Gusztáv Báger – Gyula Pulay

Analysis of the macroeconomic risks of budgeting

Method and value

The legally mandated task of the State Audit Office of Hungary (hereinafter: SAO) is to form an opinion on the well-foundedness of the state budget proposal, and on the realisability of the revenue appropriations. In the past two decades or so the SAO has performed this annual activity on the basis of experience obtained during the audits conducted at organisations in charge of planning the budget appropriations. The audits first of all strive to determine whether the methods and procedures applied in planning, as well as the system of state tasks and the modifications thereof as proposed by the regulators lay proper foundations for the budget bill.

When the SAO was required to form opinion on the 2008 budget, its activity was expanded with a new element: the Research and Development Institute of the SAO (hereinafter RDI) prepared an evaluating study on a few correlations of the macroeconomic foundations of the 2008 budget bill (hereinafter: first macro-study). The first macro-study provides a summary review and evaluation of the economic growth and budgetary processes, presents the risks inherent in the system of conditions of the budget bill, as well as the impacts of the planned measures in a few selected – key – areas. Due to the shortage of time and expert capacity, the RDI could perform risk and impact assessment analyses only in a few areas. However, by using novel analysis methods and approaches we attempted to establish a methodological framework that can be used in the activity of any independent institution assisting the budgeting process.

The experiences related to the debate of the first macro-study showed that macroeconomic risk analysis can be an important, or even indispensable method for forming an opinion on the budget bill, by drawing the decision-makers' attention to (economic) correlations and critical points that jeopardise the attainment of the objectives set in the budget bill. At the same time, however, at this stage of budget preparation there is not enough time left to find less risky scripts; wherefore risks can primarily be mitigated by increasing explicit and implicit reserves. (By implicit reserve we mean the deliberate underplanning of revenues and/or the deliberate overplanning of expenditures.) Therefore, it is reasonable to start risk analysis already at an earlier stage of the budgeting process, when it is still possible to accept a less risky script, or mitigate the revealed risk factors. For this reason, in May 2008 the RDI prepared another evaluating study, this time about a few correlations of the macroeconomic scope of planning the 2009 budget (hereinafter: second macro-study), in which risk and impact analysis was performed in connection with factors that are most likely to influence the 2009 budget.

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During the preparation of the two studies, their reception by the National Assembly, as well as during their professional debate the RDI found that the studies filled a void. Both the legislators and the broader profession are open for similar analyses. Despite the regulations in force and several related SAO initiatives, impact assessment studies have hardly been prepared on the amendment of the different legal regulations. Even in the few efforts made, the financial impacts are usually considered in a gross manner only, and little attention is paid to the squeeze-out and replacement effects, not to mention the societal and social impacts.

Up to now, risk analysis in the preparation of budget related decisions has been almost unknown in Hungary. The system of macroeconomic conditions that lay the foundations for the budget is stipulated in one version only instead of several versions, without indicating the risks of possible non-occurrence, and the expected impact thereof on budgetary revenues and expenditures. Therefore, in the following we present the budgetary risk analysis method we apply, and then the results achieved on this basis hoping that the application of this extremely important tool will widely spread in Hungary, too, during the preparation of the budget.

THE METHODOLOGY OF REVEALING BUDGETARY RISKS

Budgetary risk analysis – a special genre of macroeconomic evaluation

In Hungary, macroeconomic analyses are prepared by the Ministry of Finance, the National Bank of Hungary and several research institutes. Forward-looking analyses usually provide a prognosis, i.e. forecasts for changes in the most important macroeconomic indicators.

These forecasts are estimates based on the best knowledge of a given institution, and are made independent of one another. On the other hand, though, budgetary risk analysis cannot be regarded as a separate forecast, and is not independent of the government forecasts used for substantiating the budget. On the contrary, *budgetary risk analysis takes the government forecasts as a basis, and analyses the direction and size of changes, and the probability of changes that may occur compared to the forecasts.* The objective of the analysis is to reveal risks (chances) of high probability that cause significant deviation from the government forecasts, i.e. that pose a risk to a significant budgetary objective. Consequently, the risk analyses also include estimates. However, these estimates are not the independent forecast of a given macroeconomic parameter (e.g. inflation), but rather the estimated discrepancies from the government forecasts. What is more, deviations may occur both in the positive and negative directions with significant probability, which means that risk analysis may also warn about the presence of two-way risks.

In contrast with the economic forecasts, budgetary risk analysis examines economic processes not by themselves, but in terms of the risks they carry for the attainment of the budgetary objectives. During the compilation of the studies it was reasonable to perform the risk analysis of the budget bill concentrating on the realisability of the major budgetary objectives, which are the following:

- GFS[1] and primary balance sheet calculated on the basis of the cash flow statement,
- the balance sheet calculated on the basis of ESA '95[2].

This means that in the first round of our analysis we focused on finding the balance related risks. At the same time it is evident that there are close interrelations between balance and growth, wherefore the growth related risks cannot be ignored either. What is more, *in the*

current situation of the Hungarian economy one of the greatest balance related risks is that the growth objectives are not achieved, and consequently the budgetary balance can be improved only by means of income concentration. However, this affects economic growth adversely. Later on we will come back to the related consequences drawn by the second macro-study.

Another specific feature of budgetary risk analysis is that it does not address all significant macroeconomic parameters of the budget. Instead, it focuses on those that may entail serious risks. For the identification of such parameters we can securely rely on the opinion-forming activity of the SAO in relation to the budget bill, since the SAO has pointed out several weaknesses of budgeting in the past years. The risk analysis of these weaknesses revealed several serious macroeconomic risks. During the selection of topics for risk analysis we also utilised the macroeconomic forecasts of the independent organisations, and included those parameters in the risk analysis in the case of which the government forecasts considerably differed from the typical values of the independent institutions. Finally, we could strongly benefit from the former macroeconomic analyses of the RDI, which drew attention to the fact that there is enormous inertia in most of the processes that determine budgeting. Due to the high rate of predetermined elements it is very difficult to implement changes from year to year. Consequently, it is worth extending risk analysis to all those significant expenditure and revenue items, as well as macroeconomic parameters in connection with which the budget bill and the government forecasts contain significant modifications.

Consequently, *one of the most important parts of risk analysis is the identification of the trends of the analysed phenomenon, and the factors that significantly influence these trends. It is actually about determining what would happen if the investigated phenomenon existed in the future as it did in the past.* This requires the identification of the tendencies of the past three to five years at least, as well as the discrepancies from the planned values and the cause of such discrepancies. During our analyses we looked back to the beginning of the 1990s (e.g. changes in wages, changes in the expenditure structure of public finances), and we found highly visible trends behind the frequent changes.

Having analysed the past we can go onto considering *those new developments that may result in discrepancies from the trend.* These developments can be external, environmental impacts from the aspect of the country or the government, but can also be government decisions. In the former case we turned to international comparisons and the analysis of the forecasts of international organisations in order to have a better understanding of the external processes. However, in the latter case *we examined whether the approved government measures and the available tools were sufficient to change the tendencies of the past years, or there was a significant risk that a given trend would not break despite the government's intentions* (e.g. inflation will not slow down to the planned level, expenditures related to pharmaceutical support will not drop at the desired rate). At this point risk and impact assessment studies meet, they supplement one another, since if the government's measures aiming to reduce expenditures and increase revenues are not effective enough, or they have undesirable side-effects, the risk increases that the objectives related to the budget balance will not come true. Consequently, budgetary risk analysis inspects the government's measures, too, however not from the policy/political aspects, but rather from the aspect whether they properly and sustainably serve the budgetary objectives. For example, we have analysed the healthcare measures of the past years only to determine

whether they are suitable to actually and permanently achieve the savings objectives set by the government itself.

The risk analyses prepared by independent institutions often stress that they are free from politics by indicating that they prepare their estimates by assuming "no change in the course of politics". The RDI did not intend to provide a political analysis about the inspected changes either. At the same time, however, in 2006 it became evident in Hungary that the politics pursued so far could not be sustained any longer, and the government committed itself to important changes by adopting the convergence programme. In this situation the "no change in the course of politics" condition does not mean that changes are cancelled. On the contrary, it means that the government implements the measures formulated in the convergence programme. Consequently, the "starting point" of evaluations contained in the studies is the convergence programme.

What types of risks were taken into account?

The achievement of the budgetary objectives is jeopardised by different types of risks. Naturally, macroeconomic risk analysis must first of all reveal economic risks, but it cannot ignore the social embeddedness thereof. Based on this approach we defined the risks we analysed as follows: one can speak about budgetary risks if it is highly probable that a budgetary item, an economic process or a macroeconomic parameter that significantly influences the entire balance, considerably deviates from the value stipulated in the budget act or the underlying government forecast.

In the course of budgeting such risks can be identified at three places. Consequently, there are
- so called inherent risks that come directly from the economic (social, etc.) environment;
- so called planning risks that are implied in the estimation, forecasting and planning methods applied during preparation;
- so called execution risks that occur during the execution of the budget.

◘ With a view to reveal *inherent risks it* is necessary to examine the risks inherent in the economic processes that lay the foundations for the revenue and expenditure items of the budget. These include risks that are based on the forecasts of market and financial processes that significantly influence these items, but the outcome of which is uncertain even if the best forecasting methods are used. The foreign exchange rate and interest risks are special types of inherent risks. These risks determine the burdens related to the management of state debt, while the foreign exchange rate risk is an important factor in the utilisation of EU funds, too.

◘ *Planning risks* can be put in four categories:
- errors in the macroeconomic forecasts for the given year, and errors made during the incorporation of the results of such forecasts into the budget;
- errors in planning the base year of the planning year;
- deficiencies of the information system;
- under- and overplanning due to the "plan bargain".

We considered the first two groups of the planning risks macroeconomic risks, wherefore they were included in our analysis. Several major expenditure appropriations of the budget act and the most important revenue items thereof are closely related to what values the government accepts from the macroeconomic forecasts for the given year as a basis for budgeting. Macroeconomic forecasts include both inherent risks (when not the most probable value occurs from among the forecasted economic indicators), and planning risks. There are two different types of planning risks: 1.) professional errors made during forecasting,

i.e. error in determining the probability of occurrence, and 2.) the planner accepts less probable values as a basis for budget planning. (Occasionally, the planner undertakes openly that he has chosen a too prudent or too tense value on purpose.)

The macroeconomic risks of the base year imply significant risks during the preparation of the budget of the reporting year, too. The reason behind this is that the basis of the budgetary appropriations is in most cases the original plan – or the modified plan in case modifications were implemented mid-year – and not the expected realisation. Consequently, if the individual items of the base year were built on erroneous macroeconomic forecasts, and therefore these items are under- or over-achieved, this may affect the realisability of the appropriations of the reporting year, too.

■ *Execution risks* occur when the implementation of an appropriation requires measures by the enforcing organisation or the beneficiaries of the appropriation, yet these measures are either not taken at all, or taken incompletely or with delay. It is worth distinguishing three types of these risks.

◗ Risks that emerge at the enforcing organisations (e.g. the enforcing decrees are not prepared in time).

◗ Risks that occur at the beneficiaries of the appropriations (e.g. the hospital goes bankrupt, because it fails to reduce its costs proportionate to the reduction of the appropriation, the dissolution of the institution is protracted, the capacity is small to realise the revenue appropriation).

◗ Squeeze-out and replacement risks. Such risks appear when the expenditures do not cease to exist when a budgetary appropriation is decreased, but are transferred to a different budgetary row (e.g. downsizing increases unemployment related costs, or due to the reduction of the number of auditors revenues from fines drop).

In our studies we examined the existence of all three types of risks, especially in areas in which the convergence programme envisaged significant savings, and stipulated several measures for the attainment of this objective. Both studies revealed such risks. For example, in relation to the financing of healthcare services part of the savings achieved in the Health Insurance Fund was not founded by cost reduction by the healthcare service providers; consequently, indebtedness at institutional level increased. Similarly, the reduction of funds provided to the local governments has led to a growth in the outstanding loans of the local governments.

In the perspective of several years it poses a serious risk that part of the squeeze-out and replacement impacts do not appear in the budget balance of the given year, but later require budgetary expenditures (off-balance-sheet risks). These risks may come to surface – for instance – if preliminary liabilities become due, which formerly did not have to be indicated in the budget. In the past years it was a general practice that in order to reduce the burden on the annual budget, part of the real burdens were temporarily undertaken by organisations engaged in quasi-fiscal activities. However, sooner or later the budget was forced to take over these burdens. Consequently, the risk analysis of the budget cannot ignore these so called off-budget (quasi-fiscal) risks either.

PRESENTATION OF THE RESULTS OF THE RISK ANALYSES THROUGH THE EXAMPLES OF WAGES, INFLATION AND THE TAX BURDEN

In the following we would like to illustrate the practical application of the method of budgetary risk analysis described above on three examples taken from the first macro-study.

The risks of the budget plans for 2008 through 2010 in relation to wage increases[3]

In the basic version of the convergence programme[4], one of the most uncertain factors of the economic and financial processes earmarked for 2008 is the change of wages. In this respect, the programme itself calculated with several possibilities. It is evident that the growth rate of wages is one of the major factors influencing the budgetary revenues, and has a serious effect on public finance expenditures, too (for example pensions). At the same time, wages are important for real convergence, too. The restoration of the balance of trade requires that household consumption should decrease, or at least increase at a smaller rate than economic growth. In the case of modest economic growth this requirement can only be met either by the reduction, or extremely constrained growth of real wages.

Starting out from this requirement and the prognosis pertaining to the rapid reduction of the inflation rate, the basic version of the convergence programme calculated with the fact that the 6.7% growth rate of the gross wages forecasted for 2007 will reduce by nearly 50%, to 3.5%, and will continue to rise slowly, in line with the planned real wage growth and low inflation. We found this forecast of the convergence programme risky, and subjected it to a detailed risk analysis, since outside the budgetary sector the government cannot directly influence the growth of wages. This means that the forecast stipulated in the convergence programme can come true in 2008 only if the growth of wages in the competitive sector is adjusted to the expected inflation rate, and the realistically expected inflation rate will be below 3.5%.

During the risk analysis we tried to find the answer to the question: what determines wages in the competitive sector? By analysing the statistics of the past 15 years or so (1993–2007) we examined whether the wage growth in the competitive sector (rise of the average gross wages) was significantly affected by

- the expected inflation rate,
- the experienced inflation (inflation of the previous year),
- the increase of the minimum wage and the public sector wages,
- the measurement system the wage agreement.

This article focuses only on the major findings of the RDI's risk analysis. Based on the statistical figures we found no systemic relationship between the expected inflation and the growth of wages. (This could in part be due to the fact that the expected inflation could be captured only on the basis of contradicting forecasts prepared by different workshops.) At the same time, our analyses show the tendency that *in the competitive sector the growth of gross wages is adjusted to the inflation rate of the previous year (see Chart 1).* Under the less favourable economic conditions of the 1990s this manifested in the fact that the gross wages grew at a rate similar to the inflation rate, with a one year lag. In contrast with this, since 2003 wages have grown at a rate exceeding the inflation rate by 3 to 4%. The competitive sector adjusted itself to the excessive minimum wage hikes of 2001 and 2002, as well as to the large-scale wage increases in the public sector by significantly raising the gross wages, albeit protracted in time. In this period the growth of wages has become independent of the changes in the inflation rate.

Interestingly, the growth of net wages was less in line with the inflation of the previous year, whereas it would have been logical for the employers to adjust net wages to inflation. This resulted in the fact that real incomes grew excessively in the years in which the growth rate of net wages was higher than that of gross wages.

The chart show that (with the exception of the period of 2001–2002), *the wages in the com-*

Chart 1

THE GROWTH OF AVERAGE WAGES IN THE COMPETITIVE SECTOR IN LINE WITH INFLATION 1993 – JANUARY–MAY, 2007, FULL-TIME EMPLOYEES
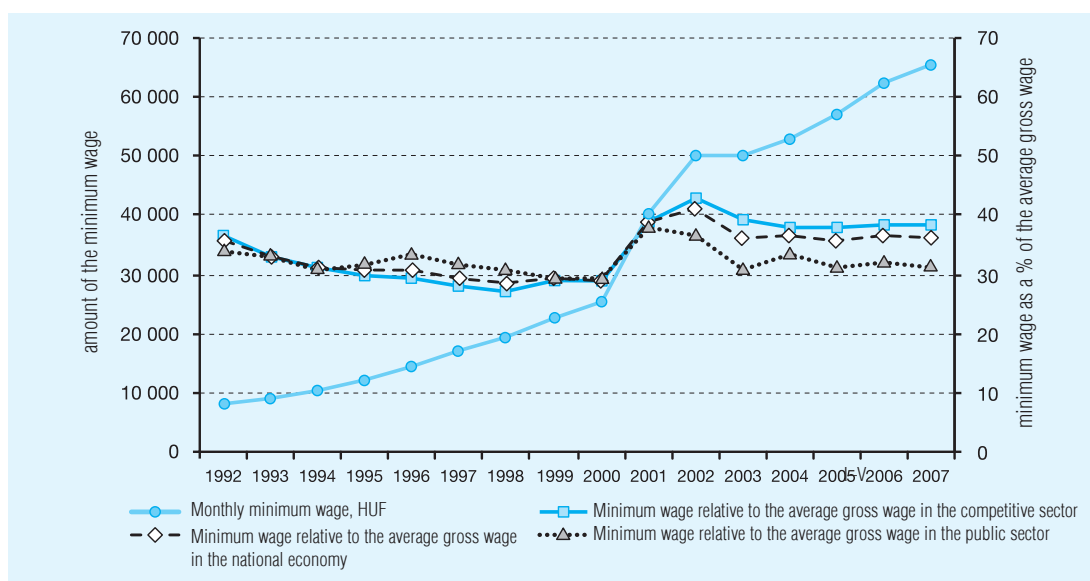(previous year = 100%)
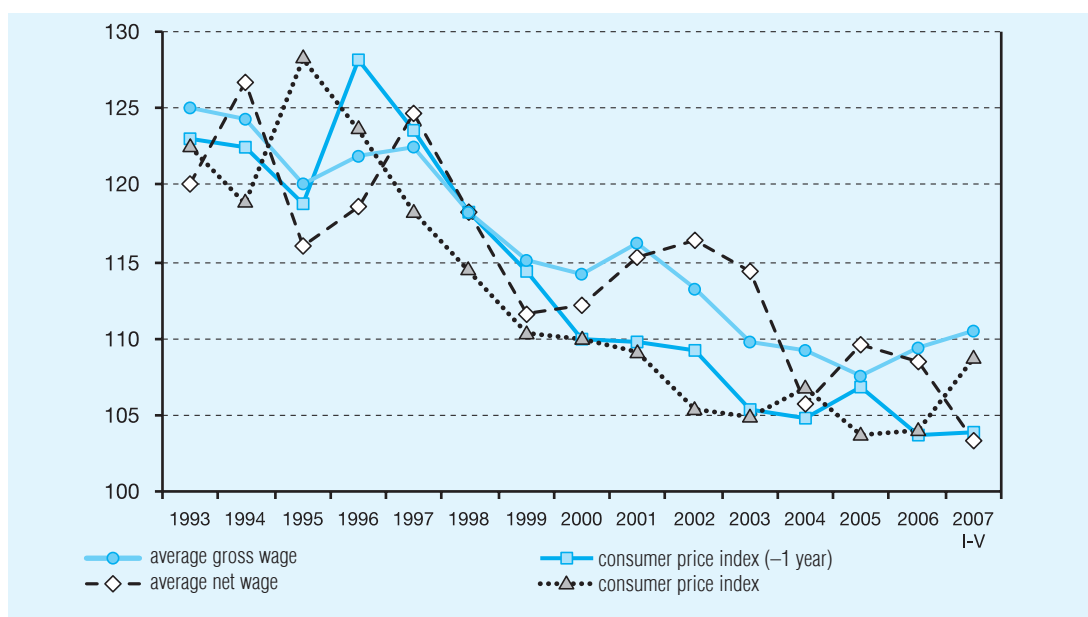
petitive sector could be greatly influenced by the minimum wage determined during the interest reconciliatory talks, as well as the recommendations for the minimum and maximum rate of wage increases. The growth of the minimum wage and that of the average gross wage were in line with each other (except for the excessive minimum wage rise implemented in 2001 and 2002) *(see Chart 2).*

The macroeconomic forecast taken into account during the preparation of the final version of the 2008 budget bill contains higher forecasts than those forecasted by the convergence programme. Due to the rapid increase of food prices, the Ministry of Finance increased its forecast for the rise in the consumer price level to 4.5% (by 1.2 percentage points). Since wages in 2007 grew at a significantly higher rate that envisaged, the forecasts for the growth of gross wages in 2008 was increased to 5.4% (1.9 percentage points). According to the planning documents, in 2008 gross wages would increase

in the competitive and the budgetary sectors by 6.0% and 4.4%, respectively.

The forecast considerably differs from the trend we revealed. If the companies of the competitive sector continued to demonstrate the behaviour they demonstrated in the past years in 2008, too, a wage increase of 10.5–11.5% would be implemented, exceeding the 7.5% inflation rate experienced in 2007 by 3 or 4%. At first sight, this assumption can hardly seem realistic. However, during the evaluation it must be taken into account that extreme differences have emerged among the performances of certain segments of the Hungarian economy, and according to all forecasts, this tendency will continue between 2008 and 2010. All forecasts presume that dynamic production and exports expansion is expected in several industries of the competitive sector, which will first of all be realised through the improvement of productivity. Therefore, coverage for an outstanding wage growth is creat-

Chart 2

THE SIZE OF THE MINIMUM WAGE AND ITS RATE TO THE GROSS AVERAGE WAGES JANUARY THROUGH MAY IN THE YEARS 1992–2007, COMPETITIVE AND BUDGETARY SECTORS

Source: Own calculations based on the HCSO's figures on employment and wages, institutional and labour statistics

ed, too. Just like in the previous years, the apparent lack of professionals on the labour market forces these companies to adjust their wage hikes to their own performances rather than to the average performance of the Hungarian economy. On the other hand, in public service companies that can boast with a more moderate performance improvement, a wage increase exceeding the rate of inflation is expected due to the employees' good interest representation ability. The figures clearly show that this tendency existed in the past years, too. This fact is illustrated by *Charts 3 and 4.* According to Figure 3, in industries that are more sensitive to the minimum wage, the large-scale increases of the minimum wage in 2001 and 2002 forced the companies to undertake large-scale wage hikes. To offset these increases, in the subsequent three years the wage hikes did not significantly exceed the inflation rate at most of these companies. It is probable that the larger-scale wage increase implemented in 2006 was in part due to measures taken for the

whitening of the economy. However, such fluctuation could not be witnessed in industries offering higher wages *(see Chart 4)*. The curve depicting the growth of the gross wages of blue-collar workers closely follows the inflation, but around 5 percentage points higher.

In the competitive sector the wage increases observed in 2006 and 2007 also show that the growth rate of gross wages in the competitive sector exceeds the rate of inflation. To a smaller extent, this can also be explained with one-off factors: bringing payments forward from 2007 to 2006 in order to avoid higher taxes is the effect of the "whitening of the economy". At the same time, the figures indicate that in certain sectors of the economy there is firm commitment to increase the real wages, i.e. to compensate the impact of price hikes and withdrawals by raising the wages. However, the pressure on increasing the wages in 2008 can be alleviated by the fact that wage increases compensating the rapid growth of inflation were implemented already at the

end of 2006 and in 2007. On this basis, wages will most probably grow at a rate between 8 and 11% in 2008.

The greater wage increases in the competitive sector apparently do not pose a significant risk for the public finance system as a whole. What is more, as a result of the higher wage increases the public finance revenues also grow commensurately.[5] At the same time, higher wage increases require that pensions

Chart 3

GROSS WAGES IN THE CONSTRUCTION INDUSTRY, TRADE, THE CATERING INDUSTRY AND ECONOMIC SERVICES
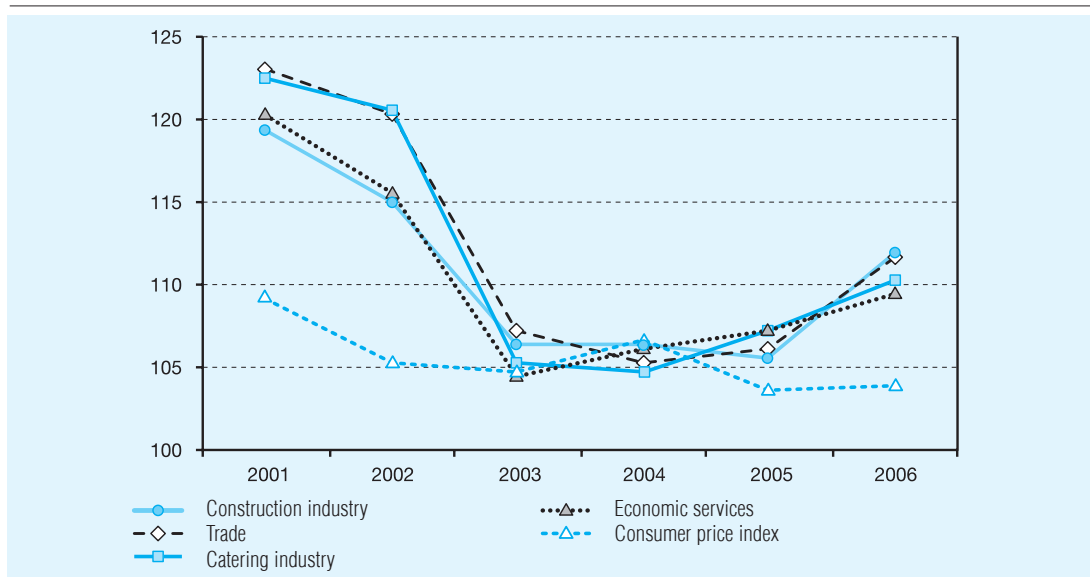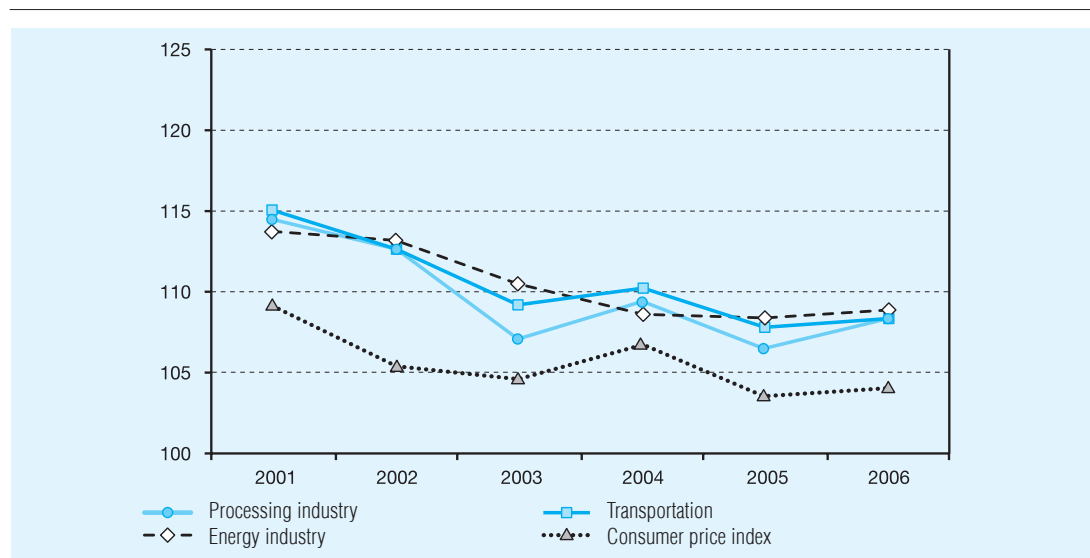(blue-collar workers)

- Construction industry
- Trade
- Catering industry
- Economic services
- Consumer price index

Chart 4

GROSS WAGES IN THE PROCESSING AND ENERGY INDUSTRIES AND TRANSPORTATION
(blue-collar workers)

- Processing industry
- Energy industry
- Transportation
- Consumer price index

and pension-like benefits be increased at a higher – albeit moderately commensurate – rate due to the Swiss indexation used. Other social cash benefits are usually not increased proportionately with the wage increases. Therefore, the direct impacts of higher wage increases are favourable for the public finance system as a whole. The situation is not necessarily the same in the case of the indirect effects. Here it must first of all be mentioned that in case wage increases are higher in the competitive sector, it will become even more difficult to achieve the objective of moderate wage hikes in the budgetary sector. In an indirect manner the balance of public finances is also deteriorated if public service companies owned by the state or local governments are forced to implement wage increases that they are unable to finance.

The gravest risks of higher wage increases occur in the balance of the economy. The achievement of the balance of the economy requires that household consumption should only modestly grow (by 0.4%) in 2008, too. However, if wages grow at a higher rate than the planned inflation rate in 2008, the growth in real wages may lead to a higher than planned growth in household consumption. Naturally, this can be very beneficial if the growing demand is satisfied by Hungarian production. Otherwise, the growth of imports will accelerate.

The expected growth of wages and prices in 2007 and 2008 requires the complete reconsideration of the wage forecasts of the convergence programme, since the convergence programme presumed that after 2008 the growth of the average gross wage will be almost identical in the public and the competitive sectors, and equal 5% in 2009 and 5.9% in 2010. The prognosis prepared by the Ministry of Finance in December calculates with an even larger reduction, i.e. with a growth rate of 4.5% and 4.9%.[6] This would again require that the wage increases in the competitive sector should

reduce by half from 2008 to 2009. The RDI does not see what factor could slow down the rate of wage growth to this extent.

In summary, it can be concluded that *the higher than planned wage increases in the competitive sector represent a serious risk in 2008, the spiralling effects of which must not be ignored.* The country must start preparations already now to manage the risk that may be caused by the reduction of the inflation rate in 2009, and the sustenance of dynamic wage increases. A solution can be the reinforcement of the orienting effect of the system of wage agreements, the enhanced encouragement of savings, and the improvement of the competitiveness of domestic production in the satisfaction of domestic consumer demand.

The analysis of inflation related risks[7]

During our risk analysis we examined what factors make it difficult to keep inflation below 3 to 3.5% permanently in the next three years. This article provides only a summary of the most important findings of the analysis. The analysis of the growth of inflation between 2002 and 2006 showed that if we cleanse the consumer price indices of these years from the distorting factors (tax measures, central price measures different from those planned, fluctuations of the multi-year effects), then we can witness a relatively stable, 4.1–5.2% "net" increase in the price level *(see Table 1)*. Consequently, the Hungarian price level has not converged to the Maastricht criterion. According to our analysis, there were (and still are) several forces in the Hungarian economy, which keep the inflation rate nearly 2 percentage points higher than the average inflation rate of the EU-15. Smaller inflation rates occurred in certain years only, as a result of tax cuts and one-off measures.

In Hungary, the price index is basically determined by the following factors.

Table 1

CHANGES IN CONSUMER PRICES IN THE YEARS 2002–2008 WITHOUT CONSIDERING THE IMPACT OF STATE INTERVENTIONS ON THE TOTAL CONSUMER PRICE LEVEL
(growth in %)

Year	Rise in the consumer price level	Impact of central measures different from those planned	Including: Impact of tax measures	Impact of the price statistical survey on the price index	„Net" rise in the price level
2002	5.3	−0.4	0.6	0.0	5.1
2003	4.7	0.0	0.2	0.0	4.5
2004	6.8	−0.4	2.0	0.0	5.2
2005	3.6	−0.3	0	−0.5*	4.4
2006	3.9	0.0	−1.3+1.1	0.0	4.1
2007	7.7	0.0	2.8	0.0	4.9
2008	5.5	0.0	0.5	0.0	5.0

Note: Most of the unplanned central measures were financial measures (e.g. annulment of the television subscription fee, financial measures related to pharmaceutical subsidies and excise goods).

*Estimate

■ Due to the openness of the country, the growth rate of consumer prices in Hungary cannot be less than the EU-15 average, which currently stands at 2.3% annually.

■ This growth rate is increased by the so called Balassa–Samuelson effect, which may indirectly increase the total consumer price level by around 1.0 percentage points.

■ Due to the above said, the internal price relations are sensitively influenced by changes in prices on the world market, but especially by the changes in the ratio of exchange.

■ The consumer price index is reduced in a protracted manner by the fact that in the case of extremely poor quality imported goods that flooded Hungary after it joined the European Union, prices reflecting the usage value, too, were not properly and immediately enforced.

Due to the correction of the overspending of the past years, a significant part of the costs obviously had to be passed onto the population, which raised and is still raising the consumer price index. Based on the analysis of the inflation described above we came to the conclusion that it is *highly probable that inflation*

between 2008 and 2010 will not slow down to the rate earmarked in the convergence programme.

The completeness audit of the Hungarian tax system[8]

One of the most disputed economic policy questions of the period of 2008–2010 is whether it is possible to maintain public finance revenues at an adequate level, and at the same time reduce the tax rates by the modernisation of the tax system. When making such a decision we must consider whether the reduction of the tax rates will yield an efficiency improvement commensurate with the budget revenue lost due to the reduction of the tax rates. The RDI could not undertake to answer this – almost polemic – question either, however through the audit of the efficiency ("completeness audit") of the Hungarian tax system it pointed out that the tax system itself incorporates enormous efficiency reserves. What is more, according to our calculations most components of the effi-

ciency of the tax system deteriorated between 2001 and 2006.

In the international practice, during the comparison of the tax systems of the different countries the GDP proportionate tax burdens are compared with one another, which are calculated on the basis of actual annual tax revenues taken from the National Account reports prepared according to the same methodology in each country (SNA, ESA '95). This method is suitable for rough comparison, but is unsuitable for showing the productivity and performance of the tax systems of the different countries. For this purpose the legal tax rates and actual tax burdens, as well as the potential tax revenues and actual tax revenues are compared for each country and each tax type. The quotient of the actual and potential revenues is called the efficiency indicator of the given tax type.[9] This generally formulated method can be used in several ways in practice, and naturally the different ways lead to different results. The applied method also depends on the fact what exactly we want to demonstrate. If we intend to use the indicator to present the reserves inherent in the tax law, too (application of discount tax rates, discounts in the tax base, tax refunds, etc.), we obtain a much lower figure than in case we wish to assess the extent of tax evasion or the efficiency of tax collection.[10]

The application of completeness audits in Hungary is considerably hindered by the fact that there is still no complex and reliable review on the actual public dues, wherefore the RDI's study is the first serious attempt to adapt the completeness audit used in the international practice to the Hungarian situation. The so called "completeness audit" that indicates the operational efficiency of the tax system is based on the income distribution categories of the national accounts, and examines the relationship between potential and actual tax revenues, and based on the result of the calculations it evaluates the role of factors that caused the discrepancy. The basic

data required for the calculation (both for the GDP components and tax revenues calculated by means of accrual accounting) can be obtained from the National Accounts kept by the Hungarian Central Statistical Office.

The completeness audit method we apply is based on the calculation of the following correlations in the case of the major tax and contribution revenues:

◗ In the case of the VAT the size of the potential VAT revenues was determined as the product of the final consumption and the average VAT rate weighted according to the consumption structure, and the actual (accounted) net VAT revenue was compared to this figure.

◗ During the completeness audit of the PIT, the wage and income figures of the gross added value calculated on the basis of incomes were multiplied by the average PIT rate weighted according to incomes subject to consolidation and separately taxable incomes. The obtained value, i.e. the potential PIT revenue was compared with the actual (accounted) PIT revenue.

◗ During the completeness audit of social security contribution payment the wage and income figures shown on the National Account were multiplied by the average social security contribution rate weighted according to the employer's and employee contributions. The obtained figure, which indicated the potential contribution revenue was compared to the value of actual (accounted) social security contributions.

◗ The completeness audit of the corporate and dividend taxes is based on the operational value of the gross added value calculated on an income basis, less depreciation. The product of this figure and the corporate income tax rate of the reporting year yields the potential corporate and dividend tax revenues, which is then compared to the actual (accounted) revenues from corporate and dividend taxes.

The result of the completeness audit shows that efficiency changes both by tax type and

time *(see Table 2)*. This can be well perceived by the trend – except in the case of the corporate tax – that the value of the potential tax bases and of the tax revenues that can potentially be yielded from them increases at a higher pace than the value of actually realised tax revenues.[11] The growing discrepancies can in part be explained by the deficiencies of legal regulation, in part by the hectic fluctuations of economic performances, in part by the unfavourable change in the composition of tax payers and law abidance, and last but not least by the weakening of control mechanisms.

The findings of the completeness audit that pertain to the past also indicate the tasks to complete in the years to come. The effective version of the convergence programme and the 2008 budget bill stipulate that public dues should be maintained at the current level in the years to come, but should be reduced afterwards. This intention is expected to manifest itself in the reduction of the tax rates. However, the tax system's operational characteristics described above warn about the fact that *in case the reduction of the tax rates is not accompanied by the interpretable and perceivable improvement of tax efficiency, budget security and the achievement of the revenue appropriations will be jeopardised.*

International experience shows that the improvement of the operational efficiency of the Hungarian tax system is possible from the professional point of view, and is urgently

Table 2

ACTUAL TAX REVENUES AS A PERCENTAGE OF THE POTENTIAL TAX REVENUES
(HUF billion)

Description	2001	2002	2003	2004	2005	2006
1. Completeness audit of the VAT						
Potentially realisable VAT revenue	2,351.6	2,663.0	2,992.6	3,376.9	3,617.0	3,895.4
Actually realised VAT revenue	1,236.9	1,357.3	1,539.9	1,831.6	1,856.5	1,928.2
Rate of realised VAT revenue (%)	*52.6*	*51.0*	*51.5*	*54.2*	*51.3*	*49.5*
2. Completeness audit of the PIT						
Potentially realisable PIT revenue	1,746.2	1,964.6	2,186.9	2,444.6	2,591.6	2,810.9
Actually realised PIT revenue	1,116.6	1,273.6	1,314.4	1,350.0	1,437.1	1,579.5
Rate of realised PIT revenue (%)	*65.3*	*65.8*	*60.6*	*55.8*	*55.9*	*55.8*
3. Completeness audit of social security contributions						
Revenue potentially realisable from contributions	2,708.2	3,073.3	3,433.1	3,863.7	4,172,2	4,484.0
Revenue actually realised from contributions	1,768.2	1,978.4	2,148.1	2,305.7	2,495,5	2,655.0
Rate of revenue realised from contributions (%)	*65.3*	*64.4*	*62.6*	*59.7*	*59.8*	*59.2*
4. Completeness audit of the corporate and dividend tax						
Revenue potentially realisable from corporate and dividend tax	887.9	985.9	1,000.1	1,092.0	1,154.5	1,250.1
Revenue actually realised from corporate and dividend tax	351.9	396.6	456.7	512.6	561.8	647.1
Rate of revenue realised from corporate and dividend tax (%)	*39.6*	*40.2*	*45.7*	*46.9*	*48.7*	*51.8*

Source: own calculations based on figures from the National Accounts of Hungary (HCSO), 2007

needed in the current situation of the budget and in the light of the disproportionate distribution of public dues (e.g. ratio of labour income to capital income, average incomes are levied a higher than average tax burden).

THE (ADDED) VALUE OF BUDGETARY RISK ANALYSES

After the presentation of the method of budgetary risk analysis and the illustration of its results with three examples thereof one has all rights to ask what new value this model and aspect carries compared to the other genres of macroeconomic analyses? In general, it is difficult to answer this question. Instead, we are using the major findings of the two studies to demonstrate how the National Assembly could adopt – through regular budgetary risk analyses – a better budget act (one that counts more with the macroeconomic interactions and can be executed with more certainty).

In line with the starting points described at the beginning of the article, the first macro-study set as an objective to identify certain priority risks and important impacts. At the two levels and in the various subsystems of public finances the risks appear at different times and with different intensities. During the selection of the topics for risk analysis we were looking for factors that significantly influence the balance of public finances, and that the Government can only slightly and primarily indirectly influence. In the first macro-study we studied three such factors: wage growth in the competitive sector, inflation and the indebtedness of the local governments. The identification of the risks was also fostered by analyses prepared on the tax system, on the utilisation of EU funds, as well as on the restructuring of the healthcare system.

The *first macro-study revealed the following major risks:*

• the growth rate of the economy in 2008 is a few tenths of percentage points lower than that forecasted in the convergence programme, and from 2009 on the GDP growth will accelerate less dynamically;
• in 2008, the inflation rate will be significantly higher than the level earmarked by the convergence programme;
• the growth of the average gross wages in the competitive sector, especially in the most exportable industries of the competitive sector, will significantly exceed the level taken into account during the preparation of the forecasts;
• the process of indebtedness is accelerating.

The report prepared by the Ministry of Finance in April 2008 for the European Commission on the implementation of the convergence programme confirms that these risks were and are still present in the Hungarian economy. The forecast of the Ministry of Finance prepared in April 2008 also counts with a smaller growth rate, higher inflation and higher wage hikes in the competitive sector. (The report does not reflect on the expected growth in the indebtedness of the local governments.) The report attributes the discrepancies from the forecasts primarily to external effects (deceleration of the world economy, increase in the energy and food prices on a global level).

In contrast with this, *the evaluating study of the RDI claimed that the risks were likely to be linked to deeper, multi-year structural factors, and the processes of the world economy.* The study highlighted the partial exhaustion of the former driving forces of economic growth, the growth-restraining effects of the tax system, the adjustment of wages to inflation in the competitive sector, as well as factors that imply the risk of the inflation "getting stuck". Therefore, in its second macro-study the RDI analyses – among other things – to what extent the negative discrepancies from the macroeco-

nomic forecasts can be the result of one-off or regular, structural causes.

The analyses of the second macro-study were categorised according to three topics.

We examined

- the demand risks of the economic growth and balance, including the processes on the world market, the role of state demand, the impact of EU subsidies, changes in real incomes and household consumption;
- the risks arising from the inadequate operation of certain fields of the economy, including the factors that affect competitiveness, the tax system, the development supports, the healthcare reform, the restructuring of the system of public administration, the operation of the local governmental system, the employment processes and the critical points of indebtedness;
- the risks inherent in the budgetary processes (changes in the structure of expenditures, factors affecting the balance).

The RDI could not undertake to provide concrete and detailed recommendations for the 2009 budget in its second macro-study either, however it attempted to identify those issues that require further analysis during the preparation of the 2009 budget, or corrective measures.

The study drew attention to the following risks.

◻ During the preparation of the 2009 budget the task is not merely the further improvement of the budgetary balance. So that Hungary can achieve its longer term objectives it is equally important that improvement should be accompanied by the greatest possible growth and the smallest possible inflation. This triple objective could not be achieved yet during the consolidation process that started in the summer of 2006, and the budgetary balance could be improved only at the expense of significant growth sacrifices and by revving up inflation. According to economic analysts the major

cause behind this was that the balance improving measures included too many steps to increase state revenues, and too few steps to reduce state expenditures. At the same time – at least in the short run – the curtailment of state expenditures also reduces the measured rate of economic growth. Our study also revealed that *the nearly 10% shrinking of the state market (curtailment of state orders and subsidies) at real value exerted a highly negative impact on economic growth.*

It seems that these growth decelerating factors will play a less important role in 2009, since according to the stipulations of the convergence programme, the real value of public finances expenditures will hardly reduce in 2009, and the real income of the population is expected to grow. However, the RDI's analysis of the planned structure of public finance expenditures drew attention to the fact that *the state market will continue to shrink in 2009 at a real value of nearly 5%,* and the share of development expenditures will decrease at an ever larger rate. Such a change in state expenditures exerts a negative impact of economic growth already by itself. On the other hand, our analyses also showed that *the state market of Hungary is too big and inefficiently utilises the available development subsidies.* Consequently, the direct negative impacts of the shrinkage of the state market could be mitigated by the improvement of efficiency. Our study proposes that an important tool thereof can be the improvement of the planning system and the better coordination of the work of the development institutions.

◻ The macroeconomic processes of 2009 are expected to differ from the forecasts stipulated by the convergence programme in December 2007 in that *the same balance objectives will have to be achieved at a smaller economic growth, higher inflation and the higher growth rate of the average gross wages.* As a result of the joint effect of these three factors

the public finance revenue appropriations can be implemented, and by freezing a significant part of state expenditures the balance objectives can also be attained. At the same time, such a freeze will negatively influence economic growth due to the further reduction of the real value of expenditures, and will deteriorate the situation of the budgetary institutions and certain groups of the population. *Therefore, it would be desirable to implement the increase of the population's real income at the smallest possible inflation rate.*

According to our calculations *the 2009 price level will be increased by 4 to 4.5% due to the rise in costs.* This increase is considerably higher than the forecast formulated in the December version of the convergence programme (3.0%) or the recently updated Government forecast (3.6%), yet is still much lower than the 6% inflation rate that can realistically be expected for this year. Therefore, it matters a lot what draining effects are present on the income side. Since 1992, the spontaneous wage mechanism of the competitive sector has been mostly based on the rule of keeping pace with the inflation rate of the previous year. (The figures obtained at the beginning of this year imply the survival of this mechanism.) Consequently, wage increases are adjusted to the decelerating inflation only with delay, wherefore inflation itself becomes an inducing factor. *This vicious circle can be broken only if during the formal interest reconciliation talks the social partners agree on wage increases based on the smallest expected inflation rate, and implement such increases accordingly in practice, too.*

◘ Our analyses have shown that *despite the growing unemployment rate the structure and quality of the labour supply do not match those of the labour demand.* This matching problem can become one of the greatest obstacles to economic growth in the near future. In this situation it is reasonable to use a greater portion of the tools of active employment policy for the satisfaction of real labour demand instead of supporting temporary employment opportunities.

◘ Based on the experiences of the latest audits of the SAO we believe that the greatest risks implied in the measures taken since 2006 for the creation of the budgetary balance – which also affects the preparation of the 2009 budget – is that the government's decisions were often ill-prepared. Consequently, *the reduction of the various support appropriations at the level of the central budget was not followed by a similar, actual reduction of costs and expenditures at the execution level. Therefore, the deficit was not eliminated, but pushed from the central to a lower level of the budget.* Such a phenomenon can be seen, for example, at the local governments, in the healthcare system, in public transport, and at the restructured budgetary institutions. *Therefore a key issue of the sustainability of the budgetary balance is that budgetary restrictions should lead to real savings.* Otherwise, the subsequent consolidation of the institutions accumulating large deficits will again be the responsibility of the central budget. In the case of the local governments the relationship is even more direct, since the debt accumulated by the local governments forms part of the indices used to determine compliance with the Maastricht criteria.

◘ The international economic literature also emphasises that *stability and growth can be concurrently achieved only through the creation of modern institutional conditions.* The validity of this statement is indicated by the paradox of the last 15 years of the Hungarian system of public finances. The essence of this paradox is that although the rate of redistribution grew following the drastic reduction of the state's role, it did not improve the effectiveness of the public sector. What is more, the situation got even worse in many areas according to certain indicators (PISA tests, certain mortality indices, income disparity indices, competitiveness scoring). This indirectly proves that it is

not sufficient to modernise public finances at the level of the central budget only. Modernisation is also required to improve efficiency at mezzolevel (within policy areas) and at microlevel (projects, expenditure programmes, budgetary organisations). Without these improvements, not even the stabilisation measures can yield long-lasting results.

Consequently, *the development works that the SAO regularly urges cannot be postponed any longer:*

- systemic review of state tasks,
- elimination of parallel task performance,
- modernisation of the financial management system of the budgetary organisations,
- modernisation of local governmental fund regulations,
- preparation of the introduction of programme based budgeting.

Budgetary risk analysis has another value that shows beyond the concrete results of the individual analyses, and fosters the development of democracy and the modernisation of public finance regulations. *The reason behind this is that budgetary risk analysis performed by an organisation that is independent from the Government (and is supervised by the National Assembly) may significantly increase the decision-making power of the National Assembly in relation to the budget.* In budgetary issues the National Assembly could so far rely only on the budget bill developed by the Government, the background materials of the budget bill, as well as the traditional opinion of the SAO. The budgetary risk analysis submitted (transferred) to the National Assembly provides a new tool for the parliamentary deputies to make a so called "informed decision" in budgetary matters, i.e. to face the risks of their decisions in advance. The first feedbacks justify that all factions of the National Assembly require that their work be supported by this new tool.

NOTES

[1] System of government finance statistics developed by the International Monetary Fund

[2] European System of National and Regional Accounts

[3] This part of the study is based on the study prepared by Ágnes Hárs upon the RDI's request.

[4] By the basic version of the convergence programme we mean the December 2006 version thereof titled "Updated Convergence Programme of Hungary 2006–2010".

[5] An agreement was reached on the wage increase of public employees in 2008 after the study was completed. This agreement stipulates a proportionate pay rise in case the inflation rate exceeds the rate taken into account during the conclusion of the agreement.

[6] The April forecast of the Ministry of Finance counts with a 7% growth of the average gross income.

[7] This part of the study was based on the study prepared by János Cinkotai upon the RDI's request.

[8] This part of the study was based on the study prepared by Zoltán Pitti upon the RDI's request.

[9] In other terms, this indicator is the quotient of the average actual and nominal rates.

[10] The rate of tax evasion, the relationship between the tax system and the hidden economy is investigated, for instance, in the study written by Judit Krekó – Gábor P. Kiss (Tax evasion and the Hungarian tax system, NBH, September 2007)

[11] The completeness audits reveal rather low efficiency at each tax type. The underlying reasons are complex (wide spectrum of tax exemptions and benefits, different forms of tax evasion and income concealment, hidden economy, etc.), the analysis of which is beyond the scope of this article. Here we focus on temporal changes only and the risks that arise therefrom.

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