SOME PROBLEMS OF
THE MEASUREMENT OF TOTAL CONSUMPTION IN HUNGARY

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Hungary has a relatively long tradition with the "Total Consumption of the Population" (TCP); this category has been regularly compiled and published in Hungarian statistics since the early sixties. The article summarises the experiences with this concept and discusses a number of open questions both of national and international interest.

One of these questions relates to the treatment of subsidies. On one hand it can be argued that subsidised prices are intermediate cases between the full price and free of charge cases and therefore the subsidy should be included in TCP; on the other hand, however, subsidies can also be interpreted as negative indirect taxes and therefore there is no reason for their inclusion. The article discusses both the arguments for and against the inclusion of subsidies in TCP.

Another issue is the problem of valuing consumption from own agricultural production, where the existing international recommendations—valuation at producer prices—may be questioned.

There are other parts of non-marketed consumption valuation of which causes several serious problems. In Hungary a special problem appears with regard to the services of owner-occupied dwellings. In the case of valuation of services provided by producers of government there are unsolved questions, too, where the formal following of the international recommendations does not give a fully acceptable solution.

The authors agree with those who think that it is necessary to make a distinction between consumption and consumption expenditure and to include the fringe benefits provided by enterprises in TCP.

I. INTRODUCTION

The present paper tries to describe Hungarian experiences with respect to the measurement of total consumption of the population, hereafter referred to as TCP. Most of what will be said in this paper can be considered as actual Hungarian practice; the authors, however, could not help describing their own views with respect to some questions which are being still discussed both in Hungary and abroad. The views expressed in the paper are those of the authors and not necessarily those of the institutes they are working in.

Hungary has relatively long traditions with the TCP. The first international appearance of this concept was in 1963 when the Reginald Beales-Margaret Mód study [1] was published; in this same year the first Hungarian statistics on the TCP were compiled and in the last two decades this has been the main consumption concept used both in Hungarian statistics and in planning. It should be mentioned also that since 1968 the TCP has also been one of the main concepts of the MPS.

Our task in describing Hungarian experiences is greatly facilitated by the excellent paper of Jean Petre, presented to the 17th (1981) General Conference of the IARIW [2], which systematizes and clarifies all the basic problems of

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measuring consumption and consumption expenditure. To use Petre's paper as a reference basis is all the easier for us as we agree with most of his conclusions. In fact, Hungarian statistics have for many years used the double breakdown proposed by Petre, one by expenditure categories and the other by final consumption categories. In addition, the Hungarian practice has introduced a further breakdown for consumption expenditure of households, separating purchased consumption from consumption from own production. It is thought that this further breakdown is useful since it provides a possibility for better analysing both money flows and behaviour of households. As an illustration the figures for 1981 are given in Table 1.

TABLE 1

BREAKDOWN OF FINAL CONSUMPTION HUNGARY, 1981

(At current prices, thousand million forint)

	Final Consumption Expenditure of			
	Households a	Government b	Enterprises c	Total d
1. Purchased consumption of households	371.1	—	—	371.1
2. Consumption from own production	38.5	—	—	38.5
3. Other individualizable final consumption	—	62.5	5.6	68.1
4. Subtotal (1+3+3)	409.6	62.5	5.6	477.7
5. Final consumption of the community as a whole	—	74.7	4.4	79.1
6. Total (4+5)	409.6	137.2	10.0	556.8

Source: Népgazdasági mérlegek, 1980–81; Központi Statisztikai Hivatal, 1982.

II. THE CONTENT OF TOTAL CONSUMPTION OF THE POPULATION

Broadly speaking, the TCP (as presented in Table 1) consists of three main components
  (i) purchased consumption
  (ii) consumption from own production
  (iii) consumption financed by final consumption expenditure of other sectors.

In the present paper we concentrate our attention on the third item. However, it is worthwhile to start with a more general remark. In Hungarian practice TCP used to be applied only according to the domestic concept. Recently there is a growing need in Hungary for compiling national consumption (i.e. consumption of resident households), as well. Therefore, at present—although domestic consumption still has a prevailing role—national consumption is also frequently estimated. In our practice, to calculate national consumption, domestic consumption is reduced by the net direct exports of households, that is, the difference between the purchases of non-resident households in Hungary and the purchases of resident households abroad.

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The method applied corrects purchased consumption. In principle for the same reason a similar correction would be needed for final consumption financed by government (e.g. health services provided free of charge to non-residents in Hungary and *vice versa*.) Because of the relatively small importance of this item and the lack of information on it, however, this correction is not made.

For illustration see the figures for 1981 in Table 2.

TABLE 2

DOMESTIC AND NATIONAL TOTAL CONSUMPTION OF THE POPULATION, HUNGARY, 1981

(At current prices, thousand million forint)

	Financed by Final Consumption Expenditure of			
	Households	Government	Enterprises	Total
Domestic final consumption	409.6	62.5	5.6	477.7
Plus: purchases of residents abroad	+5.9	—	—	+5.9
Minus: purchases of non-residents in Hungary	−9.8	—	—	−9.8
National final consumption	405.7	62.5	5.6	473.8

There are two "other sectors" in Hungary, treated in statistics as financers of household consumption from their final expenditure, government and enterprises. As a matter of fact there are also in Hungary non-profit institutions serving households (like trade unions etc.) but owing to their relatively small size their expenditures are not separated and are treated together with those of government.

It is worthwhile to note that financing in this context is interpreted in a net sense, i.e. as the difference between the total expenditure by the financing sector and the reimbursement from households.

Government Financed Consumption

In delineating those government expenditures that are to be included in the TCP, the *purpose* of the outlays is applied as a first criterion. On this basis all health, education and welfare expenditures are allocated to the TCP. Expenditures on purposes that provide some benefit to households but where the services are consumed collectively and not individually, like street lighting, park upkeep and similar items, are *not* included in TCP. Thus, from this point of view the scope of the government expenditures allocated to household consumption is practically the same as that in the United Nations International Comparison Project.

Multi-purpose expenditures are allocated according to the dominating purpose. For example, education administration (Education Ministry) is excluded, since the administrative purpose is considered as dominating; military hospitals, however, are included since in this case the health purpose is the one considered as dominating, and not the military purpose.

Although the purpose is the main criterion in deciding which government expenditures should be included in TCP, it is not the only one. Expenditures on some items of consumption, in particular on food, beverages and tobacco, are

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always included in the total consumption of population irrespective of the purpose they serve. Thus, food and beverages consumed in prisons are included.

Enterprise Financed Consumption

The distinction between enterprise expenditures treated as intermediate and those treated as final (and allocated to the TCP) is based on consideration of the extent to which the expenditure is connected with the production process, with the special circumstances of the work-place and the extent to which it contributes to the welfare of the employees. It should be admitted that these criteria are not very exact ones and, therefore, this delineation cannot be made without conventional and to some extent pragmatic solutions.

TCP includes expenditures on cultural and sport facilities, on holiday resorts, and on nurseries and kindergartens. As to expenditures on foods and beverages, if they are provided owing to the special heavy conditions of the working place (e.g. milk given to foundry men), they are treated as intermediate consumption; contributions by enterprises to the reduced prices of canteens, however, are included in total consumption. Working clothes are treated as intermediate consumption. The same is done for expenditures on transportation of workers, even if they are provided by reimbursements for transport company tickets. Expenditures on medical services provided by enterprises, since they generally cannot be separated from other intermediate expenditures, are *not* included in total consumption. (However, the salary of a physician in an enterprise nursery *is* included, since all the expenditures on nurseries are treated as final consumption.) Expenditures by enterprises on education, since most of them are connected with the special vocational training requirements of the given unit, are treated as inputs of production. Expenditures on dwellings provided free-of-charge or at a reduced rate to employees are, of course, included in enterprise financed consumption, and, consequently in TCP.

III. VALUATION PROBLEMS

We shall discuss these problems separately for marketed and non-marketed consumption.

A. *Valuation of the Marketed Part of the TCP—the Problem of Subsidies*

International recommendations, in general, propose that marketed consumption be valued at market prices. In most contexts nobody questions the suitability of this solution; in connexion with TCP measurement, however, some authors suggest that certain subsidies should be added to the values paid by households. Even the two authors of the present paper do not share the same view in respect of the treatment of subsidies. There, first the view of Drechsler and then that of Horváth will be presented.

Arguments for the Inclusion of Subsidies (Drechsler)

In my view goods or services accruing to households at a reduced rate constitute an intermediate case between purchase at full prices and receiving the

goods or services free of charge. Or, to put it in another way, full prices and zero prices are the extreme cases for provision of goods and services to the population where households and government share the cost in some way or other.

Let us take the following example: a medicine the cost of which is 100 units is provided to the population and there are three possible cases:

(1) The government does not contribute at all to the provision of this good; thus, the full price (100) is paid by the household.

(2) The government—on the basis of its social policy considerations— contributes to the provision of this good, but is not willing to cover the full cost, only 85 percent of it; thus, the household finances 15 units of the currency while the government finances the rest, 85 units.

(3) The government is willing to cover the full cost, the medicine is provided to households free-of charge, all the 100 units are financed by the government.

Everybody favouring the computation of the TCP would accept that in cases (1) and (3) the medicine consumption of the population is 100, in case (1) because it is equal to household expenditures, in case (3) because it is generally agreed that government expenditures on health for goods and services provided free of charge to the population are to be included in TCP. But what about case (2)? My argument is that since this is an intermediate case between (1) and (3), if in the two extreme cases medicine consumption is 100, in the intermediate case it must also be 100. This view, however, is not shared by all the supporters of the computation of the TCP.

The contribution by the government to the finance of the goods or services can be made in different ways. If it takes the form of a transfer, e.g. the households pay the full cost (100) and then they are partially reimbursed by the government, receiving 85, there would not be any problem; everybody would agree that medicine consumption even in this case (2) is 100. The contribution may take also the form of a subsidy, e.g. producers or traders of the medicines receive from the government 85 and the purchase price paid by the household is only 15. (In fact, this is the case for some goods and services in a number of countries, including Hungary.) In my view the form of the finance is irrelevant for the method of measuring consumption; in this latter case also, medicine consumption should be 100. Thus, subsidies should be added to the price paid by households in determining TCP.

Before proceeding with my arguments I would like to make clear that I do not want to propose that *all* subsidies paid in connexion with consumer goods and services should be included in TCP. I would not care about small subsidies (e.g. where the government's participation in the cost is only 5-10 percent); I think their neglect would not matter much to the measurement of TCP. Their inclusion would unnecessarily burden the computation and one should take also into account that sometimes a subsidy to the final producer may compensate only for a heavy taxation levied in a preceding phase of the production. I would exclude also subsidies where the main purpose is to help producers and not consumers (this may be the case for some countries in respect of railway subsidies). My proposal is only to include those subsidies, which are *large* (e.g. at least 50 percent of the full cost) and which have a clear *social policy (welfare) character.*

There are only a few items which belong to this category, in some countries subsidies on dwelling-rents, on medicines, on medical services; for a number of countries I can imagine there would not be any such item at all.

When the proposal for the inclusion of the subsidies was made in earlier discussions, there were a number of objections. Most objectors were worried about the asymmetry caused by this treatment. If subsidies are added, they argued that indirect taxes would also have to be deducted. We can measure consumption either at market prices or at factor costs, but a mixture of the two would be against the basic principles of the valuation methods. Moreover—continued the objectors—the inclusion of the subsidies without the exclusion of the indirect taxes would lead to double counting; e.g. the subsidy of medicine may be financed by an indirect tax levied in the market price of tobacco.

It seems nobody would favour consumption measurement at factor costs. Neither would I. For çertain special purposes this may be useful, but as a general method the market price valuation is to be preferred, since these prices are associated with the behaviour of consumers, with their utility evaluations etc. If somebody's income is increasing and he, therefore allows himself to shift his consumption pattern from the less expensive soft drinks to the more expensive hard drinks the right answer of the statistics should be that his consumption increased; if, however, consumption is measured at factor costs the results may show a decrease, since it may happen that the factor cost price of the hard drink is smaller than that of the soft drink, and that only the high indirect tax on the former makes it more expensive.

In spite of the counter-arguments enumerated above I do think that the inclusion of subsidies in the measurement of total consumption (otherwise at market prices) has its justification. First I do not think that the thesis that subsidies are negative indirect taxes holds in every respect. For some national accounting purposes, indeed, this symmetrical treatment has many advantages. For other purposes, however, where prices have to express relative importance, the strict adherence to this thesis would not be expedient. As we do not consider that goods and services which have zero market price have zero relative importance in economic growth or consumption measurement, we should not consider either that goods and services which, owing to subsidization, have an almost zero price have an almost zero relative importance.

Thus, a market price plus subsidy valuation (or: a valuation where always the larger of market price and factor cost is applied) does have its theoretical justification; it is by no means illogical and the charge of asymmetry is not valid, at least not for this particular purpose of measurement.

This market price plus subsidy valuation possibility, though not mentioned in the national accounting systems, is not at all unknown in economics. In a manual issued by UNIDO in 1980 dealing with methodology of industrial project evaluations (3), the following appears (page 18):

> "Value added can be estimated at market prices (including taxes and excluding subsidies) or at factor cost (excluding taxes and including subsidies). But the value added of an investment project for evaluation purposes should be estimated on the basis of including both taxes and subsidies. The inclusion of taxes in the value added produced by a

project is clearly based on the argument that there exists the "willingness to pay" at actual market prices which include direct and indirect taxes. On the other hand, the argument for the inclusion of subsidies is based on the assumption that subsidies reflect the social preferences ("merit wants") for given products or services."

The double-counting argument, mentioned above, does not seem convincing either. This type of "double-counting" occurs also in connexion with the free-of-charge items (e.g. medical services provided free of charge may be financed by the indirect taxes levied on the sales of tobacco), even in a national accounting system which does not have consumption, only expenditure categories. (For example, gross domestic product at market prices includes both public administration services and the indirect taxes levied on commodity production, which constitute one of the financing sources of public administration expenses.)

Let us now consider some consequences of the inclusion in TCP of certain types of subsidies. If we would like to maintain the total final expenditure = total final consumption equation, as proposed by Petre, this would require the inclusion of the same subsidies in expenditure and also production (gross output) measurement. As to its content I do not see any harm in it; in fact this is partially done already in Hungary where housing services are valued even in market price aggregates at cost level and not at the level of the rents actually paid. Nevertheless, in order to avoid the confusion which may be caused by the fact that some subsidies are included in market price and others only in factor cost aggregates, a better solution seems to be to separate the subsidies in question from other subsidies and treat them as imputed transfers (from government to households) and imputed consumption expenditures. This would need a slight modification in the definition of subsidies.

Arguments Against the Inclusion of Subsidies (Horváth)

First of all I should like to emphasize the economic reason behind the use of market prices in the valuation of the marketed part of the TCP: it is the market price which influences the behaviour of the consumers. Using any other prices—whether market prices plus subsidies or market prices minus commodity taxes or prices at factor cost—cannot explain the reasons for the behaviour of consumers. On this theoretical basis I can formulate my first main counter-argument as follows: looking for a better solution in national accounting we should not *sacrifice results in presenting economic flows and possibilities for analysing economic behaviour.*

There are certain practical problems which must arise in connection with a valuation with the inclusion of subsidies in the case of the so called "highly subsidized" commodities. How should the word "highly" be interpreted? Is the definition valid over space and time? I wanted only to pay attention to these practical counter-arguments before dealing with the second main one.

My second main argument states that *it is precisely the inclusion of subsidies that would distort our categories.* Let me justify this statement with an example.

Let us take two countries, A and B.

The following are the very same in both the countries: the number of the population, that of employees, and conditions of production and commodities

produced. The GDP equals the TCP. In each of the countries 100 kg pills and 100 TV sets are produced; the cost of production consists of compensation of employees only, which for each product is 70. (For the sake of simplification there is no other cost.) The profits (operating surplus) are the same.

The exchange rate of the national currencies ("a" in the country A and "b" in the country B), reflecting their real purchasing power parities (it can be shown later), is: $1a = 1b$.

But the prices are quite different. In country A 1 kg pills cost 1a and the price of 1 TV is also 1a. The same indirect taxes are levied on both products.

In country B the price of 1 kg pills is 0.15b and the price of 1 TV set is 1.85b. The consumer price of pills is "highly" subsidized while that of TV sets is heavily burdened by taxes.

The figures for country A are as follows.

GDP BY ORIGIN AND ITS INCOME ELEMENTS, COUNTRY A
(in currency a)

	Industries producing		
	Pills	TV sets	Total
Compensation of employees	70	70	140
Indirect taxes	20	20	40
Subsidies	—	—	—
Operating surplus	10	10	20
Total	100	100	200

The value of GDP is 200a and its final use is only the TCP, the structure of which is clear: half medicine and half TV sets.

The figures for the country B are as follows:

GDP BY ORIGIN AND ITS INCOME ELEMENTS, COUNTRY B
(in currency b)

	Industries Producing		
	Pills	TV sets	Total
Compensation of employees	70	70	140
Indirect taxes	—	105	105
Subsidies	−65	—	−65
Operating surplus	10	10	20
Total	15	185	200

In country B the value of the GDP is 200b and it equals the value TCP. Naturally, the structure of the latter in value terms is quite different from the structure of the TCP in country A.

Since the GDP produced and the TCP consist of the same goods, and on the basis of the numerical equality of the GDP of the countries (200a and 200b, respectively) the rightness of the exchange rate ($1a = 1b$) is justified. (The exchange rates of the two currencies reflect the purchasing power parities between them.)

Therefore the GDP figures do reflect what we can recognize on the basis of our knowledge about physical indicators, that is, the values of GDP and levels of economic development of the two countries are the same.

Let us see what would happen if we agreed with the inclusion of subsidies in the TCP. Then the figures for country B should be adjusted. If the subsidy (65b) were added to the TCP the latter and the GDP would be 265b. Since 1b = 1a it would mean that the TCP and the GDP of country B are higher than the relevant categories of country A. On the basis of what we know about the two countries it is evident that the adjusted figures contradict reality. Therefore, the suggested change would distort the main categories and, consequently, the comparability of the economies of countries.

I think that on the basis of the above example it is clear that I agree with those who consider that theoretically subsidies are negative taxes. Moreover, I think that consumer price proportions may be affected not only because of subsidies and taxes on commodities but also by other tools of price intervention. Their characteristics are that they have effects on producers' prices. Let me mention some of them.

(i) Intermediate consumption of producers is affected by taxes and subsidies. A typical example of this occurred in Hungary after the first oil price explosion, when producers' prices and, consequently, consumer prices were maintained with the help of subsidies on inputs provided to producers. Although there are some cases when subsidies on inputs are applied at present in Hungary it is more typical that taxes are levied on certain commodities for intermediate use (oil products, basic materials), which increase producers' prices.

(ii) Labour cost of producers is influenced. An example of this is when employers' contributions to social security differ according to economic activities.

(iii) Profits may be different according to activities or commodities in countries where officially fixed prices broadly exist.

On the basis of the above we can recognize that the problem of subsidized commodities is only one of the problems caused by different price proportions. Consequently, it would not be useful to deal with only one of these problems (that of subsidies) because it would not solve the general problem; moreover, a solution suggested from only one point of view can cause other problems (as is illustrated by our example).

In this context it is true that because of different interventions of price policy shares of certain goods and services may be underestimated. Naturally, this relates not only to the marketed part of the TCP but to services of producers of government (health, education, etc.) as well. In these cases it is the state that makes it possible for certain goods and services to be provided at relatively low prices or in some cases almost or entirely free of charge. But from what sources can the state finance this expenditure? Only one source can be found: there are certain commodities the prices of which are higher then their "true" costs; the relatively higher net values of these commodities give sources (in different forms) to the state for providing other goods and services at low prices or free of charge. Therefore, the underestimated part of the TCP has its counterparts in the overestimated commodities in the TCP.

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Consequently, with regard to the TCP as a whole no adjustment is needed because of different price proportions of commodities.

Naturally, I do not want to deny that the price proportions determine the *structure* of the TCP as they determine other proportions (that of GDP) as well; I think that this is just what we want; reality is reflected in our categories and whatever the price proportions are they influence the economic flows, and consequently structures, too.

With regard to the TCP as a whole I admit that one problem caused by different or disturbed price proportions arises when figures are compared *in time*. This problem, however, relates not only to the TCP, but to the other categories as well, affecting the measurement of the growth rate too. I think that it would be useful to deal with this problem in order to find a good solution for comparison over time *in general*.

B. *Problems Relating to the Evaluation of the Non-Marketed Part of the TCP*

The non-marketed part of the TCP can be divided into two large groups: that from own production and the rest. This latter group includes consumption provided by producers of government services, non-profit institutions and units of enterprises providing social services (kindergartens etc.)

With regard to the TCP from own production it should be mentioned that Hungarian practice takes into account only agricultural products and services of owner-occupied dwellings as TCP from own production; other items, owing to their limited importance, are neglected. In the following, the evaluation problems of the above mentioned items will be considered first; then the valuation questions of the second group will be discussed.

a. *Agricultural Production*

As to the evaluation of this part of consumption from own production Hungary is also struggling with the following problem. There are three requirements:

(i) To have consistency within the production evaluation in that the same product should be valued at the same prices, irrespective of its destination (whether it is sold or consumed by the producer).

(ii) To have consistency within the consumption evaluation, in that the same product should be valued at the same prices, irrespective of its origin (whether it was purchased or self produced).

(iii) To have a consistency between the evaluation of production and consumption, i.e. that supply and use should balance.

All three requirements cannot be met at the same time because there is an inherent conflict among them. One of them has to be sacrificed for the sake of the other two. The SNA solution sacrifices requirement (ii); consumption from own production is valued at producer prices, consequently potatoes, eggs etc. from own production have a lower value than the same goods if purchased at retail (consumer) prices. This may disturb the comparison of consumption between different population strata with different shares of own produced consumption.

Hungary, putting large importance on consistency of consumption statistics, has chosen another solution. Consumption from own production is valued on the supply side (in agricultural production measurement) at producer prices; on the use side, however (in consumption measurement), at consumer prices; and the difference is charged against a reconciliation item on the supply side, labelled "valuation differences" and treated like import duties in SNA.

b. *Services of Owner-Occupied Dwellings*

SNA recommends that owner-occupied dwellings be valued at cost plus imputed operating surplus so that dwelling consumption will be valued at the same level irrespective of whether the consumer is living in his own flat or in a rented one. In Hungary there would not be any problem in following this recommendation mechanically; however, it is questionable whether—owing to some special circumstances—this would be the right solution. This problem was discussed also in the Personnaz–Milot–Horváth paper [4] presented to the 17th (1981) General Conference of the IARIW.

In Hungary—as in other countries using MPS—rents are highly subsidized so that even after the substantial rent increase starting in the middle of 1983 they will fall substantially below cost level (maintenance cost and amortization). Thus, the mechanical application of the SNA principle would imply the addition of a *negative* operating surplus to cost. This does not seem at all attractive since it would reduce considerably the share of dwelling consumption and the impact of its index in the overall consumption index. Therefore, Hungarian statistics and planning opted for another solution, that recommended by the MPS and SINS [5], i.e. to value owner-occupied dwellings at cost level without addition of any imputed operating surplus.

c. *The Rest of Non-Marketed Production*

As to this item, it seems worthwhile to consider it as a general measurement problem of output that is valued at cost level. Since the bulk of this output consists of government services, the examples will be taken from these activities. The various problems will be discussed by cost elements.

(i) *Intermediate consumption.* In the first place we should like to state that we are entirely in agreement with Petre's views relating to this item. He proposes that government expenditure on goods and services in the cases when government merely distributes them or pays for them should be excluded from intermediate consumption of government services and "the transaction should be recorded directly as final consumption expenditure of the general government sector" (see 2, page 38).

It is all the easier to agree with him as this principle has been applied in Hungarian practice since 1968. According to it government expenditure on goods and services, when the functions of units are merely controlling and paying, are excluded from intermediate consumption and are included directly in final consumption and related expenditure of government. At present this kind of expenditure finances almost entirely commodities which are considered as serving collective needs (e.g. street lighting, upkeep of parks, repair cost of roads, dams

etc.). Their sum amounted to 14.7 percent of final consumption expenditure of government in 1981.

Another problem in respect to this cost element affecting the analytical value of the figures on TCP stems from the fact that intermediate consumption in government services is taken to be equal to purchases of non-durable goods and services, irrespective whether they are used up in the same period or not; in other words no changes in stocks are recorded in this sector. Consequently in years when large investments (e.g. new hospitals) are put into operation there is a disproportionate increase in intermediate consumption and this may cause disturbing fluctuations in the TCP series. As a matter of fact SNA provides a solution for this type of problem, suggesting in para 6.42 that even in the case of the producers of government services some purchases should be recorded as additions to stocks and not as intermediate consumption; until now, however, this method has not been applied in Hungary.

(ii) *Capital consumption of fixed assets.* With respect to this cost component, in Hungary a problem stems from the fact that fixed assets—as in other centrally planned economies—are not continuously revalued, so at a given moment of time they are not expressed at replacement cost. General revaluations take place only at 10–15 year intervals; thus in a year other than when general revaluation takes place, fixed assets are valued at a mixed price level: those assets already in operation in the last revaluation year are valued at the prices of this given year, and those put into operation after the last revaluation year are valued at the prices which were paid for them.

This problem did not cause serious concerns in the sixties or early seventies when price changes were small, 1–2 percent maximally a year. Nowadays, however, when the inflation rate in Hungary is generally above 5 percent (in some years it reached even 9 percent) this mixed valuation may distort any aggregate in which consumption of fixed capital plays an important role, since consumption of fixed capital is calculated always on the basis of the book-value of capital stocks. This is the case also with TCP, in particular with its non-marketed part valued at cost. (In the case of the marketed part of production and TCP, only the income structure of the GDP is affected.) Since the last fixed asset revaluation in Hungary took place in 1968, the disadvantage of the lack of replacement cost valuation is sensitively felt in that consumption of fixed assets in current prices, and consequently, the value of non-marketed production and that of the TCP, is considerably underestimated. This evaluation difference was 0.9 thousand million forints in 1976 and 2 thousand million forints in 1981, which represent 0.3 and 0.4 percent of the TCP, respectively.

It should be mentioned that in Hungary this valuation problem appears only in figures at current prices; as to the valuation at constant prices this problem is solved by using appropriate price indices.

(iii) *Labour cost.* Hungarian practice takes into account the compensation of employees as labour cost; this latter consists of two elements: (i) wages and salaries; and (ii) employers' social contribution. The second item covers merely the social contribution actually paid by employers; since producers do not make any social benefit-type payment directly to their employees or former employees and, therefore, there is no need for recording imputed social contributions. (More

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precisely, direct social benefit payments by producers are rare and their sum is very low.) It seems to us that this method is fully consistent with the existing international recommendations.

The problem arises, however, and this is being discussed in Hungary, whether the compensation of employees fairly reflects the true cost of labour. It seems—at least in Hungary but it may be the case in some other countries as well—that this item represents rather the labour cost *at the level of a given producer* than the labour cost *in general*, that is *all* the costs connected with employees. From this point of view, its first element, wages and salaries, indeed shows the "individual" part of this cost (which is paid to employees). The second element (employers' contributions), however, can be considered as reflecting the "social" part of the labour cost only in cases when it—together with similar payments directly by employees—more or less corresponds to the amount of social benefits.

In Hungary, even in the marketed sphere, the employers' social contribution used to be rather low and there was no connection between it and social benefits. (See [4], page 20.) This situation has changed since 1980 with respect to the marketed sphere, but it has remained the same for producers of government services. The ratio of social contribution paid by them equals 10 percent of wages and salaries, and it has not changed for many years, although the amount of social benefits has considerably increased. This increase is reflected in the case of enterprises (and cooperatives) where the ratio of social contributions has increased substantially in recent years, from 24 percent in 1981 to 30 percent in 1983.

It is perhaps worthwhile to draw attention to another context of the labour cost problem as it has arisen in Hungary. In the calculation of efficiency (total factor productivity) indices, there is a need to bring labour cost and capital cost to a common denominator. Having discussed the methodological problems of these indices, Hungarian practice agreed on a 50 percent addition to wages and salaries in order to express entire labour cost. We do not want to argue on the rightness of the 50 percent size; this example, however, also shows that this problem deserves further examination.

This labour cost problem has no impact on the size of marketed production, but only on its structure by value added components, but this is not the case for production which is valued at cost.

In the light of what has been said above there is no doubt that owing to this labour cost problem production of government services, and as a consequence TCP as well, is to some extent undervalued.

There were various endeavours to find a more realistic evaluation for labour cost. One of them can be found in [4]. This paper tries to solve the problem by imputing a social contribution estimated in the following way. The sum of all social contributions should meet that of all social benefits *in cash*; that of producers should cover that part of social benefits in cash which is not financed by social contributions paid by employees (i.e. social benefits of government reduced by social contribution paid by employees). The sum calculated in this way is compared to wages and salaries and on the basis of this average ratio an imputed social contribution can be estimated. This average ratio in 1976 was 22.55 percent of wages and salaries. The same calculation for 1981 resulted in a

higher average ratio, 31.3 percent.[1] Using this average ratio we found that the production of producers of government services was undervalued by about 5–6 percent in 1982, which amounted to 1.4 percent of GDP. (In 1976 this proportion was 1.0 percent.) With respect to the above method we think that it cannot be considered as an ideal one. A similar conclusion as to this problem can be found in [6]. In any case, the problem is worth further studying all the more because it may hamper the comparability over time and space as well.

A similar problem may also arise with regard to wages and salaries. Let us assume that the State chooses a kind of taxation system according to which its revenues are derived mainly from indirect taxes and the role of direct taxes on income is limited. In the next year, however, there is a shift between the two kinds of taxes and direct taxes take over a part of the role of indirect taxes; this shift, *ceteris paribus*, will increase wages and salaries and as a consequence the output of producers of government services and TCP will also increase.

On the basis of the above mentioned two problems we can conclude that there is a need to find a method for the valuation of labour cost that solves the problem arising from institutional changes (differences) and improves comparability in time and space.

Contribution Shares in TCP

There is an interest in seeing how the various sectors (households on one hand, government and enterprises on the other) contribute by their expenditure to TCP, as well as what is the role of social benefits in cash and in kind. Following the idea of C. Saunders, presented in his excellent paper to the 16th General Conference of IARIW [7], Hungarian figures for 1981 are given in Table 3 below:

TABLE 3

TCP BY CONTRIBUTING SECTORS, 1981

(At current prices)

	Thousand Million Forint	Percentages
a. Household's contribution	315.6	66.1
b. Social benefits in cash	94.0	19.7
c. Final consumption expenditure of sectors other than households	68.1	14.2
d. Contribution of sectors other than households (b + c)	162.1	33.9
e. TCP total (a + d)	477.7	100.0

In a similar way—parallel with disposable income of households—the Hungarian practice also employs the category of total income of households, which includes the final consumption expenditure of other sectors than house-

[1]The increase between the two years was caused mainly by the continuous increase in social benefits in cash paid by the State; their sum in 1981 was increased by 75 percent as compared to 1976. Meanwhile the ratios of social contribution actually paid by producers of government services remained the same. With regard to the producers of the market sphere, their actual ratio increased, but in spite of that the gap between the calculated average ratio and actual one became larger. In the case of employees, the ratio is progressive, and therefore, their actual ratios have been increasing too; moreover, a modification came into force in 1983 which increases this contribution significantly, mainly in the case of employees with higher income.

holds as social benefits in kind. In the total income of households the contribution of other sectors is taken into account in the same way as was presented above. For an illustration see Table 4.

TABLE 4

STRUCTURE OF TOTAL INCOME OF HOUSEHOLDS, HUNGARY 1981

(At current prices)

	Thousand Million Forint	Percentages
a. Disposable income	339.1	67.7
b. Social benefits in cash	94.0	18.7
c. Social benefits in kind	68.1	13.6
d. Social benefits, total	162.1	32.3
e. Total income of households	501.2	100.0

While agreeing on the usefulness of the measurement of the contribution of different sectors, some doubts can arise whether the contributions are well characterized by the above method. It should be borne in mind that the State not only provides benefits to households but also has revenues in the form of direct taxes or social contributions from them. It seems to be worthwhile to analyse the net effect of social benefits and the relevant government revenue. The need for this type of analysis has been long felt in connexion with international comparisons; moreover, at present it is strongly felt also in respect of intertemporal measurements, since, in Hungary, in the eighties there is a significant continuous increase in social benefits and at the same time an increase in social contributions paid by employees. With regard to Hungary, a solution can be applied that considers the contribution of sectors other than households as the difference between (i) social benefits and (ii) social contributions paid by employees and direct taxes on households. This difference can be called the net contribution of other sectors. The figures for 1981 are shown in Table 5.

TABLE 5

TCP ACCORDING TO THE NET CONTRIBUTIONS OF SECTORS, 1981

(At current prices)

	Thousand Million Forint	Percentage
a. Household net contribution	340.0	71.2
b. Gross contribution of other sectors (= social benefits)	162.1	33.9
c. Social contribution paid by employees	−17.3	−3.6
d. Direct taxes on households	−7.1	−1.5
e. Net contribution of other sectors	137.7	28.8
f. TCP (a + e)	477.7	100.0

IV. TOTAL CONSUMPTION AND CONSUMER PRICE INDICES

In the practice of most countries no distinction is made between deflator price indices which are used as a means for getting constant price aggregates and

analytical price indices which are used as aims themselves to express the changes in the price level. Generally the same price index is used for both of the above purposes.

With the spread of the TCP this distinction—at least in some countries—becomes more important. The TCP contains a number of non-household expenditure items, the price changes of which have to be reflected in the deflator price index, but not in the analytical price index. On the other hand, when e.g. in Hungary now housing rents are raised, this should be reflected in the analytical price index but not necessarily in the deflator price index, since it may happen that the cost prices (at which housing consumption is valued) did not change, but only the shares of government and households in the financing changed.

The analytical consumer price index is much closer to the deflator of the household consumption expenditure than to that of the TCP. However, there is no necessary identity between the expenditure deflator and the (analytical) consumer price index, since the former also includes some imputed transactions (e.g. consumption from own production) and there are arguments for restricting the scope of the consumer price index to actual purchases of households only.

Differences between the (analytical) consumer price index and the TCP deflator in Hungary are presented in Table 6.

TABLE 6

CONSUMER PRICE INDICES AND TCP DEFLATORS,
HUNGARY, 1979-82

	Consumer Price Index	TCP Deflator
Year	Previous year = 100	
1979	108.9	108.3
1980	109.1	108.9
1981	104.6	105.4
1982	106.9	106.5

The present paper—though not modest in size—could not be exhaustive in respect of TCP measurement problems. We tried to present those which we considered most important. As a final conclusion we may say:

   (i) TCP has a large and still growing importance in statistical and planning practices.

  (ii) The basic methodological problems of TCP can be considered as sufficiently well solved.

 (iii) There are a number of further, not unimportant methodological problems in respect of which further studies are required; international cooperation in this field could be very useful.

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