in the value of pensions (or the abolition of pensions altogether) would be equivalent to total poverty for them, and, in the majority of cases, to total lack of income. On the other hand, this is not true for all pensioners.

It is obvious that the poverty risk is smaller for those pensioners who have their own incomes from the market, or for those who live in households where there is at least one active earner. For these pensioners, part of the 'drop' stemming from the decrease in the value of pensions can be warded off by income from the market. In any case the lesson is that the vulnerability of pensioner households can really be reduced by making their income composition more diversified.

Table 11

The poverty-reducing effects of the different benefits: the ratio of the poverty rate in the absence of benefits to the poverty rate with benefits

Years	Family allowances	Unemployment benefits	Pensions	Social assistance
	Poverty threshold: 50 per cent of average income			
1992	145	118	225	106
1993	136	124	322	109
1994	140	130	312	107
1995	145	109	221	104
1996	126	110	202	102
1996	122	105	247	105
	Poverty threshold: 50 per cent of median income			
1992	134	117	246	106
1993	155	138	424	111
1994	159	133	422	110
1995	164	120	297	106
1996	142	113	235	105
1997	133	108	299	110
	Poverty threshold: upper limit of bottom quintile			
1992	136	112	203	105
1993	130	114	247	104
1994	123	112	248	104
1995	135	110	217	105
1996	128	111	216	102
1997	117	106	231	104

Tables 10 and 11 show that poverty rates have increased significantly in the 1990s. We need to add that data calculated on the basis of average incomes show certain hectic movement, which is probably due to the fact that the Hungarian Household Panel's sample size is rather small. In estimates of this kind, a small sample size greatly accentuates the sensitivity of the average towards extreme values.

From the tables it can also be concluded that, in a certain sense, the poverty-reducing effects of family allowances and pensions work against each other. The fact that these two benefits are the two biggest items in the social benefits system certainly played a major role in this. In their cases, a decision on one of these benefits always has an effect on the other, since they are in competition for the funds relating to the 'maintenance' of benefits.

Table 12

The poverty-reducing effects of the different benefits: Ratios of poverty indices in the absence of benefits to poverty indices with benefits

Years	Family allowances	Unemployment benefits	Pensions	Social assistance
Sen index	Poverty threshold: 50 per cent of average income			
1992	157	125	436	107
1996	149	114	400	107
1997	140	112	423	110
	Poverty threshold: 50 per cent of median income			
1992	156	127	517	108
1996	160	115	494	109
1997	158	116	520	113
	Poverty threshold: Upper limit of bottom quintile			
1992	147	119	347	106
1996	146	113	371	106
1997	141	112	393	109
FGT(2) index	Poverty threshold: 50 per cent of average income			
1992	167	133	736	109
1996	168	115	683	111
1997	171	121	715	114
	Poverty threshold: 50 per cent of median income			
1992	175	138	894	110
1996	176	116	860	114
1997	186	125	897	117
	Poverty threshold: Upper limit of bottom quintile			
1992	159	128	572	108
1996	164	116	620	110
1997	165	116	646	114

We have calculated the Sen and FGT indices for the first and last two years of the period investigated. The poverty-influencing effect of the given benefits is presented in

Table 12. It is worthy of note that although these two indices take into account different aspects of poverty, the changes in the benefits, over a period of time, display similar characteristics.

Table 13

Accumulated distribition of individual social incomes and total household income, in income deciles defined on the basis of the equivalent incomes of households
(per cent)

Years	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
	deciles									
	Pensions									
1991–1992	5.9	16.2	28.3	40.0	52.7	63.9	74.1	82.1	92.3	100.0
1992–1993	6.8	15.6	26.5	37.6	50.5	62.2	71.7	82.7	91.3	100.0
1993–1994	4.7	12.9	23.3	34.7	47.2	58.7	70.9	80.3	90.5	100.0
1994–1995	4.6	12.8	23.1	35.0	47.4	61.8	73.1	82.9	92.5	100.0
1995–1996	4.2	10.9	19.4	32.2	43.9	57.8	69.5	80.6	91.9	100.0
1996–1997	2.9	9.7	18.2	28.7	41.0	54.4	66.9	80.5	92.0	100.0
	Unemployment benefits									
1991–1992	13.6	24.1	35.7	46.8	55.3	63.1	78.6	89.2	94.4	100.0
1992–1993	15.7	30.9	40.4	51.7	58.4	69.6	82.1	91.6	96.5	100.0
1993–1994	13.1	30.4	39.9	50.6	59.7	71.4	83.6	89.1	97.2	100.0
1994–1995	18.6	31.6	41.9	50.8	58.8	70.9	83.6	91.7	96.9	100.0
1995–1996	15.3	32.2	52.3	57.7	69.8	77.2	87.5	92.6	95.6	100.0
1996–1997	25.3	39.8	50.9	58.2	65.8	71.9	81.7	94.4	97.1	100.0
	Social assistance									
1991–1992	9.2	21.3	29.2	37.0	51.9	63.0	76.9	81.1	85.4	100.0
1992–1993	17.4	30.8	39.0	47.1	54.1	65.8	81.2	88.6	96.5	100.0
1993–1994	21.5	30.8	38.5	55.9	65.4	80.6	88.0	92.6	99.8	100.0
1994–1995	17.1	27.7	39.1	48.6	60.6	66.5	75.5	86.6	98.9	100.0
1995–1996	17.9	29.9	40.8	44.4	51.6	69.4	81.1	86.4	93.0	100.0
1996–1997	18.9	36.2	47.4	60.4	65.7	74.9	80.9	89.6	97.3	100.0
	Family allowances									
1991–1992	8.1	14.1	22.5	31.8	43.2	54.7	68.1	81.4	91.4	100.0
1992–1993	9.0	17.3	26.2	35.9	45.9	58.7	69.6	81.8	91.7	100.0
1993–1994	11.0	21.7	29.9	39.4	48.6	59.1	70.2	81.7	92.0	100.0
1994–1995	13.2	24.6	34.1	42.4	53.4	63.9	73.2	82.5	92.1	100.0
1995–1996	13.0	28.9	39.5	47.2	58.0	65.8	74.5	85.0	93.3	100.0
1996–1997	20.9	35.0	43.6	51.9	62.2	71.0	80.5	88.7	96.3	100.0

The first conspicuous characteristic is that, as the poverty-reducing power of the benefits – in the majority of cases – diminished, their internal order remained the same. The role of pensions changed the most, at the earlier date their role was more significant, which supports the fact that the relative position of pensioners has improved. Again it is worth noting that the 'power' of social assistance has not increased, and that of family allowances has not shown a significant change, either.

*

On the basis of the findings of this study, our first conclusion is that before going further it would be important to examine, once again and in greater detail, the distribution of social incomes and the role of welfare benefits in the reduction of poverty. This would mean, on the one hand, the conducting of incidence studies, and, on the other hand, the examination of income composition according to income size and social grouping, and to changes over time. In this regard, it should be mentioned the increase in the concentration of social incomes (in other words, the 'improving' tendency in the 'targeting' of incomes of this sort) has halted the increase in the inequality of pre-distribution incomes. The concentration (for this reason probably their 'targeting' too) decreased somewhat in the last period. This is shown in detail in Table 13, which relates to the distribution of social incomes. In the distribution pattern of social incomes considered together, in all cases except pensions, a shift towards the lower income groups has been noticeable for years. Within these changes, the 'targeting' of familiy allowances and maternity benefits are especially worthy of attention, but in the case of social assistance and unemployment benefits, the shift of benefits towards those on the lower rungs of the income ladder should not be overlooked either.

STATE RESPONSES TO POVERTY AND UNEMPLOYMENT IN HUNGARY

ÖDÖN ÉLTETŐ – JUDIT LAKATOS – MÁRIA RÉDEI

During the 1990s, the incomes of Hungarian households decreased on average in every year except 1994. At the same time, in this period of transition, the output of the economy also decreased mainly due to the restructuring which took place. Employment declined: both the number of unemployed people and the inactivity rate among the population increased. In all years but 1994, when real earnings increased by 7 per cent, earners had to face a situation where the rate of inflation considerably exceeded the increase in nominal earnings. Incomes from employment decreased as a proportion of total household incomes, while social incomes increased particularly among low income households.

What is characteristic of the composition of incomes at the bottom of the Hungarian income distribution is that, while before 1990 low income households were particularly dependent on pensions for the aged, in 1996 low income households were more dependent on unemployment benefits and various forms of family assistance. This happened because families with dependent children but without an active earner came down to the lowest rung of the income ladder, while the incomes of pensioner households decreased, on the average, less those that of families with children.

In the period considered, income inequality increased significantly. According to the data of the income survey carried out in 1996 (with a reference year of 1995) as a supplementary survey of the Microcensus, the total household income share of the poorest population decile amounted to 3.3 per cent only while in 1987 this share was 4.5 per cent of a much higher real income. At the same time, the share of the income attributed to the top decile of the income distribution increased from 20.9 per cent to 25 per cent.[1]

In 1995, the government of Hungary decided to reform the child benefit system as a part of austerity measures designed to reduce a budgetary imbalance. However, it was planned to reduce the variety of benefits and number of households eligible to these benefits in a way that would not affect negatively those most in need. After a lengthy political and legal debate, the new package of measures came into force on 16 April, 1996. A long period had elapsed between the time the decision on reform was taken and the reform was actually introduced, yet an assessment of the distributional impacts of the re-

[1] Jövedelemeloszlás Magyarországon, 1995. Központi Statisztikai Hivatal. Budapest. 1998. 10 p.

form was never carried out. In this paper we use a recently developed microsimulation model to examine the impact of the April 1996 reforms of child-related benefits on budget expenditures and household incomes. In addition, the microsimulation model is also used to examine the budgetary and distributional impact of some possible alternatives to the policies introduced.

Our purpose in carrying out this task is two-fold. First, we wish to demonstrate the usefulness of a microsimulation model in a country such as Hungary which is undergoing social and economic transformation. We believe that the real importance of this microsimulation model is its ability to highlight to decision makers the necessity and possibility of impact assessment. Our second aim is to draw some conclusions about the impact of reforms to the child-related benefits system implemented in April 1996. An assessment of these reforms is vitally important, not only because the child-related benefits system is crucial to the incomes of millions of Hungarian households, but also because of the longer term implications of reform, particularly in the areas of labour market participation and population growth. This also implies that the benefits system should be regularly re-assessed as economic and social conditions change.

Our main conclusion from this research is that while the reform of the child-related benefits system, in particular the introduction of means-testing for Family Allowance, did produce certain savings to the government budget, and had relatively little distributional impact, this would have been offset by the considerably higher administrative costs associated with means-testing. We also found, however, that the cost of restoring Family Allowance to the real levels enjoyed by households with children in the early 1990s would be rather expensive.

The remainder of this paper is divided into four parts. In the first chapter, the microsimulation model and the data are discussed. In the second the reform to child-related benefits of April 1996 are discussed and evaluated. In the third some possible alternatives to the April 1996 reforms are considered. The last one presents our conclusions.

THE MODEL AND MICRODATA

The primary aim of this research was to investigate the impact of various policy options – concerning state benefits and tax alleviations connected with child bearing and child raising – on poverty and the distribution of household incomes, and on the relative income position of various social groups including families with different numbers of dependent children. In order to carry out these investigations, a microsimulation model was built by the Department of Living Standards and Human Resources Statistics, Hungarian Central Statistical Office (HCSO), in collaboration with the Microsimulation Unit, University of Cambridge.[2] Here, we give only a very brief summary of its features.

The Microsimulation Model

Researches on methodological issues of microsimulation techniques began in the HCSO in the mid-1980s. The microsimulation model developed for the present research

[2] The model is described in more detail in *Papp, E. – Jarabek, Z.*: State responses to poverty and unemployment in Hungary: Technical description of the Hungarian Microsimulation Model. Hungarian Central Statistical Office. Budapest. 1997.

project is a static and non-behavioural one, meaning that the internal structure and characteristics of households in the dataset were left unchanged, and no change in individual or household behaviour was assumed as a result of a policy change. The model was designed in the first instance to examine the impact of reforms to the system of child benefits in Hungary on household incomes. To carry out microsimulation procedures, an SAS application was used. This allowed the easy manipulation of both data and policies. The tax/benefit provisions that the model can currently simulate include personal income taxes and social security contributions, Family Allowance, Child Care Allowance and Maternity Allowance. Allowing for limitations in the microdata, the model can be extended to handle other types of benefits, too.

The microdata

The microsimulation model constructed for this project used the Hungarian Household Budget Survey (HBS) from 1995 as its major source of microdata. The HBS is collected annually by the HCSO, and has been widely used to chart the impact of economic transformation on Hungarian households.[3] These data included detailed information on the characteristics and personal incomes of individuals in 10,500 Hungarian households, and are grossed up by using demographic weights to be representative of the Hungarian household population. *Havasi, É.* and *Rédei, M.* in an analysis[4] of representativity of the 1995 HBS have found that in terms of the composition of Hungarian households, the data and the population are similar. However, the representativity of some income components, particularly income from self-employment, is poorer. This problem is not unique to the Hungarian HBS. It is generally experienced in income and expenditure surveys.[5] However, it is important to take into account a differential representativity when microsimulation results based on these data are being interpreted.

In order to carry out an analysis of the reforms to child related benefits implemented in April 1996, income data in the 1995 HBS were updated to 1996 levels. The updating strategy employed in the HCSO's microsimulation model is discussed in greater detail by *Éltető, Ö.*[6] While it is often the practice with microsimulation modelling to update income data and also perhaps certain characteristics of the sample so that they reflect what might be the current (or even a future) situation, this has not been felt to be an appropriate strategy in the case of Hungary. Both in 1996 and 1997–1998 social and economic characteristics of the population were still felt to be changing rapidly, but there were few forecasts of the size and nature of these changes. However, by 1997, rather reliable information on the nature of changes up to 1996 were becoming available, and these were used as means of updating the 1995 HBS micro data.

More specifically, three types of information were available about incomes in 1996 and accordingly different procedures were applied in updating incomes to 1996.

[3] *Kattuman, P. – Remond, G.*: Inequality in Hungary 1987 to 1993 DEA Working Paper No. 9726. University of Cambridge. Cambridge. 1997.

[4] *Havasi, É. – Rédei, M.*: Representativity of the Household Budget Survey sample and validity of HBS income data, 1995. Hungarian Central Statistical Office. Budapest. 1997.

[5] *Redmond, G. – Wilson, M.*: Validating POLIMOD. Microsimulation Research Note MUIRN/14. University of Cambridge. Cambridge. 1995.

[6] *Éltető, Ö.*: Algorithm used for updating income data of the 1995 HBS to 1996. Hungarian Central Statistical Office. Budapest. 1997.

First, reliable and fairly differentiated macrostatistical data on the gross earnings of employed earners were available in early 1997. Thus, earnings indices for updating earnings data in the HBS from 1995 to 1996, differentiated by 14 economic branches and within each branch by sex and manual/non-manual grouping, could be calculated.

The second type of information related to those social incomes that were determined for 1996 by law or by governmental measures. For example, in 1996 all state pensions, rents and the Orphan's Allowance were raised by 13.5 per cent, and reported amounts in the 1995 HBS were adjusted accordingly.

Thirdly, early information from the 1996 HBS was used to update other income. For updating income items other than earnings and the above-mentioned benefits, no other information was available except that contained in the 1995 and 1996 HBS data. Therefore indices to uprate these income items were calculated using 1995 and 1996 HBS data. In total, Individual income from all sources was aggregated into 23 groups. Four of these groups were further categorised according to the sex of the respondent and their educational attainment. Therefore, in total, 43 separate indices were used to update these other categories of income. Household income items were aggregated into 13 groups and updated according to 13 separate indices.

The policies modelled

In this project, variations on the following policy provisions were modelled: Family Allowance, Child Care Fee, Child Care Allowance, income taxes and compulsory social insurance contributions. These benefits and taxes are described in more detail in the following chapter.

Here, we briefly describe some of the problems encountered in modelling them using HBS data.

Family Allowance. Since this was a universal benefit until 1996, and then means-tested on the basis of household incomes which could be captured quite well by the HBS, the modelling of entitlement to Family Allowance among HBS respondents was relatively straightforward. However, while information on incomes in the household are collected over a year in the HBS, information on characteristics, such as the number and ages of children, are collected only once, when the household is first interviewed. Therefore, there is a small mismatch in the data between recorded and simulated receipt of Family Allowance.

Child Care Fee and Child Care Allowance. Eligibility to these benefits was modelled on the basis of actual eligibility in 1996. From April 1996, Child Care Fee and Child Care Allowance were amalgamated into one benefit, but the new rules only affected women who gave birth after April 1996, while existing mothers retained their entitlements under the pre-April 1996 rules. Therefore, the proportions of mothers who would be entitled to Child Care Allowance and Child Care Fee under the pre-April 1996 rules, and the proportion subject to the post-April 1996 rules, were estimated, since the HBS database does not contain information on the months of birth, only on the year. Macrostatistical data on the numbers of births in 1995 and 1996 were used for this task. These data showed that, although, the number of mothers in receipt of Child Care Fee decreased considerably between 1995 and 1996, the average amount of Child Care Fee that

they received increased as a result of increases in nominal earnings in the preceding years (Child Care Fee was an earnings-related benefit). Therefore, both the proportion of mothers who remained subject to the pre-April 1996 rules, and the amount of Child Care Fee to which they were entitled, was modelled in this exercise.

Income taxes and social insurance contributions. For political and analytical purposes, the impact of various simulation options on disposable incomes net of direct taxes and social security contributions is of primary importance. This means that net disposable incomes had to be calculated from the gross incomes of individuals and households in the 1995 HBS (updated to 1996) using the provisions of the Personal Income Tax (PIT) laws valid for 1996. This was not a straightforward task, because the 1996 PIT law was the most complicated it had ever been since its introduction in 1988. Therefore, because of the lack of necessary information in the HBS, it was not possible to take into account all of the subtleties of the tax law as they applied to individuals. However, the essential elements of taxing gross incomes were applied.

Family Allowance award amounts and means-test thresholds, 1995 and 1996
(HUF per month)

Maximum amounts of benefit 1995 and 1996	
single parent with 1 child, per child	3250
single parent with 2 children, per child	3750
single parent with 3 or more children, per child	3950
couple with 1 child, per child	2750
couple with 2 children, per child	3250
couple with 3 or more children, per child	3750
amount per handicapped child	5100
Means-test from April 1996	
Single parent, per capita family income below 19600	
entitlement, for family with 1 child	3250
entitlement for family with 2 children, per child	3750
Single parent, per capita family income between 19600 and 22500	
entitlement, for family with 1 child	2300
entitlement for family with 2 children, per child	2700
Single parent, per capita family income between 22500 and 23400	
entitlement, for family with 1 child	1300
entitlement for family with 2 children, per child	1500
Single parent, per capita family income above 23400	no entitlement
Couple, per capita family income below 18000	
entitlement, for family with 1 child	2750
entitlement for family with 2 children, per child	3250
Couple, per capita family income between 18000 and 18750	
entitlement, for family with 1 child	2000
entitlement for family with 2 children, per child	2300
Couple, per capita family income between 18750 and 19500	
entitlement, for family with 1 child	1100
entitlement for family with 2 children, per child	1300
Couple, per capita family income above 19500	no entitlement
Minimum pension for one person	9600
Average net earnings*	31086

* Data of enterprises with more than 20 employees, relating to full-time employees.

DESCRIPTION AND IMPACT OF THE APRIL 1996 REFORMS

*Child-Related Benefits before April 1996.*The main components of the Child-Related Benefits System before 16 April, 1996 were as follows.

Universal (civil right entitlement) Family Allowance, the amount of which depended on the number of children and whether the family was headed by a couple or a single parent. The coloumned setting summarises the amounts of Family Allowance payable to different family types before and after the April 1996 reforms. The significance of Family Allowance could be characterised by the fact that in 1995 the rate for a couple with one child equalled 28 per cent of the minimum pension, and 9 per cent of average earnings, rising to 36 per cent of average earnings where the couple had three children. Family Allowance accounted for 3.8 per cent of total incomes for households with one child, 7.8 per cent of incomes for households with two children, and 16.1 per cent of incomes for households with three or more children.

Pregnancy Allowance was payable on a universal basis to expectant mothers who were more than three months pregnant, and was paid at the same rate as Family Allowance.

Child Care Fee was payable to insured mothers of children aged less than 2; the amount paid was 75 or 65 per cent of average earnings of the previous period depending on the contribution record of the recipient.

Child Care Allowance for insured parents of children aged less than 3, or children aged less than 10 if the child was permanently ill. The amount was a flat-rate sum, regardless of social situation and previous earnings.

Child Care Support, a benefit for families with at least three dependent children under the age of 18 and where the youngest was aged between 3 and 8, was introduced in 1993, and was the sole income-tested component of the system. However, the eligibility threshold (that per capita income should not exceed three times the minimum pension) was set so high that very few families with three children were ineligible.

Maternity Allowance was payable to insured mothers for 24 weeks at a rate of 100 per cent of their former wage.

The amount of Orphan's Allowance awarded was dependent on the earnings of the deceased parents and on the number of children in the orphaned family (in 1995 the average payment to 108, 000 recipients was 9 000 HUF per month) about a third of average earnings, and close to the minimum of old age pension.

A large amount of state support for families with children came in the form of cash and in-kind welfare provisions, such as regular and once-off education support, and partial or total subsidistation of the cost of school lunch and accommodation in student hostels. Further support was provided in the form of allowances to foster parents and welfare scholarships in secondary and higher education.

Child-Related Benefits after April 1996. The reforms of 16 April 1996 affected universal and personal entitlement provisions (Family Allowance, Pregnancy Allowance and Child Care Allowance) as well as provisions connected to employment (Child Care Fee and Maternity Allowance). The system was reformed as follows.

Levels of Family Allowance did not change between 1995 and 1996. However, from April 1996, Family Allowance was subject to a means-test, which was based on the

household's per capita disposable income net of alimony paid, child-care allowance and imputed income from the consumption of home production in the previous financial year (that is, in 1995 in the case of assessment of eligibility in 1996). No means-test was applied in the case of families with three or more dependent children, here the eligibility was automatic. In the case of families with one or two children, a step-wise means-test was applied. Families with per capita incomes below the low income threshold received full entitlement to Family Allowance; families with per capita incomes between the low and the high income thresholds received a reduced amount of Family Allowance, and families with per capita incomes above the high income threshold were not eligible for any Family Allowance. The low and high thresholds varied according to the number of children in the family (one or two), and depended on whether the family was headed by a single parent or a couple. Family Allowance amounts and details of the means-test introduced are summarised in coloumned setting.

This shows that for couples in particular, the range of per capita income across which eligibility to Family Allowance was reduced from full entitlement to none was quite narrow. A couple with per capital income of less than 18 000 HUF (58 per cent of average earnings) were entitled to the maximum amount. But if their per capita income was 19 500 HUF (63 per cent of average earnings), they were anot eligible for any Family Allowance.

Pregnancy Allowance was abolished and replaced with a newly established lump-sum maternity payment of 14 400 HUF. This was equal to about 5 months' Pregnancy Allowance in the former system.

Child Care Fee was abolished in respect of children born after April 16, 1996.

Entitlement to Child Care Allowance became means-tested. Only families eligible for Family Allowance were also eligible for Child Care Allowance, although it was no longer necessary to have a social insurance contribution record to receive it. In addition, the rate of Child Care Allowance was increased from April 1996 from 7 500 HUF to 9 600 HUF (of which a 6 per cent health insuranece contribution was directly deducted). Mothers could claim Child Care Allowance in respect of children who were less than three years old.

Conditions of eligibility and benefit rates for Child Care Support were not changed.

The maximum amount of the Maternity Allowance payable was reduced to 65–75 per cent of previous average earnings of the mother.

With the exception of the reform of Family Allowance, these changes applied to those children only who were born after the reforms were introduced. Therefore, the impact of the reforms as they were experienced by Hungarian families, was felt only gradually.

The means-testing of Family Allowance was relatively well received by the people in Hungary. However, the application form was rather complicated and this potentially excluded low income families lacking necessary literacy. At the same time it is questionable whether the money saved by excluding a small part of households justified the extra costs of checking, processing and recording income statements. Also, the use of income thresholds (3 in 1996 and 2 in 1997) to determine eligibility may have resulted in families with incomes near these thresholds adopting strategies that were strongly influenced by the threat of losing eligibility.

However, there were two positive features of the reform: one was that the nominal value of the family allowance would grow from 1997 as promised by the government; the other was that in November, 1997 a new (but means-tested) benefit, Child Welfare Support, was introduced. This benefit was targeted on very low income households with a per capita income of less than the minimum pension level.

Evaluation of the reform of family benefits

The impact of the reforms to family benefits on the income situation of households with children as well as on state budget can best be evaluated by comparing the result of microsimulation of Versions 0 and 1. Version 0 reflects the actual situation in 1996, that means the 1995 incomes updated to 1996 and the changes in the Child-Related Benefits System as a result of the reforms introduced in April 1996. In Version 1 incomes are also updated to 1996, but the Child-Related Benefits System is maintained according to pre-reform rules. Consequently, differences between the results of Versions 0 (1996) and Version 1 (1995) can be attributed to the immediate impact of the reforms introduced in April 1996.

Table 1

Number of child-related benefit recipients and state budget amounts

Version	Number of recipients			Total Annual Expenditure			Income of households	
	Households	Persons		billion HUF				
	Family Allowance	Child Care Fee	Child Care Allowance	Family Allowance	Child Care Fee	Child Care Allowance	Gross incomes	Net incomes available
0	1 339 900	156 500	119 300	96.6	23.6	13.3	2846.5	2321.2
1	1 423 700	188 700	91 500	100.6	29.3	11.2	2862.1	2336.3

Some of the macroeconomic and fiscal impacts of the reforms, as calculated by the microsimulation model using HBS data, are shown on Table 1. Two of the changes, namely means-testing of Family Allowance and the elimination of the Child Care Fee, will potentially have significant long term impacts both on the central budget and on certain groups of society, but in 1996, their aggregate impact was relatively mild. The means-testing of Family Allowance resulted in a 4 per cent reduction in total annual expenditure on this provision (from 100,6 billion HUF to 96.6 billion HUF), while expenditure on Child Care Fee, which was abolished in respect of babies born after April 1996, dropped from 29.3 billion HUF before the reform to 23.6 billion HUF, a reduction of almost one fifth. Expenditure on Child Care Allowance increased from 11.2 billion HUF before the reform, to 13.3 billion HUF after it. This increase occurred partly because it replaced the Child Care Fee for new mothers after April 1996, and partly because of the increased rate for this benefit from the same date.

Analysis of the simulated aggregate costs of Family Allowance, Child Care Fee and Child Care Allowance shows that these three benefits amounted to 5 per cent of the gross incomes and 6 per cent of net incomes of the Hungarian population. Almost three quarters of this amount (72 per cent) consisted of Family Allowance payments, 18 per cent

consisted of Child Care Fee, and 10 per cent consisted of Child Care Allowance. Had the eligibility criteria for these benefits remained unchanged (Version 1), their share in total household incomes would have been approximately 0.3 per cent higher. In other words, it would have cost the central budget an additional 8 billion HUF as compared to the 144 billion HUF spent on these benefits in 1996. Savings were made up of 4 billion HUF from the means-testing of Family Allowance and 4 billion HUF from the abolition of Child Care Fee and the uprating, extension and means-testing of Child Care Allowance. (The latter is a compound of 6 billion HUF savings in Child Care Fee and an additional 2 billion HUF of Child Care Allowance).

The rest of the modifications to child-related benefits discussed above together produced less than 3 billion HUF in savings to the central budget, and did not significantly affect average living standards of families during 1996. They did however, still contribute to a general reduction in welfare.

Table 2

Decile shares of various child-related benefits in Versions 0 and 1
(per cent)

Version	Deciles										Total
	1	2	3	4	5	6	7	8	9	10	
	Decile shares of all child benefits										
0	18.2	14.9	14.8	11.0	9.9	8.8	7.1	7.8	5.0	2.5	100.0
1	17.1	14.0	14.1	10.7	9.7	7.7	6.8	8.3	6.5	5.4	100.0
	Decile shares of Child Care Fee										
0	10.3	10.6	17.4	8.6	11.9	9.9	5.4	12.5	8.1	5.4	100.0
1	11.1	11.1	17.3	8.2	11.4	8.3	6.4	13.4	8.2	4.7	100.0
	Decile shares of Child Care Allowance										
0	22.4	15.4	18.0	11.9	10.0	6.9	5.8	4.3	3.9	1.3	100.0
1	20.7	15.7	17.4	12.2	8.1	7.7	4.0	5.5	5.7	3.0	100.0
	Decile shares of Child Care Support										
0	43.7	19.5	20.9	8.3	0.8	1.4	3.8	-	-	1.6	100.0
1	43.3	20.5	17.2	8.6	2.6	3.3	3.0	-	-	1.5	100.0
	Decile shares of Family Allowance										
0	19.9	16.1	13.9	11.5	9.6	8.8	7.5	7.0	3.9	1.7	100.0
1	18.4	14.6	13.0	11.0	9.4	7.7	7.2	7.2	5.9	5.4	100.0

As can be seen from Table 2, the reforms of April 1996 affected households differently according to their position on the income distribution. In summary, the share of the lowest decile in the three types of child benefits considered grew by about 1 percentage point in 1996 compared with 1995, while the shares of the upper three deciles decreased. Some details are worth highlighting.

The gain in shares of Child Care Fee is concentrated around the middle of the income distribution. Child Care Fee was abolished in respect of children born after 16 April, 1996, but previously, it had been available to insured mothers of children aged less than

2 as long as they remained on maternity leave. Women in insured employment were likely to belong to households in the middle or higher deciles. But as *Lakatos, J*. shows, women in the best-paid jobs tended to remain on maternity leave for shorter periods than women in less well-paid jobs.[7] Therefore, after the 1996 reform, Child Care Fee was concentrated more towards the middle of the income distribution, with decreases in shares at the bottom, and at the 7th and 8th deciles. On the whole, in 1995 the three lowest deciles received 39.5 per cent of Child Care Fee transfers, while in 1996 their share was reduced to 38.3 per cent.

Both in 1995 and 1996, over half of all Child Care Allowance was received by households in the three lowest deciles. This is not surprising, since this benefit was less generous than Child Care Fee and was available to mothers of children aged less than 3, who did not have a sufficient social insurance contributions record to claim Child Care Fee, or whose child was aged between 2 and 3, and their entitlement to Child Care Fee had been exhausted. Child Care Allowance was therefore considerably less attractive to mothers with a well-paid job than to return to work (this is clear from the distribution of this benefit across the income deciles). After the 1996 reforms, Child Care Allowance was even more concentrated among households in the bottom three deciles.

Child Care Support was available as a means-tested benefit to households with three or more children. Both in 1995 and 1996 over 80 per cent of all Child Care Support payments were made to households in the lowest three deciles. This is not surprising, considering its means-tested nature, and the fact that households with several children tend to be concentrated in the lower income deciles.

After it was means-tested in 1996, the distribution of Family Allowance became more concentrated in the bottom deciles. In 1995, households in the bottom decile received 18.4 per cent of all Family Allowance. In 1996, this share increased to 19.9 per cent. By contrast, the share of Family Allowance accruing to households in the top income decile decreased from 5.4 per cent in 1995 to 1.7 per cent in 1996. Only households in the top three deciles lost out, on average, in 1996 compared with 1995. Households in the bottom seven deciles gained in terms of shares as a result of the reforms.

The 1996 reform of the Child-Related Benefits System, saving 8 billion HUF in the types of benefits under study, therefore led to a greater concentration of payments towards the middle and the bottom of the per capita income distribution.

Breaking down households in two groups, those with and those without active earners, allows for a more detailed analysis of these trends. Fifty-seven per cent of the households (containing nearly three-quarters of the Hungarian population) had active earners in 1996. Nearly two thirds of these households had children. At the same time, only one tenth of the nearly 1.6 million inactive households had children. To put it in a different way, there were active earners in almost nine tenths of the 1.5 million households with children, but 11 per cent of households with children did not have an active earner. In 1995, 85 per cent of child benefits were transferred to households with active earners, while in 1996 this figure was reduced to 83 per cent. The reform package which saved 8 billion HUF was designed to affect only households with active earners. Households

[7] *Lakatos, J*.: Return to the labour market after the Child-Care Leave. Hungarian Central Statistical Office. Budapest. 1997.

without active earners continued to receive about 24–25 billion HUF in Child-Related Benefits, most of which was in the form of Family Allowance payments.

Table 3

Decile shares of child-related benefits among active households in Versions 0 and 1
(per cent)

Version	Deciles										Total
	1	2	3	4	5	6	7	8	9	10	
	Decile shares of total child-related benefits										
0	15.0	14.2	14.1	11.9	12.3	9.4	9.5	7.4	4.2	2.0	100.0
1	13.7	13.5	13.1	11.3	10.9	9.3	9.4	7.6	6.6	4.4	100.0
	Decile shares of Family Allowance										
0	16.5	15.1	13.7	12.5	12.1	10.0	9.0	6.6	3.5	1.1	100.0
1	15.1	14.1	12.4	11.7	11.0	9.3	8.7	6.8	6.3	4.6	100.0
	Decile shares of Child Care Fee										
0	6.6	12.0	14.2	8.2	14.9	9.0	12.7	9.9	7.9	4.5	100.0
1	7.3	12.4	14.8	7.5	12.4	11.1	13.6	8.2	8.7	4.0	100.0
	Decile Shares of Child Care Allowance										
0	20.2	13.9	17.7	13.5	11.8	8.0	5.8	4.6	2.9	1.5	100.0
1	18.7	15.2	15.9	14.2	9.0	9.2	5.5	5.4	3.5	3.5	100.0
	Decile Shares of Child Care Support										
0	35.1	25.3	23.6	5.0	1.2	4.6	2.9	-	-	2.3	100.0
1	35.1	23.4	23.9	6.7	1.1	4.6	2.9	-	-	2.3	100.0

Table 3 shows the impact of the 1996 reforms on those households with active earners. Compared with the overall results presented in Table 1, the distributional impact of the reforms is quite large. In 1996, child-related benefit payments to households below the median were 2 billion HUF or 5 per cent higher than in 1995. At the same time child benefit payments for households in the upper four deciles decreased by 10 billion HUF. These changes were primarily due to a decline in the amount of Family Allowance and Child Care Fee paid to households in upper deciles, as well as to the increases in Child Care Allowance and Child Care Support paid to households in the lower deciles. Families with children who lost their Family Allowance and/or Child Care Fee entitlement moved to lower, normally middle income deciles, while households receiving Child Care Allowance or Child Care Support instead of Child Care Fee moved to the lowest income deciles in 1996. Income inequality, however, changed little: both in 1995 and 1996, incomes in the uppermost decile were on average 5.6 times higher than in the lowest decile according to the HBS.

The impact of the Child Benefit Reform on active households with various numbers of children

Table 4 shows that there were 2.2 million active households in Hungary in 1996. Of these, 40 per cent had no children, 28.2 per cent had one child, 26.2 per cent had two

children, and 5.6 per cent had three or more children. If people rather than households are used as the unit of analysis, then people living in households with no children comprised 29.4 per cent of the Hungarian people living in households headed by an active person, and people living in households containing 3 or more children comprised 9.3 per cent of the population of people living in active households.

Table 4

Poverty and inequality within active households by the number of dependent children

Denomination	Number of children in household				All active households
	0	1	2	3 or more	
Number of households	883 160	613 449	574 453	122 363	2 193 439
Percentage of all households	40.0	28.2	26.2	5.6	100.0
Number of persons	2 091 039	2 014 986	2 346 736	663 354	7 116 115
Percentage of all persons	29.4	28.3	33.0	9.3	100.0
			Version 0		
Average net annual equivalised income (HUF)	475 204	368 112	319 977	263 387	374 860
Poverty line (HUF)	160 045	160 045	160 045	160 045	160 045
Number of poor persons	86 915	97 263	155 151	82 558	421 887
Percentage of all poor	20.6	23.4	36.8	19.6	100.0
Average poverty gap (HUF)	19 015	32 754	37 675	27 039	36 016
Relative poverty gap	11.9	20.5	23.5	16.9	19.1
Gini co-efficient	0.247	0.232	0.227	0.220	0.260
			Version 1		
Average net annual equivalised income (HUF)	475 704	373 461	323 612	266 007	377 974
Poverty line (HUF)	160 552	160 552	160 552	160 552	160 552
Number of poor persons	86 915	98 622	153 656	85 438	424 631
Percentage of all poor	20.5	23.2	36.2	20.1	100.0
Average poverty gap (HUF)	18 812	31 733	37 063	26 571	29 978
Relative poverty gap	11.7	19.8	23.1	16.5	18.7
Gini co-efficient	0.247	0.234	0.229	0.220	0.260

Before the reforms of April 1996, the annual equivalised income of households with no children was 475 204 HUF. Households with one child had 373 461 HUF per annum, or 79 per cent of the incomes of households without children; households with two children had, on average 323 612 HUF (68 per cent of the average amount of households without children); and households with three or more children had annual equivalised incomes of 266 007 HUF (56 per cent that of households with no children). After the reforms, which had no impact on households without children, the average equivalised household incomes of active households with children as a proportion of the incomes of active households without children fell to 77 per cent in the case of households with one child, 67 per cent for households with two children and 55 per cent for households with three or more children. Therefore, the relative income position of households with children worsened somewhat as compared to that of households without dependent children.

Table 4 also shows that if households who had less income than 50 per cent of the median net equivalised income are defined as poor, it can be shown that both before and after the April 1996 reforms, the number of people living in households defined as poor was slightly over 420 000, of whom 87 000 lived in households with no children, 150 000 lived in households with two children, over 80 000 lived in households with three children. These numbers suggest that households with no children or one child were under-represented among those below the poverty line, but households with two children, and particularly households with three or more children, were over-represented. As a result of the April 1996 reforms, slightly more households with two children fell into poverty, while slightly fewer households with three or more children did so. However, at about 20 per cent both before and after the reforms, the representation of households with three or more children among those in poverty was more than twice of what their population strength would suggest.

The Gini inequality index, though rather low, shows that income inequality was the largest among active households without children. This was particularly the case within single member households. The Gini inequality index decreased according to the number of children in the household, and was largely unaffected by the reforms to child benefits.

OUTLINE OF ALTERNATIVE POLICY OPTIONS

Besides assessing the impacts of the 1996 reform of the Child-Related Benefits System, the research project also investigated some alternative policies concerning child benefits using microsimulation methods. The purpose in doing this was primarily to see whether some of these alternatives could yield a more favourable distributional and perhaps psychological impact without greatly increasing the burden on the state budget.

The alternative policies investigated can be classified into three groups.

1. Vary eligibility criteria for Family Allowance. In Versions 2, 3 and 6, eligibility criteria for Family Allowance, which would have an impact on the incomes of most households with children, were changed, but the amount payable per child was held constant according to the 1996 rules. In these versions entitlement to Family Allowance was made universal not just for families with three or more children (as was the case under the 1996 régime), but also for families with one child under the age of six (Version 2), for families with one child under the age of 3 (Version 3), and for single parent families (Version 6).

2. Vary rates of Family Allowance. In Versions 4/3 and 9, eligibility criteria for Family Allowance were held constant according to the 1996 rules, but the rates at which Family Allowance was paid were increased. Between 1992 and 1996, nominal rates of Family Allowance were not increased to compensate for increases in the cost of living. With the introduction of means-testing in 1996, its nominal value even decreased for many families. In Version 4/3, the means-testing thresholds for Family Allowance introduced in April 1996 were held constant, but rates at which the benefit was paid were doubled. In Version 9, the amounts of the Family Allowance were set at the level actually implemented in 1997 (when Family Allowance was increased), but income thresholds for means-testing purposes were kept at the same level as in 1996.

3. Introduce tax relief for workers with dependent children. Under Version 7/1, entitlement to Family Allowance was held constant according to the rules implemented in April 1996, and extra help for families was provided in the form of child-related tax reliefs. In this version, parents could deduct some of the extra costs associated with raising children from their personal income taxes: parents could deduct between them a total of 1 000 HUF per month in case of one child, 1 500 HUF per month/child in case of two children and 2 000 HUF per month/child in case of three or more children. However, if parents did not earn enough taxable income to pay income tax, they could not avail of this benefit. It must be noted here that in 1996 there was no income threshold below which income tax was not payable: the lowest income tax rate was 20 per cent. Social incomes were either not taxable (as it was in the case with Family Allowance) or the tax on them was deductable from total tax (as it was the case with pensions).

Table 5

Number of child benefit recipients and state budget amounts in the various versions

Version	Number of recipients			Cost of reform as percentage of Total Annual Expenditure on child-related benefits		Income of households (billion HUF)	
	Households	Persons					
	Family Allowance	Child Care Fee	Child Care Allowance	in Version 1 (1995)	in Version 0 (after April 1996)	Gross income	Net income available
1	1 423 700	188 700	91 500	100.0	105.7	2862.1	2336.3
0	1 339 900	156 500	119 300	94.6	100.0	2846.5	2321.2
2	1 409 800	156 500	119 300	96.0	101.4	2849.3	2324.0
3	1 369 900	156 500	119 300	95.2	100.6	2849.1	2323.8
4/3	1 339 900	156 500	119 300	162.9	172.1	2944.7	2419.3
6	1 339 900	156 500	119 300	95.0	100.4	2850.0	2324.6
7/1	1 339 900	156 500	119 300	94.6	100.0	2846.5	2387.5
9	1 339 900	156 500	119 300	115.2	121.7	2877.3	2352.0

The consequences of these alternatives on macroeconomic expenditures are summarised on Table 5, and can be elaborated as follows.

1. Vary eligibility criteria for Family Allowance. The extra cost to the central budget of paying Family Allowance as an entitlement for all children aged under six (Version 2), or under the age of three (Version 3), or for all single parent families (Version 6) was relatively small. Under all three versions, budget expenditures as simulated by the model increased by as little as 1 or 2 billion HUF compared with Version 0, or less than one per cent of total expenditure on child-related benefits after April 1996. This can be explained by the relatively low fertility rates experienced by Hungarian women during the 1990s.

2. Vary rates of Family Allowance. In versions where eligibility criteria for Family Allowance were the same as in 1996 (Version 0), but where benefit amounts were increased, the model shows that budget expenditures would grow considerably. These versions were based on the consideration that Family Allowance could play a more central role in preventing poverty than was the case in 1996. In Version 4/3, Family Allowance rates current in 1996 were doubled, but the means-test was kept in place. This had the effect of restoring Family Allowance to its early 1990s value in real terms for families with

incomes below the means-test threshold, but would have cost the central budget an extra 100 billion HUF, equal to a 72 per cent increase in expenditure on child-related benefits. The share of child-related benefits in total household incomes would have increased by 3 percentage points. It is obvious, however, that the central budget would not be able to cover these expenditures. In Version 9, Family Allowance was increased as required by regulations in May 1997, but with income limits the same as in 1996. This reform increased simulated expenditure on child-related benefits by about 22 per cent, and average net household incomes by about 1.3 per cent.

3. Introduce tax relief for workers with dependent children. In version 7/1, the post-April 1996 Family Allowance regime was left unaltered, but extra income tax rebates for workers with dependent children were simulated. According to HBS data, this would result in a 60 billion HUF reduction in income tax revenues. If this measure were introduced, however, it is possible that the actual loss would be smaller, as families, in seeking to claim these rebates, might not conceal their incomes to the same extent as they may do under the current system.

Table 6

The share of deciles in Family Allowance in various versions
(per cent)

Version	Deciles										Total
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	
1	18,5	14,7	13,0	11,0	9,4	7,7	7,2	7,2	5,9	5,4	100,0
0	19,9	16,0	13,9	11,7	9,6	8,8	7,5	7,0	3,9	1,7	100,0
2.	19.8	16.1	13.9	11.5	10.0	8.4	6.9	6.2	4.2	3.0	100.0
3.	20.0	16.4	14.4	11.9	10.5	8.6	6.8	5.6	3.5	2.3	100.0
4/3.	16.4	15.0	14.1	12.4	10.2	9.6	8.3	6.8	4.6	2.6	100.0
6.	20.2	16.4	14.4	12.0	10.5	8.6	6.7	5.6	3.4	2.2	100.0
9.	19.4	16.4	14.6	12.2	10.2	8.9	7.0	5.5	3.8	2.0	100.0

Table 6 shows some of the distributional impacts of the simulated reforms discussed above. In all versions except Version 4/3 (including the one adopted from April 1996, Version 0), the concentration of Family Allowance on the bottom decile was greater than was the case under the 1995 system (Version 1). However, none of the alternative versions improve markedly the targeting of Family Allowance on households in the bottom decile over that which Version 0 delivers. At the other end of the per capita income distribution, however, the 1996 Family Allowance régime is by far the least generous to households in the top decile. Households in this decile receive only 1.7 per cent of all Family allowance under the 1996 regime, compared with 5.4 per cent under the 1995 régime.

Overall, however, only in Versions 2 and 3, where the Family Allowance is a personal entitlement or increased differentially according to the number of children in the household, does the distribution of shares of Family Allowance vary significantly from that pertaining under the simulated 1996 regime. In other versions, the distribution of Family Allowance across active households with children is roughly the same as in 1996.

Table 7

Shares of active households with different number of children in Family Allowance

Version	Active households	Inactive households	Households with 1 child	Households with 2 children	Households with 3 or more children
			as per cent of all active households*		
1	84.5	15.5	25.2	52.2	20.3
0	84.2	15.8	22.2	53.4	23.0
2	85.2	14.8	30.8	44.6	22.1
3	84.9	15.1	28.4	46.9	22.2
4/3	84.6	15.4	27.2	47.8	22.5
6	84.6	15.4	27.9	47.4	22.1
9	84.5	15.5	26.3	47.3	23.9

* The proportions of families with one or more children in receipt of Family Allowance do not add up to the proportions of all active households in receipt of Family Allowance, because some households where there are no children present in the household at the time of interview for the HBS may still report receiving Family Allowance if a child was temporarily absent, or had recently left the household.

Restricting now our investigations to active households, who received the bulk (about 85 per cent) of Family Allowance in all versions differentiating them by the number of dependent children, we can conclude – on the basis of Table 7 – the following.

– Households with one child, which comprised 47 per cent of all active households with children, received in all versions except Version 2, less than 30 per cent of total Family Allowance payments. Version 3 was the next most generous simulated reform as far as they were concerned. There are two reasons for this: first, where there was only one child in the family, they tended to be quite young, and therefore the family benefited from the simulated universalisation of Family Allowance for children aged under 6 (Version 2) or under 3 (Version 3); second, most other reforms simulated were likely to the disadvantage of families with only one child.

– Households with two children, which comprise 44 per cent of all active households with children, received in the various versions between 45 and 53 per cent of all Family Allowance payments.

– Households with three or more children, 9 per cent of all active households with children, received 20–24 per cent of Family Allowance payments in all of the versions simulated in this paper. The fact that the variation in relative outcomes for this group is so small may be attributed to the state of affairs that none of the simulated reforms sought to be to the disadvantage of this group. It is worth mentioning, however, that more than one third of households with three or more children belong to the group of inactive households. Within active households, their share was the largest in versions where amounts of Family Allowance per child were increased.

The impact of Version 7/1 on the income distribution and especially on poverty deserves special attention. As it can be seen from Table 8 and comparing it with Table 4, it considerably reduces both overall poverty within active households and that of households with 2 or more children.

Table 8

Poverty within active households by the number of dependent children according to version 7/1

Poverty indicators	Number of children in household				All active households
	0	1	2	3 or more	
Average net equivalised income (HUF)	48 378	379 610	338 460	285 417	388 003
Poverty line (HUF)	166 176	166 176	166 176	166 176	166 176
Number of poor persons	90 332	95 220	114 284	50 996	350 832
Percentage of all poor persons	25.8	27.1	32.6	14.5	100
Average poverty gap	20 414	33 087	41 729	25 609	31 552
Relative poverty gap	12.3	19.9	25.1	15.4	19.0

CONCLUSIONS

Two types of conclusions can be drawn from this paper. First, the inferences that can be drawn from the results of the simulations themselves, should be presented summarising the main findings of the impacts of the April 1996 reform as well as the alternative policy options considered.

The other type of conclusions concerns the evaluation of the whole project, particularly in relation to the continued utilisation of the microsimulation model. The 1996 reform to the Child-Related Benefits System resulted in 8 billion HUF saving for the central budget. Half of this saving resulted from the introduction of means-testing for Family Allowance. Although means-testing of social benefits seems generally justifiable, it is questionable, considering the additional administrative cost of collecting, checking and processing the application forms, whether it was worth the trouble to introduce it for Family Allowance. Moreover, from statistics referring to 1996 and 1997, it seems that means-testing of Family Allowance and Child Care Allowance – along with other measures of the 1996 reform – may have a negative impact on an already very low birth rate.

The reform had no perceptible impact on the overall income inequality. However, it caused some restructuring between income deciles: the majority of families with several children and single parent households have moved to the lowest income deciles, and families who are now excluded from certain benefits have shifted downwards in the income hierarchy.

From among the alternative policy options considered, only those in which the level of Family Allowance was increased had a large impact on the income situation of families with children: in these versions the inequality indices show smaller income differences. However, the fiscal implications of increasing Family Allowance payments are severe: they would result in a significant extra burden for the central budget.

As to the second type of conclusions, it should be pointed out, first of all, that this research may serve as a good example of how the impacts of planned central measures influencing the welfare of households and affecting the state and/or social security budgets could be investigated by microsimulation techniques in advance of their introduction. It is no wonder, therefore, that there was active interest on behalf of the decision makers, especially the Ministry of Welfare at the November Workshop, where the methodological issues and the results of the research project were presented. The HCSO itself put on

its workplan further investigations of this type. In order to increase the level of interest in, and knowledge of, microsimulation techniques in Hungary, the HCSO has also published both the methodological issues and the results of this ACE Project in three parts in the *Statistical Review*, the periodical of the HCSO.[8]

However, because researches of this type are generally considered as basic researches and not those for direct application, it is difficult to raise the necessary funds for their financing. We think that it would be useful if financing further microsimulation researches could be secured.

[8] *Csicsman, J. – Papp, P.*: A családtámogatási rendszerek hatásvizsgálata mikroszimulációval. *Statisztikai Szemle*. 1998. No. 3. 238–249. p.; *Éltető, Ö. – Havasi, É.*: Mikroszimulációs kísérlet a családtámogatások hatásvizsgálatára. *Statisztikai Szemle*. 1998. No. 4–5. 324–340. p.; *Keszthelyiné dr. Rédei, M. – Dr. Lakatos, J.*: A családtámogatási rendszer változtatásának hatásai. *Statisztikai Szemle.* 1998. No. 6. 473–480. p.

AGRICULTURAL POLICY LESSONS*

IVÁN BENET

Hungarian agricultural policy of the past 50 years was rich in achievements and turnabouts. This half century can be divided into several periods.

The subjects of the present article are two periods of this time. The first one is the decade between 1966–1975, which is one of the most successful periods of the Hungarian agricultural history. How could Hungary attain this success? Does it have any lesson for the future?

The other period is the agricultural transition after 1989 which is still vehemently debated. This is natural since events of the nineties brought to the present more failure than success. This former success industry of the national economy has to face long-lasting crisis. The question that naturally arises: to what extent has this crisis been caused by failures of the agricultural policy of the year 1991?

At the end of the article – after analysing the two periods – I try to formulate some ideas for the future agricultural policy.

Agriculture and economic growth

The growth of Hungarian agriculture in the long period between 1925–1995 is presented in Figure 1. It offers many lessons even without a deeper analysis.

Thus e.g. one can see that the seven decades encompassed two drastic falls in agricultural production namely during World War II. and during the transition after 1989.

One can also see the fall of production during the Great Crisis of 1929–1933 and during the mass collectivization (1959–1962). Gross output in both periods increased mildly, net output however, fell by more than 10 per cent during the mass collectivization.

The graph also clearly demonstrates that between 1965 and 1984 the rate of growth in the Hungarian agriculture was dynamic. It is worthwhile to calculate five-year averages on the rate of growth:

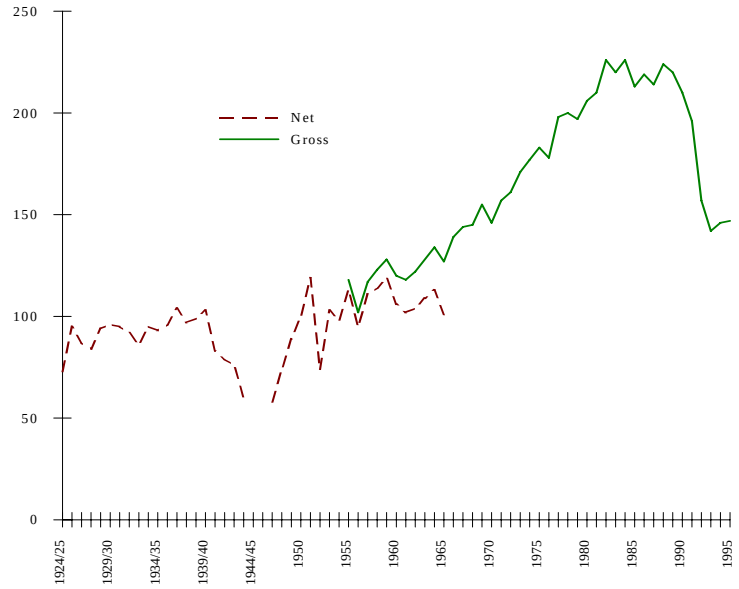
1966 – 1970/1961 – 1965	3,0

* This article was written in the framework of T 20091 research program of Hungarian Scientific and Research Fund (OTKA).

1971 – 1975/1966 – 1970	3,4
1976 – 1980/1971 – 1975	2,8
1981 – 1985/1976 – 1980	1,7
1986 – 1990/1981 – 1985	0,0

Particularly striking is the high average annual growth rate of the 1966–1970 and the 1971–1975 periods. In international comparison Hungary was only second to the Netherlands regarding the rate of growth of agriculture.

Figure 1. Net and gross output of Hungary's agriculture, 1925–1995



Source: *Benet I.*: Az új magyar agrárpolitika elõzményei és jellemzõi. (II.) *Statisztikai Szemle.* 1997. No. 4–5. 312. p.

Five-year averages explain partly why we should analyse the 1966–1975 period in more detail. I have to apologize for treating only the most important reform steps, but the constraints of space do not allow me a complex study.

Some features of the decade between 1966–1975

In 1955 in Boston (USA), professor *John Davis* wrote a study[1] relying on input-output analysis about backward and forward linkages of American agriculture. Among other things, he came to the following conclusion.

It is characteristic that whereas 30 years ago American agriculture produced 70–80 per cent of its own tools of production, nowadays it buys at least 50 per cent of them on the market. According to the bourgeois literature, agriculture today is so much interconnected with industrial, trading, transportation and storage activities that we cannot speak

[1] *Davis, J. H.*: From agriculture to agribusiness. *Harvard Business Review*. Boston. 1956. No. 1 107–109. p.

about agriculture in the old sense, but have to use the term of agribusiness. This branch of economy, 'agribusiness' employs 40 per cent of the total labour force and produces 40 per cent of Gross National Product (GNP) in the United States.

Another structural indicator of growth is that both large-scale and small-scale agriculture have had a part in it.

This new approach increasingly spread in Hungary in the early sixties and, in 1967, it resulted in several reform steps.

In the Spring of this year – after some preliminary work – the Ministry of Agriculture and Food Economy was estabilished as a result of the amalgamation of the the Ministry of Agriculture, the Ministry of Food, the National Board of Forestry and the National Office of Land and Cartography. Their former workforce was reduced by 50 per cent. The ministry was headed by *Imre Dimény*. His main endeavour was to coordinate and review the whole food chain from the industrial background to the consumer. Under his guidance, the structure and the guidelines of operation of the new ministry were elaborated.

This very year Hungary entered FAO.

In 1967, the Center for State Farms was established on enterpreneurial principles. In May of 1967, a conference of secretaries of state negotiated for the preparations of the National Agricultural Fair and Exhibition. A basic principle was that, in line with the momentuous changes in the regulatory system of Hungarian food production, one should aim at demonstrating the vertical process of food production (production of raw material, processing, consumption and export) in its entirety. The chief message of the main pavilion should be the verticality.

The most important event of 1967 was undeniably the September session of the Parliament. At this session Minister Imre Dimény, at the request of the Council of Ministers, introduced Bills about co-operatives and land property and use. We should not forget that this session was held a few months before the implementation of the New Economic Mechanism in 1968. The Minister in his exposition argued for the acceptance of the two laws. His most important argument was that co-operatives are large agricultural farms functioning as industrial enterprises. They can account as cost of production the value of circulating capital, amortization of fixed assets and the rent of their lands. Their business autonomy reinforces their enterpreneurial character. Therefore it is appropriate to enlarge co-operative property. This aim was served by the Bill on land property and use. If accepted, it would allow for co-operatives – with differentiation and against reimbursement – to acquire the property of the lands in their use. The essence of the Bill was to gradually unify co-operative land property and land use. The other Bill was aimed at considerable reinforcement of auxiliary activities of co-operatives with the purpose to improve the utilisation of co-operatives' resources and income earning capacity. It tried to convince political leaders and the representatives of the industrial lobby that large agricultural farms will not replace large-scale state industry. This is not the intent of the Bill, and it would be an irrealistic goal anyway. Large agricultural farms will be interested primaliry in food production in the future as well. The exposition of the Minister dealt also with the relationship between common and household farms, and their organic unity. The institution of the household farm is not a preliminary but a long term element of the conception in the economic policy. The Bill stated that common and household farms constitute an organic whole. According to the Minister, the two Bills may contribute to

the ability of Hungarian agriculture to utilise the possibilities offered by the new management system and the economic environment.

As I have already mentioned, in 1967 the Center of State Farms (CSF) was estabilished on enterpreneurial principles. The task of this center was the regulation of state farms by adhering to their autonomy, the replacement of the previous direct regulation by indirect regulation. It is characteristic of the work style and speed of the new Minister and Ministry that the first lessons of the functioning of CSF, the reorganizations and the new regulations were already evaluated in December 1967. Its elements are:

– one should abstain from direct interference with the activity of state farms

– merger between farms is not intended, in the present stage of the reform one should not burden state farms with it

– in the present period, the main task for state farms is to know the economic incentives of the reform and to live with them.

It is a remarkable element that the new Ministry dealt with the export–import activity of firms already in the first year, in June 1967. It came to the conclusion that one should reinforce the mutual material incentives of producer and foreign trade firms, and it is advisable to give export–import licence for special products: breeding eggs. grain, stallions, race horses, flower-seeds etc. Already in 1967 four food industrial firms obtained autonomous foreign trade licence for certain products.

In the first half of the seventies there were several considerable reform steps in the area of food economy. I have chosen three of them.

The Ministry of Agriculture and Food Economy (MAF) knew well that for successful food production one should embrace and co-ordinate three main links of the agribusiness chain. In the early seventies several negotiations were held between MAF and the Ministry of Metallurgy and Engineering (MME). In 1973 the two ministries formulated a common suggestion. Its starting point was that for the domestic production of agricultural machines, its organization, management and regional settlement, dividedness and dismemberment are characteristic. There are parallel activities. According to some data from 1972, the shares of MME and MAF firms in domestic trade of agricultural machines were 50–50 per cent. In order to rule out parallelism and to elaborate a unified agricultural machine development conception, one had to change the organization. The viewpoint of the suggestion in this respect was that from 1 January, 1974 the central regulation of agricultural machine production would be transferred to MAF. From this date on, MAF has also been pursuing the tasks of international co-operation in the area of agricultural and food industrial machines. The production of food industrial machines would gradually be shifted to MAF until December 31, 1975. The suggestion – besides some organizational changes – also provides for financial preconditions so that technological development may start with agricultural machines in Hungarian production. It is characteristic of the elan of work in MAF that already in October 1974, a Suggestion was submitted to the Ministrial Council in its center with the modernization of production technologies. To establish the program financially, the 2 billion HUF investment funds of firms had to be supplemented by a 1 billion HUF contribution from the budget and by a 2,6 billion HUF long-term credit. This experiment which lasted until January 1, 1976 could not be evaluated; nevertheless, it was interesting in international respect.

The other thing I want to mention is the relationship between foreign trade and food economy. In the first years of the 1970's there were several rounds of negotiations between MAF and the Ministry of Foreign Trade (MFT) where MAF asked MFT to enlarge the range of firm-level foreign trade licencing. These negotiations meant essentially an effort to break the foreign trade monopoly of the state, but at that time with no consequence. One had to wait for this until 1988.

Finally, I will mention the spread of production systems in the Hungarian economy which also occurred in the first part of the 1970's. A large part of production systems functioned as a true center of innovation, not as a chair of Marxist philosophy. It was looking for suitable answers to the needs of practice. It pumped complex technologies into the firm structure of agriculture. In reality they were the main carriers of technology development. With the spread of production systems, a considerable growth of the Hungarian agriculture was achieved. There were considerable differences according to the output indicator used. If we compare agriculture in a narrow sense (activity principle) and agriculture in a broader sense (organizational principle), we find that the role of the year 1967 was considerable both in gross and in net output. If we take into account non-agricultural activity, the increase of both indicators is stronger. Another structural indicator of growth is that both large-scale and small-scale agriculture had a part in it. As a result of the rapid growth, the per capita production of grain, meat etc. was favourable in international respect and created a balanced domestic food market with enough food for large masses at affordable prices. It was customary for neighbouring countries, if they confronted a problem, to look at Hungary, 'what the Hungarians do'. Hungarian agriculture had an international renown, it contributed to the prestige of the country.

It also pertains to the history of the 1970's that, in 1973, the first textbook in food economy appeared.[2] The author wrote it as a 'preliminary one'. The second, matured variant was meant for publishing in the mid seventies, but history wanted it otherwise.

Finally, we should not forget when evaluating the reform steps and endeavours of the 1970's that it was politics that intermingled in the process in the winter of 1972–1973. It halted the reform process. In the early years of the decade the MAF was under constant criticism since the income of those living from agriculture surpassed the income of industrial workers. In the mid-1970's, small-scale production was finished with. Were it not for 1967, agricultural co-operatives might have been nationalized.

To finish , I would like to mention what is the most important: after 1966, as a result of reformed agricultural policy, a new, peculiar agricultural model emerged gradually which had several characteristics.

Such is e.g. the conception about ownership shaped under the direct influence of Ernõ Csizmadia and Imre Dimény. In 1967, this was the equalization of rank between state and co-operative property and the foundation of agriculture on mixed (state, co-operative and private) property-relations for the long run.

Another strategic characteristic of the Hungarian agricultural model is the recognition of the perspective and importance of small-scale production. Even if at the cost of big infightings, finally the right to exist for market oriented small-scale production in Hungarian society was acknowledged.

[2] *Csizmadia, E.*: Bevezetés az élelmiszergazdaságtanba. Akadémiai Kiadó. Budapest. 1973. 317 p.

Another characteristics of the model is the development of so-called non-agricultural activities besides agricultural activities and the combination of the two. As a result of the seventies, Hungarian agriculture became three pillared (plant cultivation, animal husbandry and non-agricultural activities). I must mention as an important characteristic that the share of non-agricultural activity within the total value of production was the highest in farms working on the worst lands.

Finally, I would like to mention the outstanding role of technically operated production systems in the Hungarian agricultural model. Production systems were at the edge of scientific and technical progress, they tried to embrace the best results, they diminished the failures in the relationship between agriculture and its industrial background.

As a result of the ownership conception in the second half of the 1980's, the share of large-scale and small-scale agriculture in the value added of agriculture was 50–50 per cent.

The fact that a Hungarian model of agriculture[3] exists is little known in the international literature. It is heartening, however that the knowledgeable agricultural economist of Germany, professor *K. E. Wädekin*, acknowledged the existence of such a model. He remarked that the Hungarian agricultural policy, although a unique case, may be considered as a new model and appears in Soviet and Eastern-European publications. Political leaders and specialists of other socialist countries have been studying this model intensively, especially in the last ten years. 'Hungary is representing a policy which has not overthrown the once imposed Soviet system, but introduced so many features of individual, even outright private initiative and flexibility of management in the social sector ... that her agrarian system may still be called a large-scale socialist, but certainly not one of Soviet-type farming'.[4]

Science should return to the complex evaluation of the Hungarian agricultural model.

At the end of the 1980's, conditions changed considerably. The Hungarian agricultural model had to be further developed.

Agricultural transition after 1989

I have been convinced that national economy and – within it – agriculture has to switch to a new growth path. I have been aware of the problems of the previous development. Let us see first the conceptions at the end of the eighties concerning the new growth path.

Perhaps the most important thing is that along the old path there was a sellers' market. Hungarian food production had to face market constraints only rarely and transitorily. On the new growth path however, the buyers' market is dominant. (This is what is really called a market).

In the center of the old growth path, we can find the volume of production: it is production-centered. In the center of the new growth path, however we find that market and production are subservient to it.

The old growth path favoured quantitative growth. On the new growth path, growth is differentiated among products and product groups, adapted to different consumer

[3] For further deitails on this respect see: *Benet I.*: A föld, az istenadta föld. *Statisztikai Szemle.* 1995. No. 3. 216–227. p.
[4] Communist Agriculture. Ed.: *Wädekin, K.E.* Routledge. London – New York. 1990. 323. p.

needs and areas, is quality-oriented, reacts to specificities; all these being indispensable preconditions of establishing and preserving competitivity.

Along the new growth path, there is more compulsion for the rational management of the factors of production. Consequently, we have to deal more with problems of rational land use, rational management of labour and implementation of capital saving methods.

Under the new circumstances, the energy problem has been raised in a different way. The characteristic of the old growth path, whereby cheap energy was available in almost unlimited amount, is a feature of the past. For the new growth path, energy-saving is characteristic.

With reinforced efficiency criteria, we have to point out a further important difference. The old growth path what was centered around the increase of gross production, on the new growth path what we find in the center of interest is the value added income producing capacity.

The old growth path was, beyond its concentration on production, also main product centered. It paid little attention to the utilization of side products and rejected environmental problems. The new growth path should be biomass centered where environmental problems have a priority.

Both growth paths are built on the synthesis of large-scale and small-scale production. On the old growth path 50 per cent of the national income was produced by small-scale production. The bipolar agriculture should remain characteristic under the new growth path too, but small and medium-sized production will be realized increasingly within the private sector. As a result of social transformation of agricultural structure, a new sector, the sector of family farms, will develop.

Both the old and the new growth paths have been and are determined by external and internal factors. There is, however an important difference: the role and importance of outside factors increases along the new growth path and a larger part of output growth has to be placed on external markets.

We should add: Hungarian agriculture is far from the possibility of any output growth in the 1990's. Our plans concerning the new growth path have not come true. Today we already know that in Hungary – but in other former socialist countries too – the volume of agricultural production decreased considerably in the nineties.

Nevertheless, I think what was said, in the above, might give concepts for a new agricultural policy to grasp. Such concepts might be so that one should not reorganize or sentence to death the whole sector of state farms and co-operatives; but one ought to develop further the model of market oriented household farms created under socialism. Considering that the role of external markets increases, one ought to give more attention to the demonopolisation of foreign trade, and more energy should be given not only to our attachment to the European Union but also to retaining former CMEA markets, etc. The new agricultural policy took another road in 1991.

The new agricultural policy has several characteristics. One of them is that it was born in the storm of systemic changes and dealt first of all with its the problems. The concept of sustainable agriculture does not figure explicitly in it, although in Europe and overseas this was the central problem. The XXI. IAAE (International Association of Agricultural Economists – IAAE) Conference held in Tokyo in the summer of 1991, was organised around this question. It is to the 'merit' of the new agricultural policy, how-

ever, that we can find scattered in it all the elements of sustainability, i.e. sensitivity to demand, efficiency, environment friendliness and social acceptability.

Another basic characteristic of the new agricultural policy was its siding with market economy. This is also right, and follows from the general economic policy. Market economy in the case of agriculture was interpreted in a way similar to manufacturing. This does not appear explicitly in the agricultural policy conception. But we find in it sentences which make it probable that the standard has been market economy without subsidies, or its mild correction. There are no hints in the conception to the fact that the price level of the Hungarian agriculture is much closer to world market prices than that of the European Community or the majority of OECD countries. There are no hints at the fact that – contrary to public belief – the subsidisation of the Hungarian agriculture is much less than that of the European Community or the majority of OECD countries. Finally, there is no hint at the important historical fact that certain elements of market economy were already implemented in Hungary. Thus e.g. the basic idea of the 1968 economic mechanism was control through plan and market. The compulsory delivery system was already abolished in 1956.

The authors of the strategy conception did not take into account the characteristics of market economy in the agricultural sector of developed economies and the fact that in Hungary – unlike some other CMEA countries – market was not totally suppressed neither in theory nor in practice.

The third characteristic of the new agricultural policy is its siding with private property. It accepts as a fact the opinion that state and co-operative property are not viable and due to the lack of real proprietors they should be abolished. They were sentenced to death without serious consideration. The conception omits the fact that the decade between 1966 and 1975 was the best period in the XX century history of the Hungarian agriculture and the two decades from 1966 to 1985 were also outstanding. In the first above mentioned decade, Hungarian agricultural policy makers developed a peculiar agricultural model which brought big success to the country even on international level.

The fourth characteristic of the new agricultural policy is that it only marginally deals with market relations. Although, it mentions that the decrease of output is unavoidable and the collapse of the Eastern markets in 1991 will shake the economic foundations of important agricultural areas (Eastern-Hungary, territory between the Danube and the Tisza), thus endangering the livelihood of their populations. There is a hint that Hungarian agriculture should keep its position as one of the largest agricultural importer countries of the world. But it does not say unequivocally that this region – the former Soviet market – has a determining role even in the long run for the prospects of Hungarian agriculture and food economy. At the same time, it omits the fact that the European Union has a steady food surplus.

I should mention as a fifth characteristic that the agricultural policy did not realise its centrepiece: the high capital requirement of privatization. The problem is not that it omitted the high capital needs of transformation but that the propagated capital needs of the new agricultural units – private property family farms – were not realised. It only mentioned that in the new agricultural structure, less people obtain employment; which is true. It did not mention, however that in the European Union not only the labour productivity of agriculture is higher but also its capital intensity.

Sixth: the new agricultural policy largely simplified the problem of the 1400-1500 large agricultural farms. All of them were simply sentenced to death. It is well-known that there were large differences between them in respect to efficiency. Some of them were on world level, but some were execrable. Here the question arises: can they be dealt with by a unified therapy if their levels and structures are so different?

Seventh: the new agricultural policy forgot the importance of integrating interfirm relations. By sentencing to death state farms and co-operatives, it smashed to pieces the well-functioning integration network. The authors of the conception did not think about what would replace the old integration relations. It is to their credit, however that they stressed when dealing with property relations that privatisation in food industry and trade should be harmonised with privatisation in agriculture. Those who forced to pieces all large agricultural farms did not realise that they were not simply producer and service units but also integration centres.

Eighth: the new agricultural policy lacks defence of the domestic market. It is right to stress that Hungary is for liberalism in agricultural trade and will remain so. But the abolishing of import licensing and its replacement with tariffs will be a gradual process. The problems of tariff protection are not dealt with in the material. This may generate many problems.

Ninth: the new agricultural policy heralded a change in the direction from East to West. This is an objective derived from general economic policy and is basically right. Behind it there is a belief that Hungary can enter the European Union in the near future. The necessity of the change in direction cannot be denied.

Tenth: the new agricultural policy was based not on evolution but on revolution. It wanted rapid and deep changes in property relations, in the firm and entrepreneurial structure of the Hungarian agriculture. It did not tolerate a single co-operative, but only a few transformed state farms and a host of full-time family farms.

The new government and the Hungarian Parliament enacted in 1991 – after a long debate – the Law XXV. on the settlement of property relations, and on partial restitution of harm caused by the state in the property of citizens. This law secures – among others – partial restitution for those natural persons whose private properties were damaged after June 8, 1949.

Restitution is partial, its degree is established in a lump sum. In the case of agricultural land, the damage was determined in the following way. The basis of the calculation was the quantity and the quality of the land confiscated. The latter is expressed in Hungary in so-called gold crowns. The law on restitution stipulated that one gold crown is worth 1000 HUF. (I mention in parentheses that the average gold crown value of lands in Hungary is 20). The law declares that in case the former proprietor obtained for his land any retribution, its value has to be subtracted from the restitution value. Restitution embraced not only land but also forest where value was determined as four times the gold crown value.

For the practical implementation of restitution, state farms and co-operatives had to put aside a part of their area. This was not a mechanical act. Local land committees oversaw the process and there was an instruction that both high, medium and low fertility lands should be included in the restitution fund, not in one block but scattered all over the territory of the co-operative. The law provided that these areas should be located out-

side national parks. Only in exceptional cases – if other areas were not enough for restitution purposes – could the co-operative put aside national park areas for restitution.[5]

The original deadline of the restitution was December 31, 1992. Considering the huge workload, the deadline had to be altered, and it became December 31, 1993. But neither the second deadline could be adhered to. The latest, i.e. third deadline was May 31, 1994. Later came still new deadlines.

Considering this large-scale reform aimed at the transformation of land property and land use relations, I have to say that this is also largely politically motivated, a kind of reaction to large-scale collectivization. In several respects the two campaigns (mass collectivization and the restitution in the 1990's) are different, but in many respects they are similar. Such similarities are the following:

– both campaigns try to change drastically and within a short time land property and land use;

– in both cases the original mix of production factors (land, labour and capital) was destroyed and a new mix had to be created;

– in both cases a one-sided approach can be observed in the sense that mass collectivization tried to make state property preponderant – if not exclusive – whereas the present drive aims at exclusivity of private property. (When the restitution is achieved, as a result some 90 per cent of agricultural and forest areas will be in private property.);

– whereas collectivizations favoured one-sidedly the large farm and tacitly assumed that it was more efficient than the small farm, the present privatization tries to return to the land property system of the year 1947 (see Table 1) and tacitly assumes that the small one is beautiful;

– in both cases, as a result of rapid changes, there is uncertainty, anarchy, chaos in the everyday life of agriculture which will be difficult to overcome;

– in both cases, i.e. after the completion of collectivization and after the completion of restitution, the privatization of agriculture needs much credit and subsidies;

– in both cases, rapid changes were initiated from above by politics and not from bellow, as a result of organic development;

– in both cases, agricultural production decreased. Whereas during mass collectivization it was only the net output which fell and the gross output somewhat increased, during the present process of privatization the fall of the gross output is also catastrophic.

Now, as the process of restitution has been ended, we should acknowledge that Hungarian agriculture has lost its previous production potential to a catastrophic extent.Whereas in the area of services privatization brought rapidly tangible results and the abolishing of state monopoly had its effects within a short time, the production potential of the Hungarian agriculture fell drastically as a result of the actual implementation of privatization. The extent of the crisis is well demonstrated by the fact that fertilizer use measured in active agent fell from the previous 220–240 kilogram/hektare to the level of 30 kilogram/hektare, the level experienced at the time of the collectivization drive. The picture is similar in the animal husbandry. The livestock number of pigs is similar to that of 1938 and the number of cattles is more or less the same as it was after World War II. in the year 1945.

[5] From the land area thus put aside claimants could acquire land on auctions against their restitution tickets. In these auctions only those persons in possession of restitution tickets could participate *a*) whose confiscated land was in the property or use of the co-operative; *b*) who were on January 1, 1991 and at the time of the auction members of the co-operative and *c*) whose permanent domicile on June 1, 1991 was the town or village where the auctioning co-operative had its lands. Participants of the auctions made bids on the HUF value of the gold crown. Upset price was 3.000 HUF per gold crown. If there was no bid at the upset price, the auction price could be gradually lowered up to 500 HUF per gold crown.

There are several reasons for this picture. Let me mention only the narrowing of the domestic market, the collapse of the CMEA market, the opening of price scissors, draughts in some years and world recession, etc. It would be, nevertheless erroneous for scientific research to forget subjective failures which contributed to this situtation.

Table 1

Farm structure in December 31, 1947 Hungary

Size (hectare)	Number of farms	Agricultural land	Average size (hectare)
	per cent		
– 2,9	60.1	17.9	1.7
3,0 – 5,8	23.5	21.1	5.1
5,9 – 11,5	10.6	17.3	9.2
11,6 – 28,8	4.3	14.7	19.2
28,9 – 57,6	0.9	8.1	50.5
58,0 – 115,0	0.3	4.4	74.8
116,0 – 575,0	0.3	8.4	193.9
576,0 – 1726,0	0.0	4.9	913.8
over 1726,0	0.0	3.2	3268.1
Total	*100.0*	*100.0*	*5.6*

Source: Ministry of Agriculture.

During the present transformation, the changes were the deepest of all our history. At the same time – although time elapsed is not enough for a definite evaluation – it could be stated that the mix of successes and failures will not be favourable. Hungary was successful in her privatization of services and trade, but not in her privatization of agriculture.

A lot of problems of agricultural privatization are characteristic not only of Hungary, but also of a large part of East-European countries. I am not qualified for evaluating their situation, but it is food for thought that agricultural production has decreased to a catastrophic extent in the past years almost in all post-socialist countries.

Gross output of agriculture in 1995
(Index: 1988 = 100.0)

Country	Per cent	Country	Per cent	Country	Per cent
Slovenia	101	Czech	77	Estonia	57
Poland	92	Slovakia	70	Latvia	46
Bulgaria	77	Hungary	63	Lithuania	46

Source: Economic Survey of Europe. 1991. 1992. 1996. OECD. Paris. 1996.

This is the case even in those countries which do not experience any market problem since they have shortage of food, starvation or their threats. Thus e.g. in the Baltic Republics which had the best agriculture within the Soviet Union, the figures on production decrease are shocking. Similarly, if we look at the data of Bulgaria, we can see what

problems the export-oriented Bulgaria is facing. The same is true of Czechoslovakia, where the decrease of agricultural production is equally considerable. Several conclusions might be drawn from the above. It is very likely that any agricultural policy aiming at such a drastic change in land property and land use in such a short time will not be justified by history. Everything is possible of course, but the price to be paid is high.

I am of the opinion that there is a problem with the agricultural strategy either. Under the given historic environment, an agricultural strategy aiming at the unilateral restoration of private property and the reconstruction of family farms did not take properly into account the possibilities and constraints. One cannot wipe out with a stroke whole decades from history. It is a general phenomenon in every country concerned that there are only few people who want to set up a full time family farm. The problem is that the personal conditions of such a large-scale transformation are non-existent.

The path sketched up by the new agricultural policy is also problematic due to its high capital requirement. This is the other side of the problem. Let me compare, only as an illustration, the capital intensity of Hungarian agriculture with that of some West-European countries.

Table 2

The capital/output ratio of agriculture, 1984–1986*

Denomination	Denmark	The Netherlands	Germany	Hungary (billion HUF)
	ECU			
Gross output	82 868	137 795	71 396	416
Net value added	24 350	43 539	18 843	140
Fixed assets**	147 782	105 270	84 671	240
Buildings	117 825	74 114	41 464	190
Machineries	29 957	31 156	43 207	50
ACOR***	178	76	119	58
ACOR****	607	242	449	171

* ACOR – Average capital/ output ratio.
** Without land with permanent crops and breeding livestock.
*** ACOR – Fixed assets/gross output.
**** ACOR – Fixed assets/net value added.
Sources: The data of the Commission of the European Communities and The Hungarian Central Statistical Office.

The data are unequivocal, although there are some methodological problems. The data show that West-European agriculture is much more capital-intensive. The problem arises whether, in a period of chronic shortage of capital, an Eastern-European country ought to or simply can choose a highly capital-intensive path of development?

What is strongly attached to capital intensity is the labour productivity of agricultural production. In countries of Eastern-Europe, the share of agricultural employment within the total employment was much higher than in Western Europe. In Hungary, however the 17 per cent share of agricultural employment of the year 1988 fell, by 1994, to 7 per cent. Much labour has been released from agriculture.

Hungarian agriculture has been busy with the problems of privatization for years. All this is connected with historical justice. It is a fact that in socialism, capital income was

not recognized as legitim, the model of socialism, denied its existence. (I only mention as a curiosity that the socialist government of Hungary in the last years of its reign recognized and declared the existence of capital income.) That is why Hungarian agricultural co-operatives also devalued their capital. Agricultural co-operatives were based on three kinds of property: co-operative property (60%) created in 1967, members' property, the so-called private property (36%) and a few per cent of state property lands were also in their use. Land rent paid by agricultural co-operatives was nominal. This was particularly striking in the eighties, when land use became more variegated, new entrepreneurial forms appeared, co-operatives leased out their land several times at a rent they paid to members for their land. This was a serious contradiction which should have been solved by raising land rent to market level. At present, under the restitution process, another mistake is being made, namely, undervaluation of labour. During the last 10–20–30 years, many people worked hard in Hungarian co-operatives, contributing to their assets. It seems as if these people were the losers of the asset privatization where many outside proprietors appeared. As a result, decision-making in transformed co-operatives will have many problems.

Privatization was compulsory for Eastern-European (and within it Hungarian) agriculture. It is dubious, however whether the method of its implementation was properly chosen, whether, in case of Hungary, the liquidation of co-operative land property and the rebasing of the mixed property based Hungarian model on private property is justified. It is certain that this process is very expensive. It is also certain that this kind of privatisation is primitiv, because it made the same approach to each of the 1500 co-operatives.

I do not exactly know what the future structure of the agriculture in Eastern-Europe and Hungary will be like. The majority of co-operatives have been transformed and, contrary to the original ideas, they are not Western-type co-operatives, i.e. they still pursue some production activity. This is a direct consequence of the previous Eastern-European practice. Hungarian agricultural co-operatives were not farming co-operatives as the public thinks, but were of a mixed type, pursuing service and so-called non-agricultural activities, too. Thus they became multipolar and this was very important from the point of view of profitability.

The present problems are partly results of the erroneous interpretation of market economy. The new agricultural policy declared in 1990 that agriculture should be a competitive sector. This resulted in the radical reduction of subsidies (see Table 3).

The net Producer Subsidy Equivalent (PSE) indicator shows that in Hungary the level of subsidisation is less than that of the European Community (Union).The nominal assistance coefficient was (is) also lower in the Hungarian agriculture than in the EC. The consequences are clear. Partly due to this situation, the agriculture as a whole was loss-making already in 1991, and the situation has only aggravated since then. It is difficult to handle the resulting financial crisis. This is also a factor of the present situation.

As for myself, I cannot suggest to anybody to apply the Hungarian way of privatization. It has resulted in a lot of small-size family farms which are unable to compete on European markets. Their only positive impact might be that with their help starvation might be avoided in case of certain unemployed families. Another serious problem of the

privatisation in the agriculture is : in many cases the distance between land owner and land user has increased and not decreased.

Table 3

Subsidisation of agriculture
(per cent)

Region	1986–1988	1989–1991	1995	1996
	Nominal Assistance Coefficients (NAC)			
OECD	1.8	1.6	1.6	1.5
EC	2.0	1.8	1.9*	1.7*
USA	1.4	1.3	1.1	1.2
Hungary	.	1.3	1.2	1.1
Poland	.	1.0	1.3	1.4
	Producer Subsidy Equivalents (PSE)			
OECD	45	40	40	36
EC	48	45	49	43
USA	30	21	13	16
Hungary	.	23	16	11
Poland	.	0	21	28

* EU 15.
Source: Agricultural Policies. Markets and Trade. 1996. OECD. Paris. 1997.

In the literature we can find several versions of privatisation. Hungarian agricultural policy might have chosen more thoughtfully from among them:

1. sale of public assets to private persons;
2. transition to private law legal forms;
3. transfer of individual public supply tasks to private individuals (contracting-out);
4. transition to private (profit-oriented) business management:
5. increasing the autonomy for the man management of public enterprises;
6. debureaucratization;
7. decentralization;
8. unifying rules for both public and private firms;
9. promotion of competition by market;
10. eliminating or dismantling 'natural' statemonopolies;
11. privatization of jobs; adapting private sector wages;
12. reduction of the nature and scope of public services;
13. privatization of public resources;
14. privatization of public revenue: conversion of revenues from public investments into private profits; or private access to public capital and its revenues;
15. denationalization: pressures of international competition.

It ought to favour debureaucratisation, decentralization, promotion of competition, dismantling state monopolies etc. without liquidating the whole co-operative and state sector. It will cost very much for the Hungarian agriculture to regain competitivity.

It is obvious that forced privatization results in the squandering of assets. There are ample experiences showing this. The data on land auctions prove the same. In several instances, bidders made 'gentlemans' agreement' and bought the hectare of average quality

land for a sum equivalent to US $ 100. (The record price in Hungary up to the present is US $ 6.000 for 1 hectare. Such high prices are attained in holiday resorts, in the vicinity of large towns, along lakes etc.)

Lessons for the future

I think that the two periods showed briefly in this article have many lessons for the future.

Both periods show the great role of the human factor in the agricultural development. I cannot tell what the roles of Ernõ Csizmadia and Imre Dimény precisely were in the results attained. To express it in figures is impossible. I used to say they were the 'steersmen of the ship'. They were true companions in shaping agricultural policy, helping and supplementing each other. They succeeded Hungarian agriculture in taking off the Soviet model.

I want to stress the importance of a well-functioning intergration system in the Hungarian food production chain. In this integration system, agricultural large scale farms and technically operated production systems had a leadership.

The period of 1966–1975 had a large role in the development of a Hungarian model of co-operatives based on mixed property pursueing mixed activity, pointing in the direction of agribusiness-type firms.

I think the arguments motivating in 1967 the transformation of the Ministry of Agriculture into a Ministry of Agriculture and Food are still actual. Without denying that in a market economy the task of the ministry is different, I still believe that the utilisation of the experiences of the MAF would be recommended. The minister can be successful if he is an agribusiness specialist.

Concerning the agricultural transition after 1989, let me refer to what Imre Dimény told 'Népszabadság' in an interview about the transformation of agriculture: 'First of all, one should not approach the problem ahistorically, leaving aside the last decades. ... One should not start with a new distribution of land – although, those who venture should be given land or rental – but one should search for the road of development starting from the existing situation.'

The periods investigated have a message for science, too. One should write a textbook on the economics of food production, with a chapter particularly lacking so far on 'economics of food industry'. It would be an urgent task to concentrate large forces on the research of the economic problems of the food industry.

Finally, the most important lesson for the new generations is that one should not be half-hearted. Ernõ Csizmadia and Imre Dimény – the two outstanding agricultural policy makers of the period 1966–1975 did not want to copy. Quite on the contrary! There were things they absolutely did not want to copy and there were things they did copy. But they did not stop at that. They thought about how to improve something, how to take a step forward. They wanted to overtake! Sometimes they succeeded, other times they did not. But as a minimum, imitation came about.

THE HIDDEN ECONOMY IN HUNGARY*

PÁL BELYÓ

In the Hungary of our days, like in other societies, legal and illegal activities, visible and invisible (underground) sectors, white, gray, darker and even pitch black economies exist side by side. Their sizes and scopes, however, are very different. Most countries generally draw a sharp dividing line between the hidden and the underground economies. This is because some activities are considered productive and legal in the economic sense even if they are concealed from the authorities in order to avoid payment of the income, value added or other taxes and the social security contribution, or due to the violation of legal regulations concerning for instance minimum wages, maximum working hours, certain health requirements, administrative procedures such as statistical or other returns.

At present, in Hungary there are billionaires who pay a mere 160 thousand income tax per annum on their reported, 'legal' income as well as people with a few hundred thousand HUF of income and declining.

The activities described as hidden economy may be positioned within a system encompassing all human activities, classifying and arranging economic actors and their economic activities in many dimensions. We may also describe the so-called black economy as hidden economy in conformity with the language of several western countries and international organizations. This is primarily because the concept of the black economy is close to illegal or criminal activities, it represents a much narrower scope than what is classified under this heading by the international statistical organization.

However, 'black economy' also covers activities which earn substantial income for certain individuals but do not originate in production, therefore cannot be included in the calculation of GDP. Such income from corruption, bribery, theft outside the productive sectors and similar practices represent a considerable volume in Hungary as well. These crimes do not increase the amount of goods available in the country in volume or value terms because they merely constitute the redistribution of existing income and wealth.

SIZE, SHARE, MAJOR TRENDS AND NATURE OF THE HIDDEN ECONOMY

The evolution of the current level of the hidden economy in Hungary has been closely interrelated with economic liberalization. Even though the hidden economy exists

* The article was written in the framework of T026023 research program of Hungarian Scientific Research Fund (OTKA).

everywhere in the world, its proportion is substantially lower in developed economies than in Hungary, on average representing 4-10 per cent of GDP. Its most widespread forms that can be found practically everywhere are: black market trade, trade in unregistered products, black labour, tax avoidance and money laundering.

On the whole we can say that the hidden economy is an unavoidable feature, or even mode of operation, of the evolution and strengthening of the peculiar Hungarian form of capitalism. It is one of the major causes of the disproportionate development of the economy and social deformations, especially unfair competition, excessive tax burdens for an overly limited circle of taxpayers, and extreme income and wealth differentiation. In addition to the increasingly severe crime-related activities, the so-called soft forms of the hidden economy, condoned by public opinion, have become general, and affect practically every Hungarian citizen in some way. Where is the person who has never used the company car for private purposes, never participated, maybe inadvertently, in some tax-avoiding income redistribution scheme, or never 'purchased" untaxed labour or goods? These practices are so diverse that their mere collection and classification is a complicated exercise. In view of this it seems reasonable to say that today in Hungary the proportion of the hidden economy may be as much as 30 per cent of GDP. (Based on the expected 5700 billion HUF GDP at 1995 current prices, this is 1700 billion HUF.)[1]

However, in the current environment of market economy, a new approach should be adopted for the analysis of the hidden economy. Thus it is the question: which is greater,

– the benefit to the enterprise/individual generated in the black economy, or
– the cost of the foregone income for the state and society?

The initial step towards the legalization of the hidden economy should be the creation of an entrepreneurial-economic environment that would automatically guarantee legality. This has several preconditions, for instance:

– the harmonization of the legal framework, i.e., the uniform and consistent re-creation of all the acts, decrees and regulations related to economic operations;

– the merging of entrepreneurial registers is of similar importance; the records of social security, the tax authority, the Central Statistical Office, customs and excise and potentially of commercial banks could be connected. Thus financial flows would be controlled from several aspects, and fictitious financial transactions could be caught.

Change of the ownership structure

Most of the activities within the hidden economy are related to the income redistribution as required by the state. The yield of the co-operation of the participants is the unpaid tax, which can be distributed between themselves. Inevitably, both the sellers and the buyers are accomplices and beneficiaries in most transactions.

Any economic policy aimed at legalizing the hidden economy must start from the fact that the participants in the hidden economy consider

– the costs and benefits of their hidden operations as compared with legal operations, and
– the yield of expansion and efficiency increase implemented with legal means as compared with the yield of tax evasion.

[1] *Laczkó Mária*: Az illegális gazdaság aránya Magyarországon, 1970–1989 között. *Közgazdasági Szemle.* 1992. No. 9. 861–882. p.

Therefore the main goal of economic policy may be to improve these ratios. The largest segment of the hidden economy is in the framework of legal organizations, intertwined with legal operations. These hidden activities are essentially aimed at reducing tax and contribution payment obligations. This is the area where the government proposes to use prohibitions and incentives in a co-ordinated manner to address the problem.

We also need to discuss the purely economic crimes where the operations are economic in nature but their express purpose is to obtain illegal benefits (e.g., fictitious VAT reclaims, intentional bankruptcies, embezzlement, non-payment of the excise tax). Such practices still represent a large volume; the modernization of the tax procedures, the improved efficiency of audits and the elimination of motivation can offer potentiality for addressing this issue.

The relationship of the hidden economy with the tax regime and the employment situation is fundamental. Two large categories of the income generated in the hidden economy relate to

– the concealment of employment and
– tax evasion by other means.

Since the reform of 1988, the Hungarian taxation system has been based on the principle of self assessment. This is a relationship rooted in trust, created by the state for the benefit of taxpayers who voluntarily comply with legal regulations. However, the economic transformation that started a few years ago has increased the number of those who abuse that trust. The causes include the fact that in Hungary the relationship between the collection and use of taxes is not yet clearly understood by the public, and tax discipline is at a rather low level. As a result of the gradual liberalization of economic law, there is a great scope for abuses. Legal regulations and criminal legislation facilitating the discovery of evaders have not been created to provide a balance for the principle of trust. Furthermore, the regulatory system is rather complicated, it changes frequently, and often forces taxpayers to pay taxes in excess of their capabilities. In the past years legislation has tried to adopt severe rules in respect of certain offenses, but has not achieved any notable results yet.

The concealed taxes and contributions are estimated to be around 450 billion HUF. Carrying forward the calculations of the Foundation for the Market Economy from 1992, this can be modified as follows.

– The beneficiaries of the VAT and turnover tax (buyers, sellers, suppliers) fail to pay approximately 120 billion HUF of taxes in respect of some 550-600 billion HUF of concealed taxable income.

– Owners and managers manipulating the corporate income tax fail to make some 800 billion HUF payment in respect of about 200 billion HUF tax base.

– Income owners conceal approximately 240 billion HUF contribution base, avoiding the payment of some 60 billion HUF in taxes.

– Employers and income owners fail to pay 160 billion HUF of contribution by concealing some 220 billion HUF income in respect of which social security and other contributions would be payable.

– The entities participating in foreign trade do not pay approximately 10 billion HUF worth of customs surcharge after an estimated 20-30 billion HUF worth of customs duty base.

Several estimates have been prepared about the size of the hidden economy in a sectoral or activity based breakdown. However, these do not indicate in the above manner

the costs and benefits of the illegal or unregistered activities in these areas. For instance, the exact cost of the approximately 600 billion HUF estimated turnover of the black market trade to legal trading operations is difficult to quantify. Similarly, it is difficult to assess who is the beneficiary and the victim, and what is the cost or benefit, of the fact that four fifth of the software used in Hungary is estimated to be stolen.

In 1994 GKI Economic Research Co. carried previous estimates forward in time, in order to analyse the sectoral breakdown of the private sector and the hidden economy in more detail. The analyses afforded interesting conclusions about the trends in domestic private and foreign ownership. It has become clear that initially domestic private ownership increased radically in sectors different from the ones where foreign capital entered. The contribution of the Hungarian private sector to the GDP in 1994 was already around 70 per cent in the construction sector, trade, catering and accommodation services, agriculture, auxiliary economic services and road transportation. On the other hand, foreign ownership is high in financial services, in the communications and also in the processing industry.

Furthermore, there is a difference between the orientation of domestic private capital and foreign capital even within the processing industry. Foreigners have built up positions primarily in the building material sector, food processing and machine industry, while the domestic private sector has a strong presence in metallurgy and metal processing, as well as in the textile and clothing industries, lumber and printing. The latter industries are not among the most profitable activities. However, hidden income is very high in trade, catering and accommodation services, construction, auxiliary economic services and road transportation. The proportion of hidden income is relatively low in Hungary in the sectors preferred by foreign capital such as financial services, communications and processing.

The costs of the hidden economy, as well as its benefits to its participants, may take diverse forms. Therefore further research is needed to map all the social deformations present in this area, to quantify financial benefits, actual and opportunity costs, to reveal the exact relationship and the existing effect mechanisms between the legal and illegal economies.

ON THE BORDERLINE OF ECONOMIC CRIME

The phenomena of the hidden economy should be classified on the basis of their relationship to the system of economic regulators, i.e.:

– there are income earning methods where the activity is not economic in nature and is illegal. These areas are well-known (e.g., arms dealing, ‘protection’ Mafia, receiving, drugs trafficking, other illicit activities) and are basically outside the scope of economic policy;

– other methods of income earning are clearly economic crimes. In such cases the activity itself is economic in nature, but its sole purpose is to gain wealth illegally. Examples are fictitious VAT reclaims, fraudulent bankruptcies, embezzlement, failure to pay excise tax, fictitious export transactions, etc. This type of activity is very substantial in Hungary;

– finally, there are income earning methods where the hidden economic activity is performed within the framework of legal economic organizations, intertwined with fully legal operations. The purpose of this hidden economic activity is the reduction of tax and contribution payment obligations for the enterprise. Today these activities constitute the largest segment of the hidden economy.

Main forms and techniques applied for concealing activities in the hidden economy

Certain general forms of conduct have emerged in Hungary which provide scope for the hidden economy. In the present environment, due to the absence of harmonization between legal regulations, the lack of sanctions for violation of specific rules, or the unenforceability of proposed sanctions, the black economy has ample opportunities to flourish while appearing legal. Some examples of such conduct include the following.

– Taxpayers engaged in taxable activities fail to register with the tax authority (court of registration), or even if they register, they do not meet their tax obligations. Tracking them down in itself is often difficult (if not impossible), and even if they are audited, any findings are bound to be unrealistic due to the lack of accounting records and documentation. Such 'fly-by-night' operations can enter the market as 'normal' enterprises.

– There is an increasing number of enterprises that report a loss in their tax returns and/or earn an income below the minimum wage. However, it is unreasonable to assume that the taxpayer would continue to maintain such an enterprise if it does not produce any notable income in the long term.

– The magnitude of cash transactions is increasing year by year. There is general consensus that cash transactions are uncontrollable and provide a hotbed for the black economy.

– In the current system, there is no control mechanism for the existence or growth of wealth which is one of the most important accumulation areas for the black economy. More specifically, a wealth increase audit that would provide a control on income tax payments is impracticable due to the lack of legal regulations. As a result, the illegal and untaxed income generated in the hidden economy can be turned into legal property without any problem, then it can be used to finance untaxed income generation in the black economy again.

Let us look now at a list of the most typical forms, techniques, procedures applied by the participants of the hidden economy to maximize their entrepreneurial or employment income while minimizing the related tax, social security and other obligations:

– omission of part of the sales income from the records,
– inclusion of fictitious material production costs among expenditure,
– deduction as production expenditure of an excessive part of household expenses,
– purchase and maintenance of cars,
– organization of business and study trips abroad,
– benefits charged to entertainment and advertising costs,
– new business acquisition commission,
– purchase discounts,
– misappropriation of products, materials or instruments,
– excessive benefits offered by foreign enterprises,
– year-end devaluation or "transfer" of inventories,
– off-the-record payments to registered employees,
– use of unregistered labour,
– barter transactions involving products or services with different values,
– parallel foundation of enterprises,
– economic activities of unregistered private individuals and the income derived from these.

The practices and methods indicated in the above incomplete list are generally used by registered economic organizations and sole proprietorships. However, there is even a longer list of economic activities performed by private individuals who failed to obtain a license or tax code for the activity concerned, or rendered directly to the consumer in addition to official activities:

– work performed 'on the side', i.e., industrial, construction or repair services rendered directly for the customer primarily outside work hours;

– household work performed for other households for cash consideration (cleaning, laundering, cooking); child care, nursing of the old or sick, private instruction to children and adults;
– unregistered rental of property (cottages, residential homes, garages, etc.), money lending, street markets, etc.;
– tips and gratuity payments;
– consumer fraud at shops and catering units (reduction of weight, over-billing).

The consequence of a policy which uses almost entirely the means of control

The extent and existing forms of the hidden economy are fundamentally affected by the government's financial policies, more specifically its fiscal and social policy. The findings of surveys examining the characteristics of the black economy indicate that four categories of factors are in an unambiguous relationship with the development of the black economy, namely:

– the direct tax charge on enterprises and private individuals,
– changes in the tax charge,
– the extent of the government regulation of the economy (intervention),
– standard of tax discipline.

The term black economy creates the impression that this is an independent structure, though a substantial part of it is closely related to legal economy. As the owner of a product paid for without a receipt, anyone may become a participant and victim of the black economy. Such a person is harmed as a member of society through the reduction of revenues to cover public expenditure; moreover, the purchaser of goods sold without a receipt may not complain about the product (in Austria there are legal sanctions against the purchasers of goods without a receipt as well).

The term black economy is well chosen because it indicates a certain degree of organization. Examples include 'gasoline bleaching' and some major tax evasion schemes. This term also hints at its frequent relationship with crime. Tax evasion may go hand in hand with other crimes, thus society may be criminalized in this manner very fast.

THE FUTURE OF THE HIDDEN ECONOMY

The concealment of income is a significant factor in the black economy of every society; its causes are fundamentally similar everywhere, and action against it is also necessarily similar.[2]

Every tax authority has to face the problem of uncollected revenues. They recommend more intensive audits and more severe sanctions. The loss of tax revenues may actually be considered of secondary importance, because there are more severe consequences: the jeopardization of the principle of general and proportionate sharing in taxation and the fact that the evasion and violation of tax laws may contribute to the violation of other laws as well.

Having looked at the key factors contributing to the development of the black economy, we may declare that aversion to tax evasion is on the decline all over the world.

[2] *Dr. Árvay János – Dr. Vétes András*: A magánszektor és a rejtett gazdaság súlya Magyarországon (1980–1992) GKI Rt. Budapest. 1994. 28 p.

The concealment of income clearly serves the purpose of maximizing the net income of taxpayers.

Consideration is probably given to the following factors:

– the probability of discovery,
– the size of fines and other penalties,
– the size of the average tax burden, progressivity and the tax free income category,
– the proportion of actual income and the unpaid taxes.

The probability of discovery and its increase may clearly reduce the amount of concealment. No unambiguous relationship has been proven between the severity of punishment and the extent of concealment. This may be due to the fact that punishments fall into the competence of constitutional legislation, whereas the audits themselves are the responsibility of the tax authorities.

The main motivation for tax evasion may be the high average tax charge. In addition, there are further other duties and charges which, if adequately high, may trigger tax evasion and the use of black labour. Some foreign research findings indicate that a 1 per cent increase in the tax charge results in an 8 per cent increase in concealed income. When the tax charge is increased, the increase in the concealed income is generally higher than that of actual income.

The degree of progressivity of the income tax is another motivation for tax evasions. The broadening of the untaxed income bracket generally reduces the volume of concealed income. In some industrialized countries, the reduction of tax rates and increase of the untaxed income bracket has not resulted in the loss of tax revenues so far because the reported income increased as a result.

However, there may not be a close correlation between the size of income and the frequency of concealment. High income households take the risk of concealment as frequently as their low income counterparts. It appears, however, that the higher the proportion of inadequately documented income, the more income is concealed. The increase of the proportion of taxpayers above the active working age is conducive to tax evasion.

The examination of the factors influencing income concealment indicates that the probability of discovery may be the factor that could act as a deterrent. This, however, is not supported by the fact that the duplication of the frequency of audits resulted in a mere 15 per cent fall in the size of concealed income.

The correlation between the qualifications of the taxpayer and the volume of tax evasion has been analyzed in several projects. Taxpayers with lower level qualifications are less familiar with the taxation rules, therefore they have less knowledge of the various sanctions and the consequences of tax evasion. However, people with higher qualification find it easier to manoeuvre among tax rules, and can act in tax evasion more effectively. The net result is that tax evasion is less prevalent amongst highly qualified taxpayers. This also means that more intensive audits may act as deterrents only for the more educated taxpayers, who represent the minority of all taxpayers.

Low level qualifications and unfamiliarity with sanctions may partly explain why the deterrent effect of penalties is smaller than often expected. Foreign literature recommends that if the concealment of income is excessive, tax discipline should be improved by the imposition of high fines and prison sentences.

Another useful practice is that in some industrialized countries taxpayers may inspect the register of taxes maintained by the local governments. This publicity represents social control that reduces income concealment by allowing access to third parties.

Interrelation between the tax system and employment

The most important objective nowadays may be to identify ways to make the hidden economy legal. Thesefore, it is imperative to co-ordinate prohibition and incentives. If prohibition is the only method employed, the persons concerned will probably find ways to realize hidden income under the new conditions as well.

Therefore the advantages and disadvantages of any proposed change need to be weighed in every case. Apparently it is only in the long term, after significant changes in the structure of the economy, that we can hope to reduce the hidden income in the Hungarian economy to the level of the developed countries. As long as capital is weak, vulnerable and, partly as a result, aggressive in Hungarian capitalism, reported profits will be relatively low if the tax burden is high.

In the short term, the most spectacular results can be expected from the application of enforcement methods. In the course of this, the illegal activities performed in the hidden economy for the express purpose of tax avoidance must be tightly regulated, large transactions consistently controlled and prosecuted. The most common types of conduct are easy to catch. For instance, smuggling, counterfeiting (e.g. of food products, gas, etc.), production and distribution of products under state monopoly or subject to excised duties or taxes (e.g. spirits, tobacco products, fuels, gambling) can be influenced through police or law enforcement efforts. It is advisable to concentrate on the ‘big shots’.

The types of activities as well as the product groups concerned are well known; even substantial enforcement expenditure would produce a return in a short time due to the enormous amount of hidden income. Tighter control is the responsibility of the police, customs and excise authorities, the road inspectorate and the market superintendence, but the complex character of such controls is a preconditions for success. In addition to controlling the payment of customs duties, VAT and other taxes, investigating powers may have to be given to the tax administration, and auditing powers to the social security administration, which need to be co-ordinated with the other powers.

In order to reduce black labour, the introduction of on site labour inspections seem to be indispensable primarily in the construction industry, trade and transportation. Enterprises using a large amount of black labour should be severely punished, while the workers concerned should be subjected to much more lenient rules. Alternatives for controlling the unemployed should also be reviewed.

Complex economic policy tools must be used in legalizing the hidden economy. However, no package of measures can be effective without clear political commitment, because the lobbyists of the groups whose interests would be harmed by a particular measure can prevent professionally justified measures. It is important to introduce only enforceable rules.

Restrictive measures in themselves cannot be effective unless other measures influencing the economic environment are also introduced; these should be such as to be welcomed by fair enterprises.

The following is an incomplete list of the areas where results may be achieved in the short term:

– introduction of a flat rate tax;
– regulation of cash transactions in enterprises;
– legalization of a wealth assessment;
– control of certain cross border financial transactions;
– introduction of a register of enterprises;
– change of the tax burden;
– modification of the social security contribution rate;
– narrowing the scope of operation of illicit trade.

Looking at the long term methods for influencing the hidden economy we find that while illegal activities are too advantageous as compared with legal operations, and the use of legal methods promises a much lower yield than hidden economy does, there is little hope for preventing the expansion of the hidden economy and the continuous evolution of new techniques.

Projections on the development of the hidden economy are difficult to prepare for several reasons. On the one hand, as tax laws and other regulations change, the techniques of concealing income and output are also altered. The ever renewed techniques in turn create the general impression that the activity of the hidden economy is expanding. This is based on the assumption that new techniques are used in addition to the old ones. The changes of legal and economic regulations also eliminate certain techniques.

Inflation is another important consideration for purposes of a prognosis. The obvious solution is to carry ready-made estimates forward to multiply previous values by the rate of inflation. However, in the case of the hidden economy, this is a controversial technique, as the price increase of some activities within the hidden economy is significantly lower than the official rate of inflation. One example could be ‘on-the-side’ jobs, where the business is based on the premise that the service is cheaper as no invoice is required.

Key of long term tasks for influencing the hidden economy:

– harmonization of law,
– modification of the parts of the institutional system that can influence the black economy, and
– moral pressure.

One important task in the fight against the hidden economy to be solved is to make the tax regime complex and all-encompassing. One obvious tool may be the establishment of the Central Association of Taxpayers. In this, citizens could advocate their interests appropriately.

A good tax system may be considered as the basis of the society of a developed market economy. This would necessitate the creation of an institutional framework for the participation of citizens in the appropriate form, potentially by redesigning tax legislation in Hungary.

In the course of this, special emphasis must be laid on preventing the interpenetration of black economy and politics. Citizens should have a direct say in the formation of types of taxes and tax charges on every taxation level. Citizens should also have an opportunity to influence the work of tax authorities. This control can be very strong, and form the basis of the involvement of citizens in the struggle against the hidden economy.

MIGRATION IN HUNGARY DURING THE EIGHTEENTH CENTURY*

TAMÁS FARAGÓ

In the course of the sixteenth-seventeenth centuries, the population of the historical Hungary had been decimated by the Turkish occupation lasting for nearly 150 years and the lesser or greater wars and guerrilla warfare accompanying it almost continuously, as well as by plagues – arriving from the East – devastating the country. According to earlier studies the size of the population decreased, although recent studies[1] modified the picture. On areas inhabited by ethnic Hungarians, not only the increase of one and a half century was lost, but also the absolute number of the population diminished by about 30 percentage point. However, within the total area, this was partially balanced by the population increase of some western and northern parts of the country inhabited mainly by non-Hungarians. Consequently, the share of the Hungarian ethnic groups within the Hungarian Kingdom decreased from about 70 per cent at the end of the fifteenth century to about 50 per cent by the end of the seventeenth century. The changes in the number of inhabitants during the war periods between 1520–1700 – especially as regards to the Hungarian population – may be paralleled with the impact of the Thirty Years' War exerted on the German Empire. However, there was a difference between them, as the depopulation of the indigenous inhabitants was followed by a series of immigration waves lasting for several decades and resulted basic shifts also in the ethnic structure of the Carpathian Basin. Nevertheless, the significance of the latter had become really obvious only in the course of the twentieth century.

Needless to say, a historian's general approach concentrating exclusively on the total number of the population and its ethnic composition is not satisfactory for a historical demographer. Although concerning the studied epoch and the migrations during the eighteenth century, the historians of the first half of the twentieth century examined mainly the problems of resettling and immigration as well as the changes in the ethnic composition. Beside settlers coming from the West in the framework of organized settling movements, large spontaneous internal migrations occurred involving persons mainly of home origin. Migration movements did not aim exclusively at areas

* Enlarged version of the lecture presented at the German–Polish–Hungarian demographic round-table conference held in Wiesbaden on 12th March 1998. The research was supported by the Hungarian Scientific Research Fund (OTKA) Grant No. 18494.

[1] *Dávid, G.*: Magyarország népessége a 16–17. században. In.: Magyarország történeti demográfiája (896–1995). Millecentenáriumi előadások. Ed.: *Kovacsics József.* Központi Statisztikai Hivatal. Budapest. 1997. 141–171. p.

depopulated in the course of Turkish wars, but also massive movements could be observed toward towns. Behind individual migrations, rather different motivations could be found (marriage, inheritance, settling, change of occupation, learning, entering into service, etc.), and even in this epoch not all migrations might be regarded as final change of habitation.

In the following study, an attempt is made to cover some of these factors by analysing the main state organised population conscriptions between 1770–1790.

DIMENSIONS AND DIRECTIONS OF MIGRATIONS

Population censuses – like those introduced in Hungary from 1784 to 1787 – were carried out several times in the other provinces of the Habsburg Empire already from the 1770s on (see Table 1). From these data it becomes evident that in the less developed regions of the Empire – thus in Galicia, Transylvania and in Hungary – the extent of migration (the crude migration rate) was significantly smaller, hardly more than the half of that in the more developed western provinces (Bohemia, Styria, Kraina) and their balances did not show large amplitudes either to positive or negative directions.

Table 1

Crude rate and balance of migration in some provinces of the Habsburg Empire

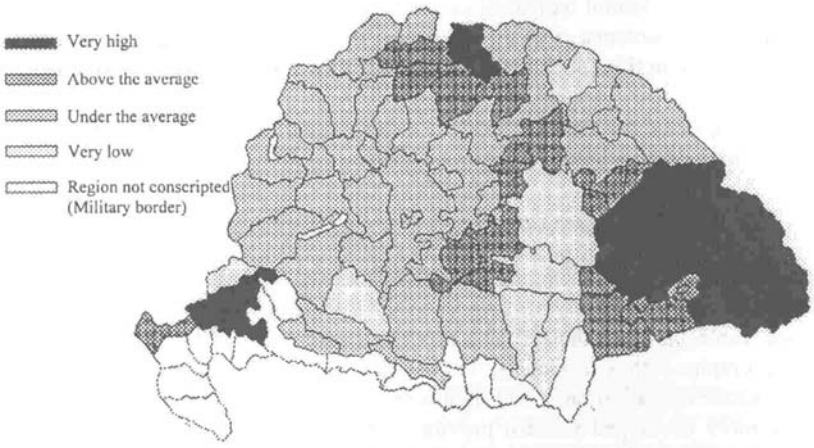
Province	Absentees	Foreigners present	Crude rate of the migration	Net flow of the migration
	(per 1000 males)			
Bohemia	51.7	41.4	93.1	-10.3
Styria	65.9	70.6	135.5	+4.7
Krain	62.8	44.1	106.9	-18.7
Galicia	26.6	29.1	55.7	+2.5
Hungary*	34.1	35.0	69.2	+0.9
Transylvania	31.8	28.0	59.8	-3.7

* Including Croatia.

Source: *Gürtler, A.*: Die Volkszählungen Maria Theresias und Josef II. 1753–1790. Verlag Wagner'schen Universitäts-Buchhandlung. Innsbruck. 1909. 152 p.; Obyvatelstvo českých zemí v letech 1754–1918. Ed.: *Sekera, V.* Český Statistický Úřad. Praha. 1978. Vol. 1–2.; *Thirring, G.*: Magyarország népessége II. József korában. Magyar Tudományos Akadémia. Budapest. 1938. 192 p.

A peculiar picture might be gained by trying to examine the crude migration rate in Hungary on the basis of more detailed data, namely those gathered by municipalities. All towns experienced above the average crude migration rate, while counties – with a few exceptions – showed much lower values. Looking exclusively at the counties (see Map 1) only four areas excel from the others in a higher than the average crude migration rate (Transylvania, the eastern margin of the Hungarian Plain, the middle of the Highlands and Croatia). Another exceptional region with very low migration can be found between the Borderland and the mountains separating Transylvania from Hungary. (Worth mentioning that the larger part of the latter region was resettled only a few decades later, because its southern part remained under Turkish rule up to 1718.)

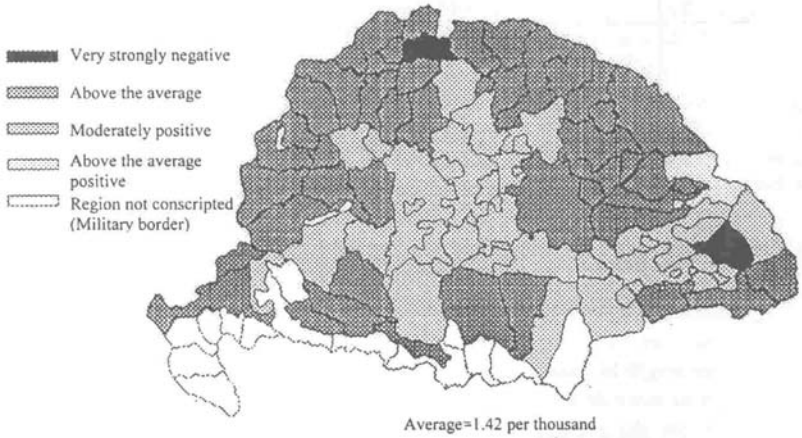
Map 1. Crude migration rate in counties of Hungary, 1787



Average=16.46 per thousand

Examining the balance of migration – the gain or the loss coming from the totals of emigrations and immigrations (see Map 2) – quite a different regional distribution can be observed.

Map 2. Net flow of migration in counties of Hungary, 1787



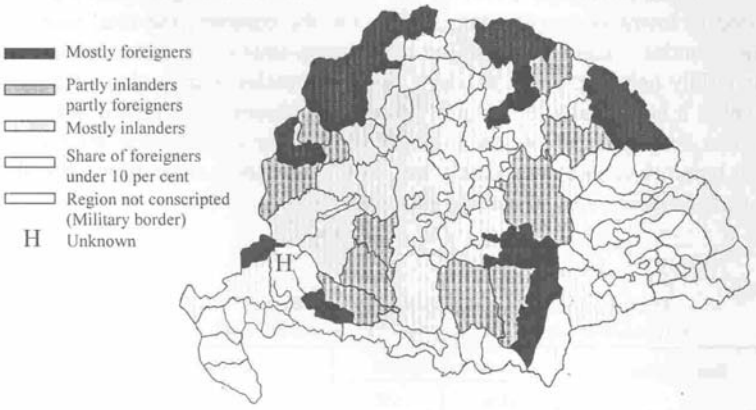
Average=1.42 per thousand

A migration gain is characterizing the geographical basins with more favourable economic possibilities (the Hungarian Plain, a part of the North–Western Plain, the Transylvanian Basin) and some resettled areas, as well as Borsod and Gömör counties. (In the latter territories the pull effect of an early industrial development cannot be excluded.) A migration loss can be seen in areas with disadvantageous natural resources, in marshlands and in areas endangered by floods, as well as in borderlands on the northern and western parts of West-Transdanubia lying not far from the Austrian lands

and being considered as the most developed region of Hungary. This means that from among areas of high crude migration rate the Mid-Highlands and Croatia may be characterized rather by migration losses, the margin of the Plains by migration gains, while in the case of Transylvania both emigrant and immigrant regions can be found, often neighbouring each other.

An interesting and important question is the place of origin of the migrants. Despite the less informative nature of our sources, the share of natives and aliens can be determined (see Map 3.).

Map 3. Regional rates of immigrants of home and foreign origin in counties of Hungary, 1787



Accordingly the share of persons of foreign origin is very high in border counties, as well as in the line of counties Temes–Torontál–Szatmár and that of Varasd–Szerém. With a closer look at this distribution, the conclusion which can be reached is that here probably not the invasion of foreigners is the main characteristic, but rather the relatively short distance migrations. The counties mentioned above, in fact, may be considered as borderlands (the population lists categorised both Transylvania and the Military Border as foreign places), therefore immigrants coming from the neighbouring settlements located on the other side of the border were registered as foreigners. The case is different for the higher rates of foreign immigrants to counties like Tolna–Baranya. Here really long distance migration may be suspected. Being aware of the fact that large, organised settling programs in these areas were mostly over, we have to suppose that spontaneous immigration of relatives and acquaintances was continued to the communities founded mainly by German settlers.

Drawing conclusions concerning the direction of emigrations seems to be a much more dubious task. However, four characteristics might be established:

a) along the borders there are relatively many missing persons who 'emigrated abroad';

b) from the North–Western Plain there is a rather significant emigration movement toward Austria–Bohemia;

c) in the Transylvanian Basin and in the Mid-Highlands hardly any emigration tended abroad;

d) although the migration balances are generally close to zero in 1786 and 1787, nevertheless, the majority of towns show a significant migration gain and counties experience migration losses. The conclusion which may be drawn is that the main migration flow is not the immigration any more, but a levelling process can be seen within the country (movements mainly from the North-West to South-East and from villages to towns) at the end of the eighteenth century.

TYPES OF MIGRATION

It is worth examining separately the differences between towns and the country-side (counties). (See Table 2) The crude migration rate calculated on the basis of censuses carried out in the period of Joseph II., was nearly four times higher in towns than in the counties, and its balance is strongly positive. The proportion of foreigners among the males enumerated in towns is exactly 7.5 per cent. On the contrary, the total size of migration in the counties – namely in villages and country-towns – is rather low, and their balance is mildly negative. Here the share of foreign males is only about 1.5 per cent, and in number it is generally less than of those being absent. With regard to these observations it can be said that more than 70 per cent of the country-side migration looked domestic type, while in towns, nearly half of the foreigners came from abroad, and half of the persons absent went to foreign countries.

Table 2

Main characteristics of migration movements of towns and the country-side in the Hungarian Kingdom, 1786–1787

Denomination	Hungary and Croatia		Of wich	
	1786	1787	counties	towns
	Per 1000 persons			
Foreigners present	34.1	15.6	12.0	74.7
Absentees	35.0	17.4	16.7	28.0
Crude migration rate	69.2	32.9	28.7	102.7
Net flow of migration	+0.9	-1.8	-4.7	+46.7
	Migrants born in the Hungarian Kingdom (in the percentage of all)			
Between foreigners present	86.1	67.6	72.0	56.3
Between absentees	83.6	68.4	70.3	49.7
	In the category of foreigners present (per cent)			
Women's share	15.6	14.4	13.6	15.6

Source: See *Thirring, G.* at Table 1.

However, examining the towns individually, the picture becomes even more differentiated. Fourteen towns show rather high migration gain. In these developed cities with more than 10 000 inhabitants the proportion of immigrants (foreigners) can be as high as 15-20 per cent of the total male population, and the migration gain can reach even 150 per thousand. On the contrary, in the 1780s, we can also find four types of

towns where the intensity of migration is relatively small, its balance is mainly negative, i.e. a part of the inhabitants is constantly emigrating:

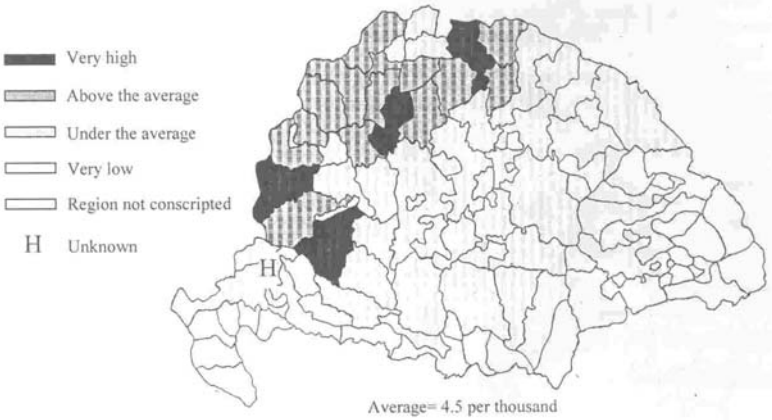
a) most of the mining towns belong to this type (probably due to the stagnation of traditional mining of precious metals);

b) the royal free boroughs situated along the western borders, small in size, living mainly on viticulture;

c) the large agricultural towns of the Great Plain;

d) some commercial towns in the Highlands established during the Middle Ages having been involved in the declining trade directed to Poland.

Map 4. Ratio of persons entering into service as compared to the total population in counties of Hungary around 1778



As a next point, let us examine the regional differences according to the motive (the purpose) of migration. Naturally, this problem can be covered only partially. On the basis of data gained from the enumerations carried out in the 1770s (in the so-called Conscriptio Animarum), two aspects can be studied: entering into service and settling down.

The data of Map 4. indicate high migration rate in connection with entering into service in the middle and western regions of the Highlands, as well as in West-Transdanubia and in the counties of the North–Western Plain. On the contrary, in other regions of the country the number and the proportion of persons entering into service are markedly small. The difference is so great that one may suspect that two different but coexisting, economic- and work-organisation types produced the above described peculiar regional distribution:

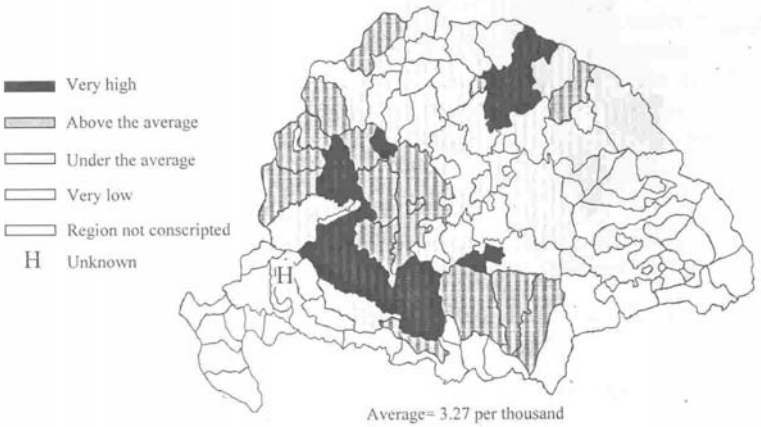
a) in West-Transdanubia and the Highlands mostly such peasant farmsteads and manorial estates were located which employed regularly servants, and according to the natural rhythm they needed people entering into service continuously;

b) referring to the above line of considerations, in other regions of the country, farming was built mostly on the labour force of the family members/relatives and most of the estates employed few paid-workers (they were based exclusively on the corvée – labour service of serfs –, or they did not establish seigniorial domestic economy at all).

The former result undoubtedly recalls the theory of *Hajnal, J.* describing the East–West dichotomy in the patterns of marriage and household formation and his famous North-East and South–Western dividing line crossing Central Europe from St. Petersburg to Triest. It seems that this line should be pushed somewhat to the East as compared to the original theory, and that it does not keep away but crosses the societies of the Carpathian Basin. And – what is important and surprising is that – the line does not fit any of the language and denomination borders. It shows a hidden cultural and socio-economic dividing line which poses its significance only in the twentieth century.[2]

The settling (or more exactly: the resettling) movement also shows a special regional distribution (see Map 5).

Map 5. Ratio of settlers as compared to the total population in counties of Hungary around 1778



Average= 3.27 per thousand

We find new settlers in proportion well above the average in five regions of the country:

a) Southern Transdanubia,
b) Southern Hungary (the Banat),
c) Along the Danube,
d) The triangle between West-Transdanubia and the North–Western Plain,
e) Some counties of North-East Hungary.

The majority of the areas listed above were regions resettled in the first half of the eighteenth century being naturally, heavily involved in long range supplementary migration (North–Western Plain). Therefore we may conclude that these are the regions which can be characterised mostly by spontaneous migration caused either by economic reasons of the Western triangle or by the consequence of earlier settling programs.

The problems of settling are not to be discussed here in details as deeper analysis is required which cannot be performed on the basis of presently available sources.

[2] *Faragó, T.*: Different household formation systems in Hungary at the end of the eighteenth century: variations on John Hajnal's thesis. In: Historical Social Research. 23. 1998. 83–111. p.

Nevertheless, it is worth presenting some partial results related to the settling during the reign of Joseph II.

Table 3

Estimated settling movements during the reign of Joseph II

Founder	Original place of the settlers	Period	Number of settlers		Notes
			family	1000 person	
Hungarian Treasury	German Empire*	1784–1787	6500	29	To the Southern Treasury estates (Banat, Bačka)
Hungarian Treasury	German Empire*	1784–1787	1800	8	To other Treasury estates
Private landlords	German Empire*	1780–1788	2000–3000	9–14	To counties Szerém and Arad
Hungarian Tresury	Serbia	1788–1789	..	11	
Private landlords	Slovakian highlands	1780–1789	1500–2000	7–9	To Southern Hungary
Hungarian Treasury and private landlords	Hungarians from the Great Plain	1780–1788	3500–4000	14–18	To the South and to Transdanubia
Organized settling together			17000–20000	78–89	
Spontaneous additional settling**			3500–10000	16–45	
Total settlers		1780–1789	20500–30000	94–134	

* The number of German families with passports till the end of October, 1786.

** Probably underestimation because the volume of spontaneous additional settlings has reached infrequently that of the organized immigration.

Note: Author's calculations on the basis of the average household size of Hungarian and German immigrants (4.5 persons/household).

The literature estimates the number of people settled by the emperor to be as much as only 30 thousand,[3] however, our estimates suggest that migrations in the course of the settling process from 1784 to 1788 mobilised three-four times as many persons amounting to about 100-130 thousand. The probable number of persons arriving from abroad in an organised manner is about 60 thousand, and that of persons participating in a similar type of domestic resettling may be 20-25 thousand, while the uncertain number of persons involved in spontaneous, regionally and temporally unsystematic 'additional' migration may be estimated between 16-45 thousand.[4]

*

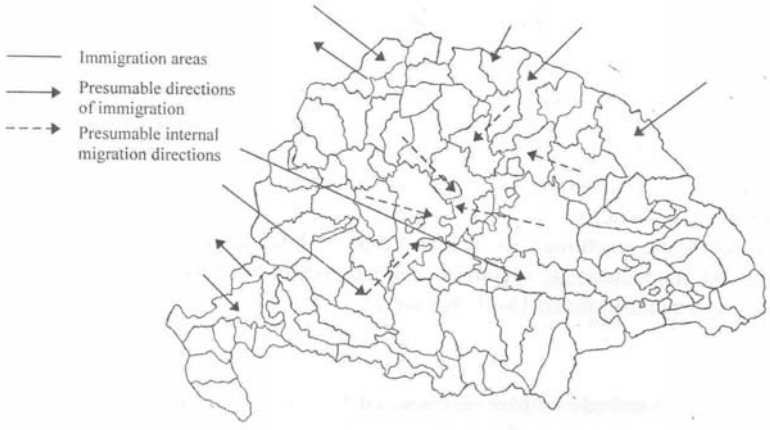
The results of our examinations may summarised briefly as follows. First of all, in order to interpret properly the rates and tendencies established on the basis of macro-data presented, numerous micro-analyses are to be carried out in connection with the

[3] Die Donauschwaben. Deutsche Siedlung in Südosteuropa. Bearb.: *Eberl, I.* Jan Thorbecke. Sigmaringen. 1989. 328 p.

[4] *Czoernig, C.*: Ethnographie des Oesterreichischen Monarchie. Band 1–3. Wien. 1855–1857.; *Isbert, O. A.*: Geschichtliche Untersuchungen über das südwestliche ungarische Mittelgebirge und seine Bauersiedlungen. In.: Ungarische Jahbücher. 10. 1930. 230–280., 387–425. p.; Jubileumi tudományos ülés a jászkunságiak bácskai kitelepülésének 200. évfordulóján. Ed.: *Kaposvári, Gy. – Bagi G.* Damjanich Múzeum. Szolnok. 1989. 233 p.; *Sirácky, J.*: Sťahovanie Slovákov na Dolnú zem v 18. a 19 stroči. Slovenskej Akadémie Vied. Bratislava. 1966. 297 p.; *Weidlein, J.*: A tolnamegyei német telepítések. Tolna vármegye közönsége. Szekszárd. 1937. 73 p.; *Zorn, A.*: Német betelepülések a mai Bács-Kiskun megye területére a 18. és 19. században. In.: Bács-Kiskun Megye Múltjából. 10. 1989. 325–390. p. and in Note 3 quoted article.

demographic characteristics, place of origin and socio-occupational structure of the migrants. In general, it seems that additional analysis have to be performed concerning resettling movements starting from the end of the seventeenth century lasting up to the end of the eighteenth century (in certain places up to the early nineteenth century). Namely, two facts may be deemed probable already from the available data: on the one hand, the extent of the spontaneous settling – hardly taken into account previously – could be nearly the same as that of the organised movements; on the other hand neither the ethnic nor the denominational composition of the settlers were identical with those unconscious suggestions in historical literature of settling process of the eighteenth century. That is why the role of Germans and Southern-Slavs as well as Roman Catholics was overemphasized in the examinations of the former decades, while Ruthenians and Romanians migrating in a spontaneous way were mostly neglected. Similarly, up till now, internal population movements have been mainly undetected: the migration of Hungarian and Slovak population surpluses of the more densely inhabited hilly regions toward depopulated territories, or the commencing migration of the peasants into the cities. A deeper analysis of regional characteristics of migration movements would also be important. The conclusion seems to be evident: the towns, the western borderlands, the Carpathian margins, the inner basins (plains) as well as the southern resettled areas can be characterised by different migrational patterns and the composition of migrants by ethnics, denomination and social status varied by region and time period.

Map 6. Presumable migration movements and their directions in Hungary at the late 1780s



Illustrating the probable directions of the regional migrations during the eighteenth century (see Map 6), the main flows and types may be supposed as real ones in the Carpathian Basin:

a) a two-directional borderland migration (at the western border to Austria and Moravia, while in the Szerémség and Baranya toward the Borderlands and Croatia);

b) a gradual migration starting from the East (Galicia – Eastern Carpathian regions – Great Plain), mainly among Jews and Ruthenians;

c) a continuous migration from the mountainous and hilly regions toward basins showing more favourable economic conditions;

d) a continuous migration also from villages toward towns;

e) 'additional migrations' of foreigners partly in parallel with the organised settlings, partly following them (as it may be observed in the 1780s among Germans settled in Tolna and Arad counties, as well as in the course of Rumanian wandering to counties Krassó and Arad);

f) considering the migration directions by the cardinal points, at the end of the eighteenth century – however, probably in earlier periods, too – two large migration waves may be observed: one from the North to South, the other from East to West.

It is especially interesting that regions settled earlier in an organised frame are not always identical to those showing intensive migration in the late eighteenth century. For instance, a part of the southern region in the 1780s seems to be an area of definitely low intensity with even a negative migration balance, which means that the great movement during the resettling was followed by relative immobility.

Finally, as the historian is influenced by his/her own time, a question may be brought up: whether the examinations of migration of the eighteenth century can have any other significance beyond the parochial academic results. The answer is a definite 'yes'. Concerning migration – like in the case of other historical problems – there can still be found numerous myths, erroneous data in the public opinion. Not few of them have also a political significance in our days, therefore, clarifying the knowledge of 'professionals', the public opinion and politicians is an urgent duty of researchers dealing with migration history. At the same time, it has to be confessed that no considerable number of serious studies has been carried out during the last 40 years in Hungary on the migration of the eighteenth-nineteenth centuries, especially not on resettling. It has not yet been clarified how the ethno-cultural composition of the Historical Hungary – or that of the Carpathian Basin – developed during the eighteenth century (which is still valid in many respects today). In the same way, the definitions of 'immigrant', 'foreigner', 'native' and 'ancient inhabitant' have not been analysed from the aspect of their interpretation in the contemporary society and by the present science, politics and the public opinion. Our failures can be illustrated by the fact that estimates given by *Kovács, A.*[5] (1919) – in the period of the disintegration of Hungary, during the preparation for the negotiations of the Trianon treaties, published in 1919 – indicating about one million immigrants – have been kept since that time as no better results have been produced (it was reviewed by *Dávid, Z.*[6] in some respects 40 years ago). These data have not been either proved or denied in the last 80 years, because detailed investigations have not been carried out. The accuracy of these estimates for sure were not promoted by the short time available in the chaotic atmosphere of the peace negotiations following the First World War. In case of modern socio-historical researches, such circumstances can hardly be imagined, namely that hypotheses of a significant problem could remain unchanged, uncontrolled for decades by any reviews or supervisions.

It is sad that in our days the history of migration movements is the subject of historians of politics rather than of demographers. The latter ones are examining almost

[5] *Kovács, A.*: The development of the population of Hungary since the Turkish rule has ceased. Budapest. 1919. 23 p.

[6] *Dávid, Z.*: Az 1715–1720. évi összeírás. In.: A történeti statisztika forrásai. Ed.: *Kovacsics József.* Közgazdasági és Jogi Könyvkiadó. Budapest. 1957. 145–199. p.

only the problems of refugees, legal or illegal guest-workers causing daily problems for the state administration and policy makers. Last but not least, this narrow practicist behaviour might be regarded as the cause of the flourishing of the populist literature again easily recalling national pains and nationalistic emotions of Romanians, Hungarians, Slovakians, Serbians, etc. arguing pro- and contra over the treaties following the First World War. However, it is to be feared that this view of the past does not lead us to the deeper understanding of migrations, settling (and in broader sense of the population- and social history of the Carpathian Basin); and does not promote, but rather hinders the decision-making needed for suitable and well-founded migration, for minority- and regional policies as well as for the better defence of human rights. Furthermore, it contributes to the strengthening of an antidemocratic, xenophobic mentality, as well as to the survival, or occasionally even the development of the ideology of closed nation-state of a nineteenth century type.