

Gábor P. Kiss and Róbert Szemere: Apples and oranges? A comparison of the public expenditure of the Visegrád countries*

In this article, the average expenditure of Hungary is compared to that of the other three Visegrád countries. In Hungary, this expenditure is higher by 10 % of GDP, but one-quarter of this is attributable to higher interest expenses, and one-third to revenue factors which simultaneously increase both revenues and expenses. These revenue factors have a neutral impact in terms of the deficit, but they distort the comparison in respect of the levels of expenditure. For example, the tax content of public expenditures, the sales and fee revenues collected directly to cover the expenditures, and the size of EU subsidies – flowing through the budget – vary considerably from one country to the next. Two-thirds of the remaining 4-percentage point difference appears in relation to households' cash transfers (pensions, family allowances). Hungary spends more on public services and economic subsidies, but less on the current and capital expenditure of healthcare institutions.

INTRODUCTION

Comparing incomparable things to each other is like trying to compare apples and oranges. It may be surprising, but the expenditure-to-GDP ratio of the general government expenditure of the various countries also falls into a category which is incomparable. In this article, we render the 2007 expenditures of the four Visegrád countries – the Czech Republic, Poland, Hungary and Slovakia – comparable, as much as possible, and review the factors which generate the differences. In our analysis, we compare the expenditures for 2007, because this is the last year for which we have sufficiently detailed figures available for each country reviewed.

The comparability of general government expenditures is hindered by several factors. In this article, we deal only with those factors that have no impact on the deficit level, since they have identical effects on both revenues and expenditures. A typical example is the taxation of pensions, which simultaneously increases revenues and expenditures and hinders comparability with the countries where pensions are tax-exempt. (N.B. Pensions are exempt from tax in most countries.) Another example is that in countries where income taxes and contributions on wages are higher, the taxes paid by government employees may also contribute to a higher level of expenditure via the contributions paid by the government as the employer. Similarly, a higher VAT rate may increase the government's consumption and

investment expenditures, despite the fact that it has no impact on the general government balance, since the original unadjusted figures do not consolidate the consumption taxes paid by the general government either. In these cases, the government essentially puts money from one of its pockets into the other. Moreover, if VAT and excise duty rates are higher than in other countries, the budget receives higher tax revenues as a secondary impact of the spending of government transfers and the wages of the public sector. In eliminating the impacts of differences in taxation, we relied on the calculations of P. Kiss–Jędrzejowicz–Jirsákova (2009), the closing year of which was 2007. We compare the expenditures thus adjusted and the structure thereof in several cross-sections. We compare adjusted Hungarian expenditures with the average of the other three Visegrád countries, and the other countries individually. The rationale for this two-step approach is that – given the low number of countries in the comparison – even a single outlying value can distort the average considerably.

We do not, however, deal with factors that generate a simultaneous temporary fluctuation of expenditures and deficit. One such factor is the business cycle, which automatically impacts unemployment benefits and wage increase-indexed pension expenses on the expenditure side. According to our estimates, however, the impact of the cycle on these items was negligible in 2007. Creative accounting, the purpose of which is to influence the deficit figures by reducing expenditures temporarily, may potentially have a

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larger impact than the former. This article, however, does not seek to perform a comprehensive survey thereof.¹

Government expenditures reflect the government's inputs, but they do not provide any information on the output (or outcome) achieved by such input. The underlying reason for this is that – apart from the input volume – it depends on the manner in which it is used and the incentives with which it is used. For example, how the public wage system stimulates better performance, or how funds are distributed amongst the suppliers of the public services. Our comparison will not touch upon these aspects, because government output cannot be directly measured and the examination of public spending efficiency and the targeted nature would go beyond the scope of our analysis.

COMPARABLE EXPENDITURE LEVEL

In this article, we deal with the adjustment of the expenditure levels of 2007 published by Eurostat, using the results obtained by P. Kiss–Jędrzejowicz–Jirsákova (2009) as basis.

BASIC ADJUSTMENTS

As part of the basic adjustments, from the original expenditure levels we deduct the interest expenses determined in part by the volume of government debt, and in part by the risk premium also connected to the former. Thereafter, we adjust for sickness benefits paid by employers “on behalf of the government” and for family tax allowances, which are similar to expenditures. Finally, we deduct the primary tax content of government expenditures, i.e. the government expenditures paid by the government to itself. In this manner, we obtain the net primary expenditures.

Firstly, we deduct interest expenses from the expenditures, thus obtaining the category of primary expenditures. Interest expenses interfere with comparison, because they mostly depend not on fiscal policy decisions, but rather on debts accumulated in the past, and are also influenced by the inflation compensation included in interest payments and debt denomination (foreign currency vs. domestic currency). In 2007, Hungary's interest expenditure exceeded the average of the other Visegrád countries by 2.4 % of GDP. Two-thirds of the difference is attributable to the higher

debt level, and one-third to higher yields. As our debt-to-GDP ratio presumably will converge more slowly to the Visegrád countries' average, the higher interest expenses should be offset with other items. In order to achieve this, fiscal policy may opt for specific spending cuts or revenue increases.

Secondly, we perform two adjustments simultaneously impacting revenues and expenditures (P. Kiss–Jędrzejowicz–Jirsákova, 2009). In the case of Slovakia, we consider the family allowance incorporated into the income tax system, which represents a transfer that does not belong in the revenue side, as expenditure rather than “negative” revenue, since it is independent of the prevailing tax liability. (This means that tax might also be negative, which is impossible in the case of tax allowances dependant on tax liability). We simultaneously recognise the employer-paid part of the sickness benefit as an expenditure and revenue (on a gross basis), which we may interpret as one paid by the employer “on behalf” of the government. Accordingly, this would be equivalent to the government's paying this part of the sickness benefit as well from the tax collected from the employer for this purpose.

Thirdly (based on P. Kiss–Jędrzejowicz–Jirsákova, 2009), we deduct the tax content of the general government expenditures from primary expenditures, namely income tax and contributions paid on wages and certain transfers, i.e. direct taxes, as well as indirect taxes paid on the general governments' investment expenditure and on its purchase of goods and services, i.e. the VAT, excise and vehicle registration tax. All these may be interpreted in a way that the government puts money from one pocket into the other one. In countries where the tax rates are lower, the tax “paid by the government to itself” – thus the total revenues and total expenditures – is also lower. While Hungary exceeded the average of the three Visegrád countries (V3) by 10.1 percentage points in terms of total expenditures to GDP, the difference at the level of primary expenditures is 7.7 percentage points, and the difference in the case of expenditures net of tax content is 5.7 percentage points. 1.7 percentage points of the difference in the primary expenditures is attributable to the different tax content, while 0.3 percentage point thereof is due to the adjustment for negative tax and sickness benefit (See Table 1).

¹ For example, the government constantly underfunds certain public transport companies, then it periodically settles their accumulated debts. Current expenditures are thus recognised subsequently as capital expenditures. The opposite takes place in the case of public-private partnership investments (PPP), where the capital expenditure of the investments does not appear, but on the other hand the instalments and the interest payments increase current expenditures over the long run.

Table 1
Three steps of the basic adjustment

2007 (as a percentage of GDP)	SK	PL	CZ	V3	HU	HU-V3
1. ESA expenditure	34.6	42.0	42.6	39.7	49.8	10.1
2. Interest expenses	-1.4	-2.4	-1.1	-1.6	-4.0	-2.4
3. Primary adjusted expenditures (1-2)	33.2	39.6	41.5	38.1	45.8	7.7
4. Adjustment by negative tax, sickness benefit	0.9	0.2	0.1	0.4	0.1	-0.3
5. Tax and contribution content of expenditures	-3.6	-7.7	-6.1	-5.8	-7.5	-1.7
6. Net primary expenditures (3+4+5)	30.5	32.1	35.5	32.7	38.4	5.7

It is worth considering the background of the tax content, which is 1.7 percentage points higher. For this purpose, we separate the impact of the differences in the tax base (wage, intermediate consumption, investment spending, and certain transfers) and the effective tax burden thereon (measured as tax divided by this tax base).

The tax base in Hungary is lower than the V3 average by 0.6%, thus the difference in tax content is entirely attributable to the higher effective tax rate. We examined the amount of tax that would be paid in the individual countries on the primary expenditure if the V3 average effective tax base were used in each country and only the tax burden differed. Likewise, we also examined what the tax content in the individual countries would be, if the tax burden was identical and the difference existed only in the tax bases (Table 2).

The problem is that the use of the V3 average for the calculation conceals Poland's extremely large tax base. This is due to the fact that while in the rest of the countries pension payments are exempted from tax and contributions, in Poland public dues exceeding 2% of GDP are paid on pensions. Since this also distorts the V3 average, the difference may also be analysed country by country. Thus, for example, tax paid in Hungary on primary expenditures exceeds that paid in Slovakia by almost 4% of

GDP. Of this difference, 1.6 percentage points is due to difference in the effective tax burden and 2.3 percentage points is attributable to the difference in the tax base. In other words, if the Slovakian tax rates were applied, expenditures to GDP would be 1.6 percentage points lower in Hungary.

SUPPLEMENTARY ADJUSTMENTS

The first three steps of the adjustments led us to the category of net primary expenditure. However, this still does not render the results listed in Table 1 directly comparable. We need further three supplementary adjustments, which are valid only under certain assumptions and which are more difficult to quantify than the earlier ones.

On the one hand, the fact that public expenditures also have further, indirect (second round) impacts on tax revenues should be considered (P. Kiss-Jędrzejowicz-Jirsákova, 2009). Namely, the wages of public employees and household transfers also constitute part of the disposable income of households. Households consume the vast majority of this and pay consumption taxes on it. If households consume their total income received from the government, then this tax content in Hungary exceeds the V3 average by 0.4% of GDP (Table 3).² This is explained by

Table 2
Breakdown of the primary tax adjustments into tax rate- and tax base-related impacts

2007 (as a percentage of GDP)	SK	PL	CZ	V3	HU	HU-V3
1. Tax base	13.2	33.2	19.3	21.9	21.3	-0.6
2. Effective tax rate (per cent)	27.6	23.3	31.4	26.6	35.2	8.7
3. Primary tax and contribution content of expenditures (1*2)	3.6	7.7	6.1	5.8	7.5	1.7
3/a in case of V3 average tax rate	3.5	8.8	5.1	5.8	5.7	-0.2
3/b in case of V3 average tax base	6.0	5.1	6.9	5.8	7.7	1.9

² If households consumed only 90% of government-paid incomes in each country, the difference would decrease only to 0.36% of GDP from 0.4%. However, if the V3 average was 90%, while it remained 100% in Hungary, this difference would be 0.15% of GDP.

Table 3**Breakdown of the indirect tax adjustments into tax rate- and tax base-related impacts**

2007 (as a percentage of GDP)	SK	PL	CZ	V3	HU	HU-V3
1. Tax base	15.6	18.1	16.1	16.6	20.4	3.8
2. Effective tax rate (per cent)	14.1	18.7	12.7	15.1	14.0	-1.1
3. Indirect tax and contribution content of expenditures (1*2)	2.2	3.4	2.0	2.5	3.0	0.4
3/a in case of V3 average tax rate	2.4	2.7	2.4	2.5	3.1	0.6
3/b in case of V3 average tax base	2.3	3.1	2.1	2.5	2.3	-0.2

the tax base which is by almost 4 percentage points higher, i.e. by the higher general government expenditure (wages and transfers). On the other hand, however, the consumption tax rate used as the basis for the calculations in the study is more than 1 percentage point lower in Hungary than the V3 average. Thus, overall, both the primary tax content and that indirect tax content – emerging in household consumption – are higher in Hungary than the average of the other Visegrád countries. However, in the case of the primary tax content the difference is attributable to the higher tax rate, while in the case of the indirect expenditures to the higher tax base. The apparent contradiction is due to the fact that while wage-related taxes and contributions are dominant in primary taxes, and in Hungary the effective tax burden of income is higher than the V3 average, in the case of indirect taxes – i.e. those realised through consumption – effective tax rates are lower, despite the similar tax rates, due to the higher degree of tax evasion in Hungary.

Another factor hindering comparison is the impact of net EU funds. Contributions to the EU budget on the expenditure side are only slightly different relative to GDP in the countries surveyed. Expenditures covered by EU revenues represent a larger difference. The adjustment of this can be

justified, if we consider the expenditures covered by EU revenues as additional expenditure, i.e. as automatic extra expenditures, which, however, do not replace expenditures funded from own resources.³ The difference in EU revenues flowing through the general government is partially attributable to the fact that EU revenues are allocated variably between the private sector and the general government in the individual countries, and the private sector often receives its subsidies directly, without government involvement. In this sense, only a small part of the same volume of EU revenues may emerge as public expenditure in one country, and a much larger part in another. In order to eliminate this, we adjust the net primary expenditure by the difference between payments to and revenues from the EU budget. In Hungary, net EU revenues exceed the V3 average by 0.3% of GDP, explaining this part of the discrepancy in expenditures (Table 4).

Last but not least, the amount of sales and fee revenues collected by the general government concerning certain public services also differs, and thus, it is reasonable to adjust expenditures for this as well. As a result, the adjusted expenditures include only the net – i.e. those not covered by revenues – expenditures. In this case, this means that direct co-payments made by users can be expressly matched with

Table 4**Three steps of the supplementary adjustment⁴**

2007 (as a percentage of GDP)	SK	PL	CZ	V3	HU	HU-V3
6. Net primary expenditures	30.5	32.1	35.5	32.7	38.4	5.7
7. Indirect tax content of expenditure	-2.2	-3.4	-2.0	-2.5	-3.0	-0.4
8. Net EU funds	0.4	0.0	0.0	0.1	-0.2	-0.3
9. Sales and user fee revenues	-1.0	-2.5	-2.7	-2.1	-2.9	-0.8
10. Adjusted net primary expenditure (6+7+8+9)	27.7	26.2	30.8	28.2	32.4	4.1

³ This assumption does not necessarily hold true, because while EU funds are gradually increasing, capital expenditures still do not exceed the previous years' average in either of the countries.

⁴ The numbering of the items in the table is continued from Table 1, as the final result of the basic adjustments is the starting point of the supplementary adjustments.

part of the expenditures. However, this not only depends on what price is requested for which range of services, but also which range of institutions is included in the statistical coverage of the government sector and which range is accounted for outside the government sector.

Let us examine, for example, the case of Hungarian Railway (MÁV). The operating cost and investment expenditures, as well as the sales revenues of the rail company are recognised outside the general government, and the budget only includes the subsidies granted to it, which cover – to some extent – the difference between MÁV's expenditures and revenues. As of the second half of 2007, part of MÁV (MÁV Start which operates passenger transport) was added to the government sector in a statistical sense, and accordingly its expenditures and revenues stated in the accounts on a gross basis. This means that if we fail to reduce expenditures by the sales and fee revenues, then neither the time series, nor the expenditures of the other countries where railways are not part of the government sector will be comparable.

Another example is accounting for healthcare and education institutions. In Hungary, the majority of these institutions belong to the government sector, thus their total expenditures and sales and fee revenues are included in the accounts on a gross basis. As opposed to this, in other countries the ratio of institutions managed outside the government sector (e.g. non-profit, church) is higher, and these are stated in the budget on a net basis, only up to the extent of the government subsidy they receive. In order to eliminate this distorting impact, we net the expenditure side with all sales and fee revenues (as if all institutions were outside the government sector)⁵. In Hungary, the amount of sales and fee revenues exceeds the V3 average by 0.8% of GDP.

All in all, after the basic adjustments of the 10.1 percentage points surplus extra expenditure existing in relation to the unadjusted expenditures in Hungary, we are left with 5.7 percentage points, while – if we also carry out the supplementary adjustments – the Hungarian extra expenditure compared to the regional average will be 4.1 percentage points (Table 4). At the same time, it is important to emphasise that while the basic adjustments may be performed explicitly, the supplementary adjustments prevail only subject to certain assumptions. How should this difference be interpreted?

This difference may interpreted as follows: if we reduce our primary expenditure to the V3 average by taking into account the difference justifiable on the basis of the sales and fee revenues and the usage of EU funds, then a net (taking into account directly and indirectly lost tax revenues) reduction, equalling 4.1 % of GDP, of the deficit may be achieved.⁶

COMPARABLE STRUCTURE OF EXPENDITURES – DO WE SPEND ON OPERATIONS, TRANSFERS OR INVESTMENTS?

So far we have assumed that the 2007 average adjusted primary expenditure of the Visegrád countries examined is an appropriate benchmark for Hungary. However, it is worth performing further analysis of the differences in the expenditure structure. As we mentioned in the introduction, 2007 was a good choice in terms of the cycle's impact on expenditures, but we did not examine whether, for example, the fluctuation of capital expenditures distorted the comparison. Studying the structure of expenditures may be all the more justified, because due to the adjustments proposed so far, we may presumably obtain a more differentiated picture, not only of the expenditure level, but also of the expenditure structure. In this section, we inspect the impact of the proposed adjustments on the expenditure structure, with the exception of impact of net EU funds. This is because the subsidies received from the EU cannot be reliably broken down into capital and current items. For the sake of simplicity, we examine the total capital transfer received by the general government (which also contains the part of the EU subsidy classified as a capital transfer).

In this section, we examine the primary expenditure structure in a relatively consolidated manner (Table 5). First of all, we take the wage and intermediate consumption together, since within this range of operating expenditure the level of “outsourcing” of former government employees (e.g. technical personnel) and their financing via intermediate consumption (i.e. purchase of goods and services) is incidental in each country.

It is justified to examine the ESA operating expenditures together with the social benefits provided via the market producers, as the ratio of institutions classified within and outside the general government is different.⁷ These two items roughly correspond to the consumption provided to the

⁵ This technical assumption prevails anyway, thus this adjustment is similar to the basic adjustment.

⁶ At the same time, due to the higher debt and interest expenses, Hungary must realise a higher primary surplus than the other Visegrád countries examined.

⁷ The result of this previously mentioned problem is that sales and fee revenues are higher in certain countries (see table 4) (e.g. in Hungary), and lower in other countries (e.g. in Slovakia). Where these revenues are lower, presumably more institutions outside the general government require financing, and a dominant part of this is realised via the social transfers in kind provided via market producers. A smaller part of this financing may appear in corporate subsidies, e.g. as the subsidies granted to transport firms.

Table 5

Economic grouping

2007 (as percentage of GDP) original data	SK	PL	CZ	V3	HU	HU-V3
1. Primary expenditure = 2+3+4+5	33.2	39.6	41.5	38.1	45.8	7.7
2. Consumption (transfers in kind) = 2a.+ 2b.	15.9	17.6	19.1	17.5	21.1	3.6
2 a. Operational (wage + intermediate cons.) expenditure	11.4	15.6	13.8	13.6	18.2	4.6
2 b. Social transfers via market producers	4.5	2.0	5.3	3.9	2.9	-1.0
3. Transfers to the corporate sector + other subsidies	2.8	2.8	3.2	2.9	4.0	1.1
4. Transfers to households in cash	11.6	14.2	12.9	12.9	15.2	2.3
5. Capital expenditure	3.0	4.8	6.3	4.7	5.5	0.8

2007 (as percentage of GDP) adjusted data	SK	PL	CZ	V3	HU	HU-V3
1. Adjusted primary expenditure = +2+3+4+5+6	27.7	26.2	30.8	28.2	32.4	4.1
2. Consumption – sales. primary and indirect tax content	11.1	9.1	10.7	10.3	10.7	0.4
3. Transfers to the corporate sector + other subsidies	2.8	2.8	3.2	2.9	4.0	1.1
4. Transfers to households in cash – primary and indirect tax	10.9	8.9	11.4	10.4	12.9	2.5
5. Capital expenditure – primary tax content	2.4	4.6	4.6	3.9	4.1	0.2
6. Errors (e.g. non-adjustment with EU items) = +1-2-3-4-5	0.5	0.9	0.9	0.8	0.7	-0.1

community (collective consumption) and the households, which, for the sake of simplicity, we refer to in the table as consumption, transfers in kind. Before the adjustments, this category exceeds the V3 average in Hungary by 3.6% of GDP. When making the adjustment, we also deduct the sales and fee revenues from expenditures – similarly to the direct tax content – and then consolidate it with the subsidy of market producers providing social transfers in kind. In order to eliminate the impact of consumption by government employees on tax revenues, we reduce this consolidated expenditure with the indirect impact appearing in the consumption taxes. Based on this, the expenditure of Hungary thus calculated exceeds the V3 average only by 0.4% of GDP.

In the case of corporate subsidies, both unadjusted and adjusted figures show a surplus of 1.1 percentage points. However, we do not know how much of this difference is attributable to the financing of firms providing public services (e.g. transport firms) and how much to the support of firms not providing public services. That is, the former should be stated – due to their similarity – together with social transfers in kind.

Another expenditure item explaining the significant difference is household transfers in cash, where the unadjusted expenditures exceed the average by 2.3% of GDP. In this case as well, we first deduct the primary tax content (this is sizeable in Poland), then we adjust the consumption taxes originating from the spending of transfers. Hungary's departure from the average is the highest for this expenditure, since the adjusted transfer is higher by 2.5% of GDP.

The last factor of the discrepancy is capital expenditure, which may explain only a minor part of the total difference. We adjust this expenditure by the primary tax content and the capital transfers received from outside the general government. These latter revenues finance government investments; a major part of this is EU subsidy. If we compare the adjusted capital expenditure, Hungary's expenditure exceeds the V3 average only by 0.2% of GDP. This may be explained by a number of factors.⁸ For example, in addition to the investments and investment-financing capital transfers, there are also capital injections for debt assumptions. They appear as sizeable one-off payments, usually in election years in Hungary.

⁸ At the same time, the level of investments must be also considered. While in the V3 investments in 2007 were identical with the 2004-2006 average level, investments in Hungary were 0.4 percentage point lower. If Hungary had an "average year" as well, the difference could have been 0.6 percentage point, instead of 0.2 percentage point.

COMPARABLE STRUCTURE OF EXPENDITURES – DO WE SPEND ON EDUCATION, HEALTHCARE OR SOCIAL PROTECTION?

Up to now we have compared the expenditure structure according to the so-called economic breakdown. As mentioned, depending on the statistical classification of the providers a certain type of social benefit is recorded in the government statistics either as wage and intermediate consumption of non-market providers or as subsidy to market providers.

This type of distortion is partially corrected by the functional grouping⁹ of expenditure, which reports, for example, educational or healthcare spending, irrespective of whether they were provided as wage and intermediate consumption or as subsidy.

Thanks to the fact that the economic breakdown is also preserved in the functional grouping, we may perform adjustments in the functional breakdown as well by the primary and indirect tax content of wages, and the primary tax content of intermediate consumption (i.e. purchase of goods and services). However, the sales and fee revenues are not available in this grouping for all countries, and thus this comparison is less accurate (Table 6).

Based on unadjusted figures the highest – almost 5-percentage point – difference between Hungary and V3 occurs is detected in **general public services**. On the other hand, the adjustment is the highest at this function, as a result of which two-thirds of the difference disappears. The main underlying reason for this is the fact that interest spending we have eliminated is included in this function. Another reason is that wage spending is dominant within the primary expenditures of this function, where – as we pointed out

Table 6

Functional grouping

(unadjusted and adjusted figures)

2007 unadjusted figures (as a percentage of GDP)	SK	PL	CZ	V3	HU	HU-V3
General Public services	3.7	5.5	4.4	4.5	9.4	4.9
Defence	1.5	1.4	1.2	1.4	1.3	-0.1
Public order and safety	2.0	1.8	2.1	2.0	2.0	0.0
Economic affairs	4.3	4.6	6.9	5.3	6.6	1.3
Environment protection	0.6	0.6	1.0	0.7	0.7	0.0
Housing and community amenities	0.8	1.1	1.1	1.0	1.0	0.0
Health	6.5	4.6	7.1	6.1	4.9	-1.2
Recreation, culture and religion	0.7	1.1	1.3	1.0	1.5	0.5
Education	4.0	5.7	4.7	4.8	5.3	0.5
Social protection	10.6	15.8	12.9	13.1	17.3	4.2

2007 adjusted figures (as a percentage of GDP)	SK	PL	CZ	V3	HU	HU-V3
General Public services	1.5	2.4	2.3	2.1	3.6	1.5
Defence	1.0	1.0	0.8	0.9	0.9	-0.1
Public order and safety	1.2	1.2	1.1	1.1	1.0	-0.2
Economic affairs	3.9	4.2	6.0	4.7	5.7	1.0
Environment protection	0.5	0.5	0.8	0.6	0.6	0.0
Housing and community amenities	0.7	0.9	1.0	0.9	0.8	0.0
Health	6.9	4.0	7.0	6.0	3.9	-2.1
Recreation, culture and religion	0.5	0.9	1.1	0.8	1.1	0.3
Education	2.5	3.8	2.7	3.0	3.1	0.1
Social protection	9.0	9.8	10.9	9.9	14.2	4.3

⁹ Classification of the functions of government (COFOG).

previously – the different tax rate generates significant discrepancies.

The remaining 1.6-percentage point difference could, in part, be explained by the differing amounts of sales and fee revenues, but we cannot establish its impact accurately for lack of the V3 figures. In Hungary, these fee revenues exceed 1% of GDP; if this is higher than the V3 average, then it also explains, at least in part, the higher expenditure. However, the difference may be caused by other factors as well. For example, excessive decentralisation is not optimal in terms of economies of scale. From among transition countries, the number of municipalities, relative to the population, is the second highest in Hungary, i.e. the average size of municipalities is small (Dabla–Norris–Wade 2002). At the same time, as a result of the layoffs implemented recently, employment in public administration cannot be considered high in international comparison. 4% of the population of the economically active age-group works in public administration, which slightly falls short of the EU average, and even among the Visegrád countries the proportion of public administration employees is lower only in Poland.

In the case of the **economic activities** function, unadjusted and adjusted Hungarian expenditure exceeds the V3 average by 1.3% and 1% of GDP, respectively. The function is dominated by consumption and investment expenditure, and thus the adjustments are primarily attributable to the difference in the indirect tax content (VAT). The role of wage spending within the differences is not significant compared to general public services, and thus the tax content thereof – to be eliminated – is also negligible. Within this function, about two-thirds of spending is represented by transport expenditure, and in the case of Hungary the transfers granted to MÁV are also stated here.

Healthcare expenditures are the only function where Hungary spent significantly (by 1.2% of GDP) less than other countries in the region. Moreover, the adjustments almost double this difference. The difference is distributed unevenly in the three dimensions of healthcare. First, subsidies for pharmaceuticals in Hungary still exceeded the Czech and Polish level slightly. Furthermore, in the case of sickness benefits, if we also consider employer contribution as an adjustment, then its ratio to GDP in Slovakia significantly

exceeds that of the other regional countries.¹⁰ However, operation and investment in the healthcare scheme represents the highest expenditure. Hungary's shortfall in this area is even more apparent after the adjustments. One of the reasons for this is that while in Poland and Hungary about 1.5% of GDP represents the wage expenditure of healthcare employees, which falls to 0.8% and 0.7% of GDP, respectively, after the primary and indirect taxes are deducted, in the Czech Republic and Slovakia the ratio of wage spending is a mere 0.1-0.2% of GDP. The low wage spending can be explained by the fact that the ratio of healthcare institutions classified outside the government sector (e.g. non-profit) is high, which appear among public expenditures in the form of net subsidy reduced by sales and user-fee revenues. These sales and fee revenues in Hungary account for 0.6% of GDP, which probably exceeds the V3 average. This means the extent of underfunding is even larger in Hungary. In parallel with the low level of operating expenditure, the level of investments has been too low for quite a long period already. The studies dealing with the condition of Hungarian healthcare infrastructure unanimously stress the low quality of the healthcare scheme – decrepit infrastructure, obsolete equipment, high degree of amortisation¹¹ – and the insufficiency of healthcare capacities (Papp–Eöry, 2004; Bondár, 2000; KSH, 2007). Capital shortage¹² in healthcare is also well demonstrated by the low per capita number of medical equipment of high technological quality (CT, MRI). (source: OECD Health data, 2007). According to Papp–Eöry (2004), a one-off expenditure amounting to 2% percent of GDP would be required for the modernisation of hospital infrastructure alone (buildings, machines, equipment, public utilities).¹³

In the case of the **educational function**, the Hungarian expenditure exceeds the V3 average by 0.5% of GDP, but after the adjustment this difference disappears. The function is dominated by wage expenditures and the adjustments are also related to this cost element. It should be noted that, similarly to healthcare, even the adjusted level of wage spending in Poland and Hungary significantly exceeds that of the two other countries, which may be explained by the different institutional structure in this case as well, i.e. the different ratio of institutions outside the general government sector. In Hungary the sales and fee revenues increase revenues and expenditure by 0.4% of GDP, i.e. taking this

¹⁰ That is, the unadjusted figures support the view reflected in several analyses that healthcare in Hungary is underfunded, which is unfavourable in terms of long-term growth, and which could be one of the reasons for the poor health figures in Hungary. At the same time, lifestyle and diets also influence health indicators, but the examination of this is beyond the scope of our analysis.

¹¹ "In 2006 69% of medical equipment, 70% of hospital technical equipment and 86% of IT equipment were depreciated to zero". KSH (2007)

¹² The national and international literature typically use the number of MRI and CT equipment – in the lack of other indicators providing a more aggregate picture – for measuring capital adequacy, which functions as a proxy variable.

¹³ In terms of healthcare investments, it is important to consider that in the 2007–2013 EU financial planning period significant EU development funds are available for healthcare developments.

Table 7
Discrepancy in pension expenses (2006)

Pension expenditure (as percentage of GDP)	SK	PL	CZ	V3	HU	HU-V3
Original	7.3	12.4	8.4	9.4	10.0	0.6
Adjusted with primary taxes	7.3	10.3	8.4	8.7	10.0	1.3
Adjusted	6.1	7.6	7.2	7.0	8.4	1.5

also into account, on a net basis we presumably spend less on education than the V3 average.

In Hungary, the expenditures of educational institutions are primarily dominated by current expenditures, while investments represent only less than 5% of total expenditures. Wages and contributions accounts for about 85% of current expenditures.

Based on the unadjusted figures, Hungary spent by 4.2 percentage points more on **social protection** than the regional average, and this difference remains after the adjustments as well (4.3%). The social protection function includes – in addition to pensions – the family allowances and the unemployment benefits as well.

Among the adjustment factors, the indirect tax content of transfers – i.e. the VAT and excise tax paid on spending the transfers – and negative tax affect the expenditure level of each country. During the adjustment process, indirect tax reduces the unadjusted expenditure level, while negative tax – i.e. tax allowances granted to families – increases it in Slovakia. In Poland – exclusively in the region – pension expenditure is burdened by income tax and contribution payment, thus, the negative adjustment is outstandingly high in Poland among the region's countries.

In the case of the social protection function, 60% of the significant discrepancy from the V3 average (2.5% of GDP) appeared in the form of the households' transfer in cash (See Table 5); of this pension expenditure is higher by 1.5% of

GDP in Hungary on the one hand, and on the other hand the family and child allowance is higher by 1.1%. The other one-third of the difference is attributable the higher social transfers in kind provided via market producers and less than one-tenth is explained by the higher operational expenditure of the government used for social protection.

Pension expenditure is the largest item within the social protection function in each country; therefore, it is worth examining the factors explaining the discrepancy in this item in detail.

Among the Visegrád countries, pensions in Poland are subject to tax payment, and thus the four countries' tax expenditure may be compared only after deducting the income tax and social insurance contribution paid on pensions.¹⁴ Even after deducting the primary tax content of pensions, the per capita pension expenditure is still the highest in Poland among the Visegrád countries. The comparison further changes, if in addition to primary taxes we also deduct the indirect taxes. After all adjustments, the pension expenditure as percentage of GDP is the highest in Hungary (Table 7). Pension expenditure as percentage of GDP depends on three factors: the ratio of pensioners, the per capita pension and the relative income level of the country. According to our simple calculation (see box text), pension expenditure in Hungary was higher than the V3 average primarily because the per capita pension expenditure exceeds the regional average, and at the same time – under a comparable structure – the ratio of pensioners also exceeds that of the other countries, while the per capita GDP was similar in all four countries.

¹⁴ In our analysis, pension expenditure includes – in addition to old-age pensions – the disability pension and survivors' pensions as well. We examine the number of pensioners in line with this.

Box 1: Factors determining pension-to-GDP ratio

The factors influencing the level of the pension-to-GDP ratio can be broken down as follows:

$$\frac{P}{GDP} = \frac{\frac{NP * P}{N * NP}}{\frac{GDP}{N}} = \frac{P}{N} * \frac{N}{GDP} = \frac{P}{GDP}, \text{ where } \frac{P}{GDP} \text{ is the pension-to-GDP-ratio,}$$

$\frac{P}{NP}$ is the pension per pensioner (EUR/year), $\frac{NP}{N}$ is the ratio of pensioners to the total population and $\frac{GDP}{N}$ is the per capita GDP.

Based on this formula, pension expenditure as a percentage of GDP is generated by dividing the per capita pension expenditure by the per capita GDP. The per capita pension expenditure is the pension per pensioner multiplied by the ratio of pensioners to the total population. Let us analyse the factors one by one.

a) The ratio of pensioners cannot be compared easily, because in Hungary, Slovakia and the Czech Republic pensioners may receive two types of benefits, e.g. old-age pension as a primary benefit and widow's pension as a supplementary benefit, while this is not permitted in Poland where pensioners have to choose between survivors' pension or old-age pension. In Hungary, this overlap is presented using specific figures, while no data of such kind are available for Slovakia and the Czech Republic. Accordingly, it is possible to compare properly either the Polish figures to the Hungarian figures excluding the overlap (HU1) or the figures of Slovakia and the Czech Republic to the Hungarian figures including the overlap (HU2).

The ratio of pensioners to the total population is basically determined by three factors. These are the effective age of old-age retirement, which – apart from the statutory retirement age – may be significantly influenced by the regulation of early retirement, the country's age

pyramid and finally the regulations pertaining to disability and survivors' pension. The effective retirement age in all countries under review was around 60 and the difference between the countries is negligible. As far as the age pyramid is concerned, in the Czech Republic and Hungary the ratio of the 60-year old population is above 20%, while in Poland and Slovakia this index is around 17%. We compare the ratio of non-old age pensioners among the countries by assessing the number of pensioners exceeding the number of pensioners above 60, with due regard to the fact that the effective retirement age in all countries is 60 years (+/- a few months).

b) Based on the comparison excluding the overlap, the Hungarian per capita pension, calculated in euro – adjusted for the primary tax content – exceeds that of Poland, while on the basis of the comparison including the overlap, the Czech Republic has the highest pension per pensioner.

The difference slightly decreases if we calculate the per capita expenditure at purchasing power parity, i.e. we also take into account the price of the average consumer basket. With this method we also eliminate the impact of the different indirect taxes, i.e. VAT and excise tax. Calculating at purchasing power parity, pension payments in Poland and Slovakia lag behind those in Hungary by 14% and 16%, respectively, due to the lower price level. At the same time, due to the higher price level, the Czech expenditures exceed the expenditures of Hungary only by 4%.

c) Based on the formula, the pension-to-GDP ratio and the per capita GDP are related to each other as follows: by itself, the higher the latter is, the lower the former will be. The per capita GDP in Hungary in 2006 does not depart significantly from the V3 average.

	PL	HU 1*	HU 2*	CZ	SK	
1. Proportion of pensioners relative to total population	24.0	27.5	33.9	33.1	26.8	
o/w receiving	old-age pension	61	75	61	61	63
	disability pension	18	16	13	18	13
	survivor's pension	22	9	26	22	24
2. Rate of 60 years old or older population (per cent)	17.8	21.7	21.7	20.9	16.5	
3. Difference (1-2)	6.2	5.8	12.2	12.2	10.3	

* A HU 1 contains only those pensioners who receive widow pension as primary allowance while HU2 contains supplementary beneficiaries too. HU 1 will always be compared to Poland only, while HU 2 to the Czech Republic and Slovakia.

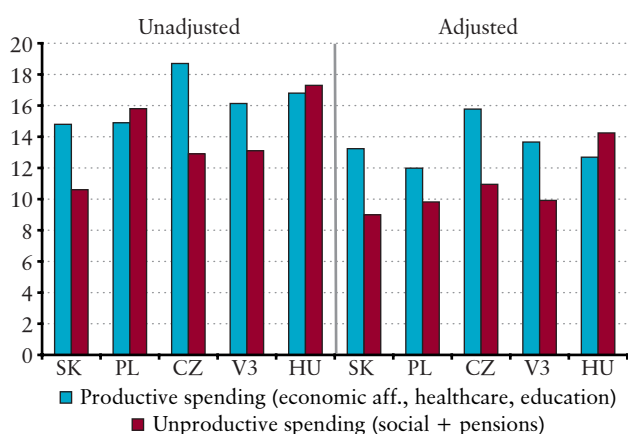
	PL	HU 1*	HU 2*	CZ	SK
P/NP	2.3	2.7	2.2	2.4	1.8
P/NP on purchasing power parity	4.0	4.6	3.9	4.0	3.3
P/NP (HU = 100)	83	100	100	110	81
P/NP on purchasing power parity	86	100	100	104	84

EXPENDITURE STRUCTURE IN TWO ALTERNATIVE APPROACHES

Expenditures may be broken down not only by their form (economic grouping) and purpose (functional grouping), as the literature also examines other alternative breakdowns. One of these alternative approaches (Kneller et al. 1999) divides expenditures into two groups. The so-called productive expenditures include, for example, education, healthcare and transport, while unproductive expenditures include social spending and pensions. Productive expenditures exceed the unproductive welfare expenditures in all countries, with the exception of Hungary. The average difference is 4 percentage points. By contrast, the level of unproductive expenditures was higher in Hungary. Based on the adjusted figures, the productive expenditure-to-GDP ratio in Hungary is even lower than the regional average. Based on the original figures, in addition to Hungary, welfare expenditures also exceeded productive ones in Poland, since welfare spending include the tax content of pensions in the unadjusted figures; however productive expenditures were higher after adjustment. Within productive expenditures, healthcare expenditure is lower by 2% in Hungary than in the V3 countries, while economic activities exceed the V3 average by 1 percentage point, and Hungary spends the same amount relative to GDP on education (See Chart 1).

Chart 1

Productive and unproductive expenditures
(2007, as per cent of GDP)



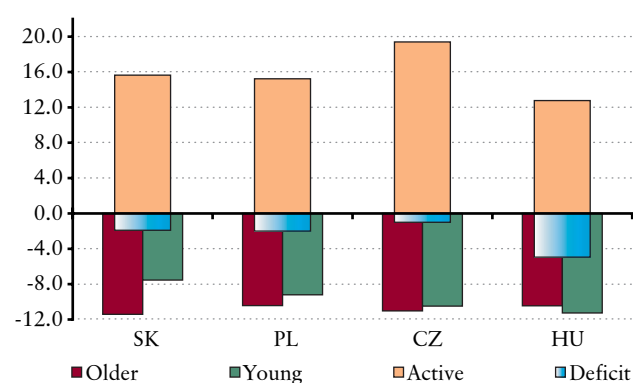
A comparison of productive and unproductive expenditures reveals that despite the adjustment, any conclusions must be treated with great caution. Productive expenditures include economic subsidies which often contributes to the survival of outdated structures, thus their contribution to growth is more negative. On the other hand, according to empirical results, the impact of social transfers is often positive on long-term growth. One possible explanation for this is the

reduction of income inequality and cyclical income fluctuation, but in terms of the final impact the distribution of age groups may also be dominant.

Another alternative approach (Rangel, 2000) considers some of the above-mentioned aspects by calculating the distribution of net expenditures among age groups. Based on the distribution of the adjusted figures and healthcare expenditures in Hungary (Gál et al. 2008), we estimated the amount of these items: the relevant results are shown in Chart 2. The beneficiaries of one type of net expenditures are the young who are not yet active in the labour market. They receive family allowances, education and some healthcare services, while the state receives tax revenues on their consumption. Young people also benefit the most from fixed asset (capital) formation (Chart 2, green column). The other type of net expenditures targets the elderly, an economically no longer active age-group; this includes pensions and part of healthcare. Elderly people pay tax on their consumption (in certain countries on pension) (Chart 2, red column). If we calculate both groups' revenue-expenditure balance, the remainder may – for the sake of simplicity – be allocated to the active age-group. Here, part of the healthcare and welfare expenditures stand against significant tax payments, and the costs of collective consumption also recorded here. Based on the balance of these, the active age group is a net payer (Chart 2, yellow column). In Rangel's analytical framework interest spending is expenditure linked to the past, while a deficit is a burden postponed until some future date. In very simplified terms, this means that interest is received by the elderly age group, while the debt generated by the deficit will be repaid by young people. Since the volume of interest spending and the size of the deficit were approximately the same in the Visegrád countries in 2007, this item may be considered directly as reallocation between elderly and young people (Chart 2 – blue column).

Chart 2

Distribution of net expenditures among age groups
(2007, as per cent of GDP)



These results show that in the case of Hungary higher net pensions are mostly compensated by the lower healthcare expenditures (assuming that the weight of elderly people within healthcare expenditures is similar in all countries). Accordingly, net expenditures targeted towards the elderly in Hungary exceed the V3 average by 0.3% of GDP. Net expenditures directed towards young people exceed the average by 2.2% of GDP, but this is paid not by the active age group, rather it becomes the debt of young people. As in the case of Hungary the deficit exceeds the V3 average by 3.3% of GDP, net expenditures – adjusted for this – targeted at young people fall behind the average by 1.1% of GDP. In other words, if we ignore the deficit, in the V3 countries higher net expenditures are directed towards elderly people than towards young people, while in Hungary it is just the opposite. (Similarly to the Czech Republic, the ratio of the population below 20 and above 60 years is identical in Hungary as well, while in Poland and Slovakia the number of young people exceeds that of elderly people by 30% and 40%, respectively.) If we deduct the deficit from young people's net expenditures, we find that it is the elderly people who receive higher benefits in Hungary as well. One should emphasize however, that even this breakdown of expenditures fails to provide any information on the how efficiently the individual countries use their funds. Thus, for example, the same amount of investment may be either poorly or well targeted (elimination of bottlenecks).

CONCLUSIONS

The objective of our analysis was to compare the level and structure of the expenditures of the four Visegrád countries. We found that the expenditure of Hungary and the average of the other three Visegrád countries in 2007 differed by 10% of GDP, but one quarter of this is attributable to higher interest spending and one-third to revenue factors. These revenue factors increase revenues and expenditures simultaneously, and thus in fact they have no impact on the deficit. Therefore, for example, the fact that the tax content of public expenditures is very different in the individual countries is neutral in terms of the deficit, but it still distorts the comparison of expenditure levels. The sales and fee revenues collected directly by public institutions to cover expenditures similarly hinder comparability. Finally, the subsidies received from the EU also “flow through” revenues and expenditures without impacting the balance. The role of the latter two factors is also different in the countries under review, thus the adjustment has an impact on the difference of expenditure levels.

Examining the impact of adjustments within the expenditure structure, it can be shown that almost two-thirds of the

approximately 4-percentage point difference in the GDP ratio exists in the transfers of households in cash, mostly in the case of pensions, and to a lesser extent in the case of family allowances. Compared to the average of Visegrád countries, Hungary spends more on general public services and on economic (e.g. public transport) subsidies, and considerably less on the current and capital spending of healthcare institutions. However, our results do not provide information on the quality, efficiency and targeted nature of the expenditures; examination of those aspects goes beyond the scope of our analysis.

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- GLOSSARY**
- Tax base:** in the article we refer to the potential basis of taxes (e.g. wage bill, investment expenditure, etc.) – which is taxable in principle- as the tax base. We do not deal with the exceptions stipulated in the tax laws of the individual countries. The effect of the specific tax base exemptions contributes to the fact that the effective tax rate is lower than the nominal (statutory) tax rate stipulated in the law.

Tax content: The extent of the taxes and contributions actually paid by the general government or households.

Tax rate: The actual tax content divided by the potential tax base; it indicates the effective tax burden.

Direct tax: In the article the personal income tax and contributions are allocated to this category.

Indirect tax: In the article VAT, excise duty and vehicle registration tax are included in this category.

Primary tax content: The total of the direct taxes paid on the general government's wage bill and the indirect tax content of government procurements.

Indirect tax content: The indirect tax paid on consumption by the government employees and persons benefiting from household transfers in cash.

Household transfer in cash: Pension expenditure, family allowance, social and unemployment benefits paid in cash.

Household transfer in kind: The educational, healthcare and welfare services used by the individual members of the population, provided by the general government through its own institutions (schools, hospitals) or institutions classifying as market producers.

Social transfers provided via market producers: Part of the social benefits is provided by institutions other than general government institutions. Thus, for example, price subsidies (medicine, gas) are provided by the government via companies. Part of the healthcare and educational institutions is also outside the general government, e.g. in the form of non-profit companies.

Collective consumption: Consumption expenditures of public administration, defence and public order, which cover the services provided by the general government to all households.