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THE EFFICIENCY OF THE HUNGARIAN TAX SYSTEM

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Summary

Increasing the efficiency of taxation is equivalent to reducing its social costs, i.e. by reducing the related administrative burden and the distortive effects of taxation. However, these changes also induce costs related to adjustment and credibility; a tax reform is only worth undertaking if the potential gains exceed these additional costs.

In the current Hungarian system, the highest potential gains are likely to come from a reduction of wage taxes, which would improve incentives and boost employment. Targeting reductions on low wage employment and narrowing the gap between the taxation of various contractual forms would help increase labour demand and reported employment. The revenue losses to the budget could be in part recovered from green taxes.

Based on the currently available data, the taxation of profits and investment does not seem to be especially in need of reform. The same applies to consumption taxes, except perhaps that the few remaining exemptions would be worth reviewing, based on an analysis of their effects on consumption and their function as a correction of externalities.

A uniform property tax alone may not be an appropriate means to increase progressivity, nor to tackle tax evasion This is becaues the turbulent period of the transition has substantially diverted the ownership of real estate property from the distribution observed in developed market economies, which closelyfollows life cycle incomes. However, it is still worth considering as a means to channeling savings to productive activities and reducing administrative costs.

In all branches of the system, there is potential for improving efficiency via reducing the admistrative burden for tax payers and the government by cutting the number of exemptions and tax types.. It would be worthwhile to merge similar types and broaden the tax base by radically eliminating exemptions in all areas of taxation.

While nominal rates are relatively high, the actual share of tax revenues in the GDP is around the EU average in Hungary. This is explained partly by the numerous exemptions and partly by tax evasion. While there is a clear need for improving tax compliance, it does not seem to be realistic or productive to rely solely on tightening surveillance. This would be either very costly or counter-productive, i.e. resulting in an increase in the black economy or an outflow of capital rather than a rise in revenues. Simplifying the system and improving risk analysis and staff motivation schemes at the tax authority are more likely to be effective.

This paper reflects the views of the authors

Introduction*

Several reform proposals of the Hungarian tax system have been put forward by professional and governmental bodies since the autumn of 2007. The present paper offers no new solutions but gives details of facts and practical considerations with the aim to help select the solutions best suited to improving efficiency.

For a tax system to be efficient, it must raise adequate revenues and appropriately redistribute incomes at the lowest possible social cost. Social cost here includes the administrative burden of tax collection and tax compliance as well as the distorting effects of the tax system. Distortions arise from the fact that taxation reduces the gains from economic activities, which alters the decisions of economic actors so that labour supply, labour demand, investment or consumption may fall below their socially optimal levels and thus reduce total output and welfare.

The main focus of the present paper is a microeconomic analysis of distortions of this kind; redistribution effects, however, are not discussed in detail. Section 1 gives an overview of the theoretical requirements of an optimal tax system and methods of approaching this target. Section 2 briefly outlines the structure of the tax regime in Hungary and its consequences with respect to competitiveness and tax evasion. Problem areas identified by international organisations and the solutions they propose are also discussed here. The next sections review the impact of the Hungarian tax system on labour supply and demand, production and investment, consumption, environmental issues and, finally, administration and tax evasion. Throughout the paper, the focus is on questions we consider to be important but which received relatively little attention in previous discussions.

1. Optimal tax systems

Taxation is a basic means of income redistribution: it creates revenues needed for public expenses on the one hand, and on the other hand, it has a direct effect on the incomes of economic actors. The optimal taxation literature covers a wide range of theories and empirical studies but most of these share the one premise that an optimal system is one which secures the required revenues at the lowest possible social cost.

The level of revenue required is a function of the demand for public goods (judiciary, police, public administration) and services (education, health care,

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social services) and is to some extent determined by social preferences and the distribution of political power. The three major sources of social costs are the direct expenses of tax administration, distortions affecting the decisions of economic actors and effects on the fairness of redistribution. That is, equity – with the exception of the earliest theories – is one of the optimality criteria and theories only differ in what they consider to be equitable.[1]

1.1. Theoretical models

Early models of optimal taxation analyse ways of distributing the tax burden across individuals while keeping distortion effects at a minimum assuming no administration expenses and no tax evasion (Sandmo, 1976).[2] These models arrive at an optimal solution where each individual pays a fixed amount of tax determined by their abilities: since tax does not increase with income, it will not discouragework effort and everyone will work as much as they would in the absence of taxation. This is not a viable option, however, since the state administration has no knowledge of an individual's abilities and the taxpayer would be motivated to understate his or her own abilities. The second best solution depends on the assumptions built into the model. One main approach applies consumption taxes only, while a second approach considers only income taxes and either can be sufficient and optimal. In both approaches, the optimal level of tax is determined by the magnitude of the response of individual consumption and labour supply respectively to changes in the tax rate. The next generation of models introduce social preferences related to the value of equity or equitable redistribution in a given society on the one hand, and to the role of the state in welfare provision on the other.

Assuming that households have identical preferences, consumption tax will be optimal if it is in inverse proportion to the price elasticity of the product:[3] It is easy to see that the gap between the consumption under taxed and tax-free prices will be smallest when this condition is met (Ramsey, 1927). If the

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[1] The different interpretations of equity may be clearly captured by the notion of the social welfare function. This function can be specified as an aggregation of the welfare of every individual but the way individual preferences are combined is a matter of choice. At one extreme, we have a utilitarian solution where the utility of individuals are simply summed or averaged. At the other extreme, the Max-Min (Rawlsian) method defines the function in terms of the well-being of the poorest member (min) of the society and specifies the maximization of this minimum value as the target. If individual preferences are equal and the utility function is linear, the first solution does not effect redistribution, while the second method requires goods to be equally distributed (unless a non-equal distribution could increase total output).

[2] For an introduction to the literature on optimal taxation see e.g., Cullis and Jones (1998).

[3] This is the Ramsey rule. The price elasticity and cross price elasticity of a product specify the percentage change of demand for that product given a 1% increase in the price of, respectively, that or some other product.

preferences of households differ, consumption tax will be optimal if in addition to price elasticity, consumption habits are also taken into consideration, i.e., taxes on products comsumed by poor households (which have a larger weight in the social welfare function) are kept relatively low.

Mirrlees (1971) investigates the justification for progressive taxation used in most countries. The author concludes that a higher responsiveness of labour supply and compliance to changes in net income, a lower social utility of solidarity and lower budget revenue requirements should go together with relatively lower taxes. Looking into the optimum ratio of direct versus indirect taxes, Atkinson and Stiglitz (1976) find that – provided that the utilities of labour and consumption are independent of each other, i.e., they are separable – the optimal solution is to impose only income taxes; that is, there is no need for consumption taxes. Diamond's (1998) model assumes that individuals have identical preferences but varying levels of productivity. Under these conditions, income tax is optimal if marginal tax rates for individuals with the highest productivity (the rich) and those with the lowest productivity (the poor) are relatively low: it is in everyone's interest not to let taxes discourage the effort of highly productive people, while the preferential treatment of the poor is desirable because resources will thus be allocated where their relative utility is greatest.[4]

In addition to distortion effects and the question of redistribution, more recent theories also incorporate the administrative costs of tax collection and compliance as well as tax evasion into their models. The outcome of these models indicates that a system will be more effective if the single, finely differentiated tax type is replaced by a small number of less differtiated tax types. This conclusion is explained by the fact that simplicity reduces administration costs and simplifies enforcement, which helps reduce tax evasion. The introduction of more than one type of tax allows marginal tax rates to be kept low, which improves willingness to comply. Revising their earlier model, Atkinson and Stiglitz (1980) concede that considerations of administration expenses may after all justify the introduction of indirect taxes. Slemrod (1990) points out that in addition to equity and efficiency, the administrative burden of tax collection and compliance as well tax evasion should be taken into consideration, since these may have a significant impact on tax revenues.

Recent models, where tax evasion and administration costs are taken into consideration, tend to find some combination of indirect and income taxes to be the optimal solution (e.g., Boadway et al., 1994; Alm, 1996 and Sorensen, 2007). In Alm's (1996) model, optimality is achieved when a flat consumption tax rate

[4] These models make the assumption that a given unit of income is worth more (effects a greater utility gain) for a poor household than it is for a rich household. The social welfare function mentioned in Footnote 1 is not necessarily defined by these models – they only specify that the tax burden should be set at a relatively low level for households that are given a large weight in the welfare function.

applies to the widest possible range of products. Tax rates higher than the flat rate should only be imposed on goods with low responsiveness to price changes (e.g., subsistence goods), goods with negative externalities (e.g., alcohol), goods consumed by high-income populations (e.g., luxury goods) or goods for which compliance is easy to enforce (i.e., products as opposed to services). For income tax, Alm recommends a flat marginal rate with the broadest possible tax base, as this solution keeps both administrative costs and tax evasion at a minimum. In a system of this kind, equity may be ensured by a tax allowance available up to a relative high income threshold.

A separate branch of the optimal taxation literature is devoted to the effects of taxation on growth. These models investigate the consequences that an economic actor's decision in a given period will have in the next period: for instance, the effects of the current year's savings on production and investments in the next year. The classic outcome is that, if given an infinite temporal horizon, the optimal tax rate on capital gains is zero. Intuitively, while consumption tax has an effect on decisions within the given period, taxes on capital distort both current and future consumption decisions, which leads to a relatively great loss in welfare even if tax rates are kept low (Valentinyi, 2001). Different conclusions may be drawn from models where economic actors have a finite lifecourse and unequal productivity. Conesa et al. (2007) find, for instance, that the optimal tax rate on capital gains is not at all zero but well above it if the majority of taxpayers are resposive to labour income tax but display less sensitivity to taxes on capital gains: in this scenario, taxing capital results in relatively little loss in social welfare. In endogenous growth theories, where human capital investment is taken into consideration, taxes on labour may have a stronger or a weaker negative impact on growth compared to capital taxes depending on parametric assumptions (Babiker, 2002).

The models discussed above usually reckon with zero or negligibly low capital mobility across countries. This assumption is relaxed in the framework of international tax competition, where the subject of inquiry is to define a tax regime which ensures that the country attracts capital without compromising revenues. These models typically come to the conclusion that in countries affected by tax competition, both taxes and the supply of public goods will be below the level that would be socially optimal (Fuest et al., 2003). In more recent models, the relative levels of taxation influence capital flows in interaction with the quality of public services, with the result that tax competition will not necessarily lead to lower tax rates (see e.g., Ivanyna, 2007; Görg et al., 2007).

The above summary reveals that theoretical models do not offer an unequivocal solution to the question of optimal taxation. Their practical implementations face several further barriers. As all theories, they too work with assumptions that are simpler than reality and their conclusions are only valid as long as their assumptions are met in real life. Whether this is the case can be tested by empirical studies and any conclusions for policy making should only be drawn once this has been done. The majority of empirical studies, however,

relate to the United States – and conclusions which are valid for a large closed economy do not necessarily hold for a small open economy.[5] Also, what an optimal tax system is also depends on the values of the given society and the behaviour of its economic actors; that is, it can only be defined if these factors are known. It is therefore difficult to see how a tax system could be successfully modified, let alone radically reformed, without detailed evidence-based knowledge of the economy and society of the given country.

1.2.Taxes, contributions and social benefits

Tax revenues are generally grouped into three categories: indirect taxes, direct taxes and social security contributions. *Indirect* taxes tax consumption rather than income; they are relatively inexpensive to implement and difficult to evade. Direct taxes are levied on incomes from investment or labour; they are thus better suited to redistributing incomes but they tend to introduce greater distortions. Social security contributions are similar to direct taxes but while the latter are not directly tied to services offered in return, social contribution payments usually constitute a form of insurance with entitlements to certain sevices (e.g., pension, unemployment benefit or family support).

There may be a sharper or softer boundary between the class of contributions and the class of taxes depending mostly on the nature of the insurance system: in Hungary, for instance, job seekers' allowance and the young family support scheme are insurance based but the cash benefit rate is calculated relative to the last received earnings rather than the amount of contributions, [6] while pension rate is set based on the total amount of contributions paid by the claimant. Similarly to income taxes, contributions burdening wages also have an impact on labour supply; their effects will be weaker if there is a stronger relationship between the contribution and the cash provision entitlement it secures for the future (since in this case, workers see the contribution as a form of saving rather than a form of tax). It is a basic tenet of an insurance system based on cash contributions that any given kind of welfare provision is only available to those who have contributed to its funds. Taxation, in contrast, is a system where taxpayers contribute to the financing of public goods regardless of whether or to what extent they make use of one or another provision or service. The choice between the two systems is therefore not simply a question of efficiency but involves the issue of how to apportion individual and communal responsibility in response to certain situations in life (sickness, unemployment, child raising or old age).

The primary aim of taxes and contributions is to secure revenues needed to cover public expenses while support is aimed at correcting the primary (market) income distribution. There is some overlap between the tool sets of the

[5] See e.g. Hartman (1985) on taxes on capital gains.

[6] Both are conditional, however, on a minimum period of contribution payments prior to claiming the insurance entitlement.

two systems: certain kinds of support may be redeemed by granting tax allowances or adjusting tax rates and vice versa.[7]

Income redistribution may be achieved through taxes, contributions and welfare support: the choice between the three methods is subject to more or less the same considerations as the choice of optimal taxation. Namely, with respect to social utility, the best solution is the one which incurs the lowest administration costs, shows the greatest resistance to misuse and has the least distortion effect on the decisions of economic actors. Purging a tax system of all components of redistribution is therefore not necessarily the most efficient solution[8] if, compared to a system of welfare support, it is less costly to have a refined system of tax rates or tax allowances, there is less room for misuse, or labour supply is less strongly affected by distortions.

Taxes and social support are not always independent of each other from the point of view of administration either. In some countries, taxation is kept separate from social support systems. In this scenraio, the majority of welfare payments are exempt from tax (a net payment is transferred to the claimant), are not listed in tax returns and the tax system typically avoids allowances with social functions. The advantage of a system of this kind is its transparency: the functions of revenue rasing and redistribution are clearly separated and the real effect (net amount) of welfare support does not depend on other incomes.[9] Since welfare payments are transferred as a net amount, the unnecessary movement of money between state departments is avoided. The downside of the system is that it doubles administration tasks: income details are collected by both the tax authorities and the organization responsible for assessing the eligibility of the claimant.

In a fully integrated system, social transfers constitute a form of negative tax or tax credit. The complete system is administered by the tax authority (backed by a network of local offices). The advantage of this solution is that double administration is avoided and more details are available to the tax authority for the evaluation of a welfare claim. The downside is that the role given to the tax authority mingles two opposing goals: raising revenues and

[7] This was the case in Hungary in 2005, for instance, when the tax allowance of families with one or two children was abolished but the unconditional child benefit entitlement was raised to compensate for the loss.

[8] Neither is it viable: a fixed sum tax is impracticable even in theoretical terms and a flat-rate tax is paid in proportion to income by definition, i.e., the rich pay more than the poor.

[9] Social support may be better targeted, since the choice of target population is not distorted by the tax system (which usually pays little attention to the size and income of the family). The targeting could also be worse, however, if the information required to evaluate claims cannot be verified by the authorities.

providing social security.[10] An extreme case of complete integration is family-based taxation, where the aggregate incomes of couples are considered in applying a tax rate and calculating the amount of tax to be paid. This method reduces the tax burden of families with children – which is justifiable by considerations of equity – but allocates more to relatively rich families with children and less to relatively poor childless people. Another drawback of the system is that it decreases the labour supply of the secondary earner of the family.[11] Finally, looking at the administration side of the issue, family taxation is more complicated than individual taxation, which increases costs both for the taxpayer and for the tax authority, and could also open the way to tax evasion.

If taxes and welfare constitute separate systems, a decision must be made as to the tax burden on each type of transfer. In contrast with market wages, transfers are specifically aimed at redistribution and are financed from taxes raised on market wages. In levying tax on them, it seems reasonable to apply the same principles that justified their function. A further factor to consider is that transfers decrease labour supply and this effect would be further strengthened by making them subject to taxation. Finally, administration costs can be reduced by transferring pre-taxed, net payments to those in need. It follows that need-based support should not be taxed at all and if other kinds of assistance are to be taxed, it is best to regard them as tax exempted income included in the tax base.[12] Levying a tax may be justified if the support is similar to labour wages, e.g., supplements wages. In this case, the tax could be deducted at source (the Treasury could transfer it directly to social insurance funds) in order to reduce administration costs.

1.3. Empirical measurement

The distortion effects of taxes can be assessed with the help of some simple indicators: high implicit tax rates, for instance, tend to imply substantial distortion effects and a high incidence of tax evasion. A comparison of the average tax burdens on different forms of saving or tax deduction options can also be informative: it reveals which aspects of the system provide opportunities

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[10] This may increase underpayment errors, i.e., some people in actual need of social support may not have access to it due to the stigma attached to welfare or insufficient information.

[11] According to the standard labour supply model, with a traditional distribution of labour in a household, women make their choice between paid work, housework and leisure time, while men choose between paid work and leisure time. Since paid work and unpaid work are close substitutes for women, they are more responsive to changes in market wages; this hypothesis has been corroborated by a majority of empirical studies (Evers et al., 2006).

[12] It makes no sense to levy taxes on need-based (e.g., means-tested) support in an effort to improve vertical targeting, since a claimant's eligibility is determined by methods (household income) ensuring much more refined targeting than can be achieved in taxation, and claimants often have no other taxable income.

for legal tax avoidance. An investigation of the relationship between tax level (or a change in tax level) and economic indicators based on macro-level data for several countries could be used to reveal average effects. The size of distortion or tax evasion effects may, however, vary between countries, which means that macro-level estimates are not applicable to any specific country. Sophisticated estimates require micro-level data on individuals or businesses.

Empirical studies measure the impact of tax rates or changes in tax rates on the decisions of economic actors. Even if micro-level data are used, measurement can never be completely accurate, as there are many factors that influence an individual's decisions but are impossible or difficult to measure. The most accurate measurement opportunities are provided by tax reforms where various groups of taxpayers are differentially affected by the changes and detailed data are available on incomes for both before and after the changes.

A few micro-level analyses have been carried out on some aspects of the Hungarian tax system. One of the first attempts is a study by Semjén (1998), which investigated the tax evasion behaviour of businesses based on official tax return data aggregated according to type of business. Vidor's (2005) multivariate estimation based on data from the TÁRKI Household Monitor survey looked into the effects of tax allowances for pension fund contributions on the saving decisions of households. Finally, Bakos et al. (2008) used individual level Tax Authority (APEH) data to measure the effects of reducing the personal income tax rate in 2005 on reporting taxable income.

In the present study, we only undertake to give an overview of the impact of major tax types based on simple indicators. It is our hope, however, that this effort will also encourage others to compute the micro-level estimates needed for the precise assessment of the effects.

2. The Hungarian tax system in an international comparison

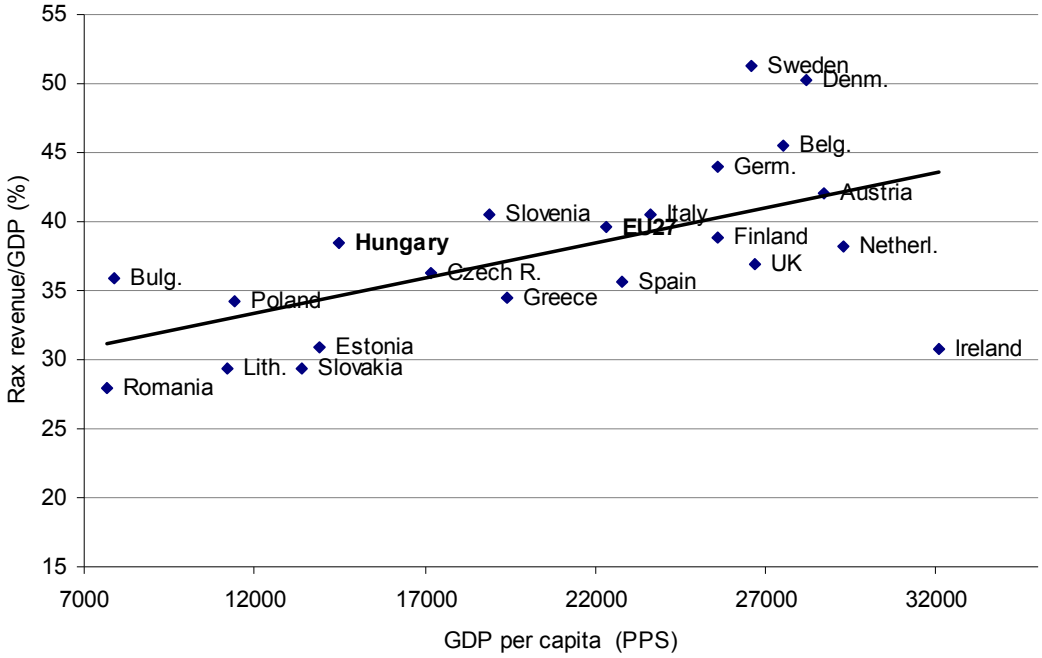
2.1. The structure of tax revenues[13]

In the member states of the European Union, a positive correlation is observed between tax burden and level of income (Figure 1), that is, the higher the income per capita, the higher proportion of the income is levied as tax by the state. There may be a number of reasons for the correlation between tax revenues and GDP; it does not follow that there is some kind of optimal relationship between the two.[14] When we look at a group of similar countries, however, a significant deviation from the average may well point to a structural problem of some kind.

[13] A more detailed comparison, including expenditure data, can be found in Benedek, Lelkes et al. (2006).

[14] It may be the case that richer countries spend more on public consumption or the economies of countries with higher expenditures grow faster, or both facts may be the result of a third, common factor.

Figure 1. Proportion of tax revenue and total income in the EU-27 countries, 2005



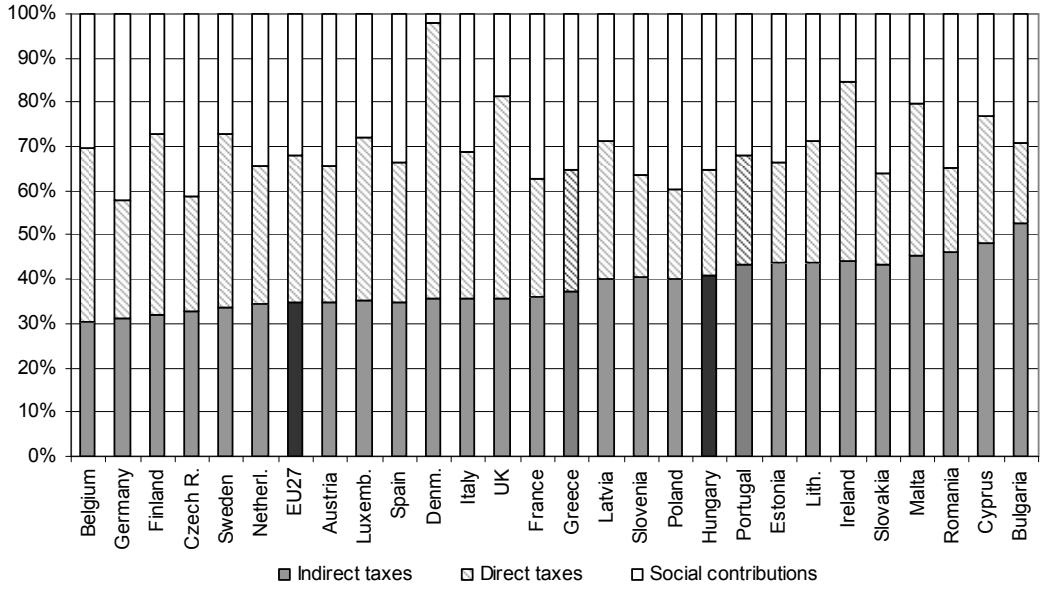
Source: European Commission (2007) and EUROSTAT

With their extensive welfare systems, the Swedish and Danish budgets are relatively large, while the Irish budget is very small relative to the country's economic position. The cohesion countries of the EU (Greece, Ireland, Portugal and Spain) have lower tax revenue/GDP ratios than Hungary – and the difference is substantial, 4-7 percentage points. The Hungarian tax burden also stands out among otherwise highly similar new Easter European member states with extensive social provision regimes: similar levels of deviation relative to GDP are only observed in Bulgaria and Slovenia. That is, the 2005 figures show that the level of tax burden relative to the total income in the country was already higher in Hungary compared to other countries with similar income levels and this gap further increased with the subsequent introduction of the budget convergence programme.

The proportion of indirect tax revenues is high in Hungary relative to the EU average but it does not stand out among the poorer or the new member states. The share of direct taxes is correspondingly lower (Figure 2). On the whole, the distribution of the different types of tax revenue shows very similar structures in Hungary and the new member states (e.g., Poland, Slovakia, Slovenia). The share of social security contributions in the total revenue reflects the availability of social insurance-based transfers in a given country. In Germany, for instance, the extensive social insurance system is accompanied by

high contribution rates and, consequently, the aggregate share of social contributions is similarly high. In the Scandinavian countries, in contrast, welfare programmes tend to be financed from tax revenues, and thus direct taxes tend to carry more weight.

Figure 2. The proportion of each type of tax revenue to the total tax revenue in the EU-27 countries, 2005



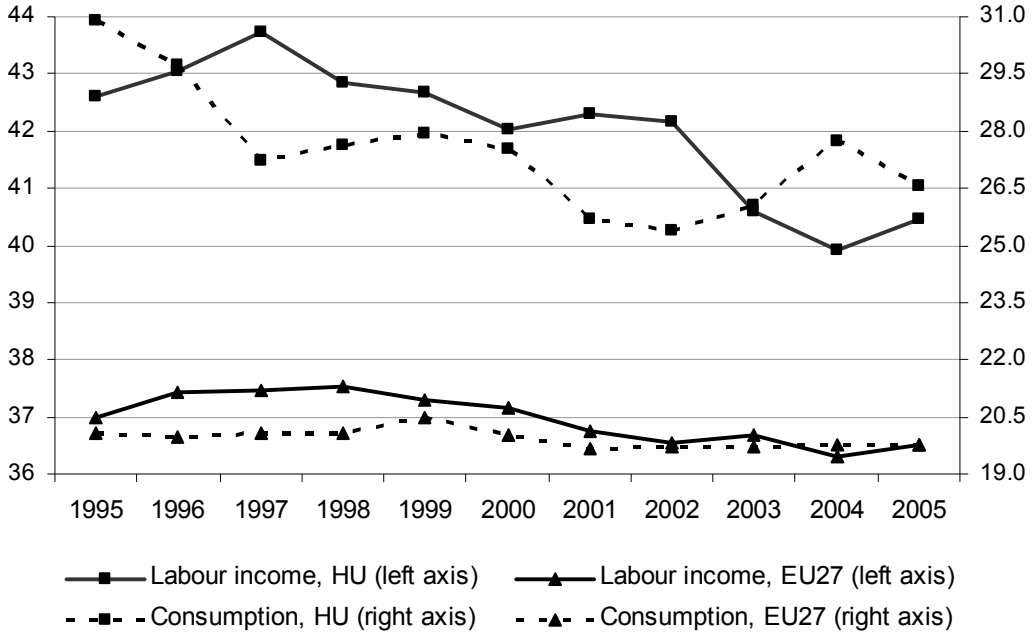
Source: European Commission (2007)

In Hungary, the share of taxes on captial in proportion to GDP is substantially below the EU average and the contribution of consumption taxes is above the average. The share of wage taxes and social security contributions roughly corresponds to the average of the EU but it is typically higher than in neighbouring countries. These facts suggest that households have a relatively high tax burden, which may be justifiable, however, since lower capital taxes are needed for fast development.

The Hungarian implicit tax rate[15] on labour income is 4-5 percentage points above the EU-27 average, although the gap shows a decreasing trend (Figure 3). Besides high tax rates, this result is also explained by the narrow tax base and the small number of taxpayers (i.e., a high level of inactivity). The implicit tax rate on consumption is almost 7 percentage points higher than the EU-27 average – but this does not have a disincentive effect.

Figure 3. Average implicit tax rates on consumption and labour income in the EU-27

[15] For both types of tax, implicit tax rate is defined as the ratio of the raised tax revenue to the corresponding tax base. No data have been available to calculate the implicit tax rate on capital gains.



Source: European Commission (2007)

Figure 4 reveals that compared to Hungary, the tax wedge is 12 percentage points lower in the EU-15 and 16 percentage points lower for our immediate neighbour, Slovakia. The average Hungarian tax wedge (the difference between net wages and the total cost of wages, expressed a percentage of wage costs) is clearly high in an international comparison.

Figure 4. The development of the tax wedge in some EU countries between 2000 and 2007, %

Source: OECD Taxing wages 2006-2007. The tax and contributions burden on the wages of an average single production worker (less universal welfare benefits) http://www.sourceoecd.org/9789264042100

Empirical studies analyzing cross-section or panel data from different countries to investigate the relationship between tax strucutre and growth rate tend to come to the conclusion that a high tax burden on labour retards growth. According to the results of a World Bank analysis of data from Eastern European new EU member states, with a given growth rate, a 1% increase in the tax wedge reduces the growth of employment by 0.5-0.8 percentage points (World Bank, 2005). This appears to be largely responsible for the fact that in these countries a 1% increase (in proportion to GDP) in distorting taxes (wage taxes and especially social security contributions) reduces growth rate by about 0.4% (World Bank, 2006a). The OECD (2001b) study finds that employment is primarily reduced among low-income groups as a result of a high tax burden, as these groups display the greatest wage elasticity of demand. The effects of taxes are highly

dependent on the behaviour of labour market institutions (wage bargain, wage regulation and welfare provision): to what extent employers are free to transfer the total tax burden to their workers. If there are restrictions, businesses respond to tax increases by reducing demand, while without restrictions, the reduction of net wages may lead to a decline in labour supply. Finally, if tax enforcement is weak, it will be worthwhile for both parties to switch to grey or black emploment.

International surveys suggest that employment and the tax system constitute the two weakest spots for Hungarian competitiveness. Eastern European countries typically fare worse in these two areas than the rapidly developing Asian economies, but Hungary also lags far behind its peers in the region.[16] The indicator measuring the efficiency of the tax regime is primarily dragged down by the high tax and contribution rates on wages and the high level of centralization (tax revenue in proportion to GDP) and tax avoidance. The low level of employment and the structure of the tax system are closely interrelated. They strenghten each other's effects as the high tax rate reduces employment, which in turn narrows the tax base and thus makes it difficult to lower tax rates.

2.2 The effects of the tax regime: low level of employment

57% of the working-age (15-64 years) population of Hungary work as opposed to an average of 64% for the EU. The persistent low level of employment is not fully explained, however, by high tax rates. Unskilled workers account for most of the employment gap: on average, 67.5% of the population aged 20-59 are at work, while the corresponding figure is 45.6% for those with primary education. This is partly explained by the high wage costs relative to productivity, which is the result of the high level of taxes and the minimum wage. As shown in Figure 5, Hungary has a high minimum wage (the total wage cost) compared to other countries at a similar stage of development. Previous micro-level estimates confirm that the substantial increase in the minimum wage in 2001 had the effect of reducing the demand for unskilled labour (Benedek, Rigó et al., 2006).

Figure 5. The costs of the minimum hourly wage (in proportion to the average wage, in dollars) and its tax wedge, 2006

Source: OECD Taxing wages 2006. Note: The wage cost given here covers the total cost of wages (gross wage plus employers' contributions); average wage is the average wage of a production worker (APW); tax wedge is the proportion of personal income tax and contributions to the total wage cost. The Hungarian figure only includes 29% employers' contributions, 3% employment contributions and 8.5+4+1.5% employees' contributions. With the fixed sum health care levy and the

[16] For 2006, the IMD competitiveness indicator ranks Hungary 47th of 61 countries in the tax system list (the Czech Republic has the 42nd and Estonia the 22nd place), and 37th in the tax evasion list.

1.5% training contribution added, the tax wedge on the minimum wage was 37.05% at the beginning of 2006, and 38.52% after the increase in September of the same year.

If average productivity is measured relative to the wage costs of a production worker, the wage costs of the minimum wage are 39% of that value in Hungary. This figure is not much higher than the figures for Slovakia or Poland (36-37%) and it is lower than the figure for the Czech Republic (41%), where unskilled workers also have a low rate of employment. This is less of a problem there, however, since a considerably lower proportion (11-18%) of the adult population are unskilled than in Hungary (29%).

Work disincentive effects inherent in the welfare system are also responsible for low employment levels. In 2006, Hungary spent close to 800 billion Hungarian forints (about EUR 3.2 billion), or 6% of budget expenditure, on welfare provisions for the inactive working-age population.[17] This practice contributes to the persistence of the poor balance of low employment and a high tax and contribution burden, since on the one hand, the extensive welfare system keeps government spending and therefore taxes at a high level and on the other hand, wide-spread long-term unemployment or inactivity among the working-age population creates further need for social expenditure. Labour supply is especially strongly discouraged by disability pension and maternity benefit schemes, as these are not conditional on job search and can be claimed for extended periods. The low employment rates among affected groups are indicative of the strength of their effects: in Hungary, the employment rate is 12% (EU: 40%) among people living with reduced work capability; 34% (EU: 44%) among people aged 55-64 years; and 51% (EU: 57%, Sweden: 71%) among women.

2.3 The effects of the tax regime: high tax evasion

The overall size of the hidden economy (including black employment and other forms of tax evasion) is estimated to be 20-25% of GDP in Hungary. This figure is not especially high within the region but it is fairly, although not strikingly, high compared to the old EU member states (European Commission, 2004). Lackó (2000) and Semjén & Tóth (2004) agree that the hidden economy peaked in 1993 (33%) and has been on the decline since. Tóth (2006) puts its size at about 17-18% in 2006. The decline of the hidden economy is attributed to two major factors: improving long-term business prospects and Hungary's integration into the EU. A further factor is that between 1996 and 2001, companies were more likely to perceive tax regulations as transparent and

[17] This sum of 770 billion Hungarian forints (about EUR 3.2bn) is more than the budget expenditure on elementary and secondary education (600bn) or on hospitals and general health services (570bn). The welfare expenditure includes disability pensions for people under retirement age (approx. 380bn), unemployment benefits (120bn) and maternity leave benefits (approx. 270bn).

predictable than they were before 1996 – this mostly affects the tax compliance of smaller businesses.

Based on their analysis of aggregate data from income tax returns and VAT payments for 2005, Krekó and P. Kiss (2007) conclude that taxable income equivalent to a quarter to a third of GDP is left undeclared in Hungary. There is, however, an upward distortion in the authors' estimates of hidden wages, since the database provided by the Hungarian Tax Authority does not include information on the number of days each taxpayer worked in that year. The authors attempt to correct for this using various assumptions and imputation based on aggregate data, but their estimated distribution of monthly earnings still implies a higher proportion of minimum wage earners than recorded in pension insurance data (Elek et al., 2008).

3. International recommendations and reform alternatives

3.1. General recommendations and reform trends

EU member states are essentially responsible for their own tax policies. The one exception is consumption tax, which is centrally regulated (the standard VAT rate may not be less than 15% and the reduced rate may not be less than 5%), as it has a special role with respect to the free movement of goods and services. As dictated by the objectives of the Lisbon Process, the EU pays special attention to taxation related phenomena with positive effects on the labour market and to the role of the tax regime in improving competitiveness. Its recommendations include reducing (direct) taxes on labour income and corporate income and increasing the contribution of (indirect) taxes on consumption or that of green (environment affecting) taxes (European Commission, 1996 and 2005).

Based on international practice, the World Bank (1991) concludes that there are factors which are even more important than tax rates:[18] it recommends broadening the tax base, simplifying and improving tax administration and ensuring the long-term validity of reforms. In an overview of fiscal policies in the countries of Eastern Europe and Central Asia, the World Bank (2007) pays special attention to flat-rate tax reforms and wage taxes from the point of view of revenues. Looking at flat-rate tax regimes, the investigators find the outcome to be positive but they conclude that further steps need to be taken to improve tax enforcement and to reduce wage taxes. The World Bank's analysis of the work incentive effects of lowered wage taxes points to the conclusion that to achieve

[18] A uniform VAT rate of between 10 and 20% is recommended as indirect tax, which could be supplemented by at most four special tax rates or excise duties on luxury goods and goods with high income elasticity of demand. A flat-rate corporate tax should be introduced, which should correspond to the highest personal income tax rate. The top rate of the progressive income tax system is recommended to be set at 30-50%.

the desired effect, a welfare reform is needed and revenues should be redeployed from social security contributions to other types of tax.

The public finances of the eight Eastern European countries that joined the EU in 2004 were investigated in another study (World Bank, 2006b). The report finds some improvement in the structure of the tax systems in the region owing to an increase in the share of indirect taxes, which are less detrimental to growth, and a reduction in the share of direct taxes in several of the countries. The tax wedge on wages remains high, however, especially in the Visegrád countries. Further improvement could thus be achieved mainly by lowering high wage taxes and, especially, social security contributions, while cutting back non-productive government spending, which would at the same time free up resources for productive expenditure. Some of the new member states – including Hungary – need to reduce their extensive budget deficits.

The tax reforms of the EU member states have been shaped by three trends: lower wage taxes, globalization-induced tax competition and simpler tax administration, which usually materialized in reforms combining lowered tax rates with a broadened tax base. Although the objectives of flat-rate taxation systems meet these trends, flat-rate reforms have only been introduced in Eastern European countries; tax regime changes in the EU-15 countries have been implemented within the boundaries of a progressive personal income tax system.

Most EU countries have responded to the increasingly fast movement of capital in the globalizing economy by reducing corporate taxes: the average corporate tax rate fell from 50% to 30% in twenty years in the EU-15 countries. Considering the countries of the EU-25 (where data are available), the implicit tax rate on capital has dropped by almost 6 percentage points since 1995 (Carone et al., 2007). Several countries have avoided comprehensive tax reforms and chose instead to simplify their tax regimes, which had slowly matured into overly complex systems. The process of simplification usually involved broadening the tax base by reducing various allowances and the revenues thus gained were used to reduce high marginal rates. An overview by the OECD (OECD, 2006) finds that in order to decrease the wage costs of unskilled labour and boost employment rate among unskilled workers, the contribution burden of low-income workers has recently been reduced in several EU-15 countries. In some countries, labour supply is further encouraged by offering tax allowances to people entering employment.

3.2. Recommendations for Hungary

Most recommendations addressed specifically to Hungary highlight the reduction of wage taxes as a means to encourage employment. The most recent recommendations by the European Commission urge the suppression of the high tax wedge (within the fiscal margins) and a comprehensive reform of the disability pension and maternity support schemes in order to improve labour supply incentives (ECFIN, 2007)

At the request of Hungary, the IMF examined the Hungarian tax regime in the spring of 2007 and made recommendations as to ways of improving efficiency (Coelho et al., 2007). The study identifies the heavy burden on labour income as the greatest problem, which results from a combination of high income tax rates and high social security contributions (especially employers' contributions). It is recommended that the high and uneven marginal tax rates, which are caused by tax credits, should be eliminated by introducing a zero rate and possibly an intermediate rate. The investigators approved of government plans to introduce a uniform value-based tax on real estate and commended the system of corporate taxation with the exception of the large number of exemptions. In order to reduce the share of distorting taxes, revenues could be restructured by raising consumption taxes or the business tax to compensate for a decrease in social security contributions (and possibly the corporate tax). Proposals to reform income tax rates were criticized on the grounds that while a step of this kind would have no perceptible advantages, it carried serious risks of a highly unequal reduction in real wages in the short term.

The OECD Country Report of 2007 also points out that although raising the minimum wage may help to whiten the economy, it may also make the legal employment of unskilled workers increasingly less worth employers' while (OECD, 2007). Other ways should thus be found to suppress the grey economy at less social cost. The OECD suggests that women's employment should be encouraged by lowering the barriers to part-time employment, creating flexible work opportunities in the public sector and abolishing the fixed sum health care contribution as soon as it becomes financially viable.

A report by the World Bank on the incidence of black labour and ways of suppressing it points out that in addition to introducing strickter control practices and penalties, a positive encouragement of legal employment is also needed, which can be achieved by reducing high wage taxes first of all (World Bank, 2008).

3.3. A detour: flat-rate tax systems in Eastern Europe

Among the tax reforms of the past decade, the introduction of flat-rate systems in former state socialist Eastern and Central European countries has received special attention. In the majority of cases, however, the new systems are only nominally flat-rate: they are simple systems with low income tax rates but are not classic flat-rate regimes.

In the early 1980s, Robert Hall and Alvin Rabushka (Hall & Rabushka, 1995) proposed a flat tax system where 19% tax was to be paid on every dollar of income, except a family income of under 25 thousand dollars, which would be exempt from taxation. The authors argue that this simple system would greatly enhance economic growth, since it significantly reduces administration costs. Rabushka (2006) shows that the system would practically eliminate the need for tax returns, since tax could be automatically deducted from each unit of acquired income at source. This would dispense with tax liability calculation and tax

returns, greatly simplify enforcement, and clear the tax sytem of arbitrage potential. Hall & Rabushka (1995) reject objections related to equity, arguing that the goals of social policy should be realized independently of the tax system.

Flat tax systems are expected to deliver significant results in three areas. First, lower marginal tax rates increase labour supply, which could in turn create an expanded tax base. Second, lower marginal tax rates are less likely to induce tax evasion and thus tax paying behaviour may improve. Third, the system simplifies taxation, which helps to save administration costs and reduce tax evasion. A further, indirect, effect may be that if investors evaluate the introduction of a flat tax system as an indication of a strong government administration committed to reforms, the country will be more attractive to capital flows. What is seen as the greatest drawback to flat tax regimes is that it increases income inequalities.

Currently there are 22 market economies with nominal flat-rate taxation systems, but the majority of these are far from employing a constant tax rate: businesses and individuals are taxed at different rates in some of the regimes, and most of them have separate systems for social security contributions. In most cases, it was not a constant tax rate that justified the introduction of flat-rate taxation; its main benefit was, instead, that by eliminating previous allowances, tax administration could be simplified and the tax base could be expanded.

Few detailed empirical analyses have been made of the impact of flat-rate reforms.[19] Based on a multivariate analysis (using the difference in differences approach) of macro-level data from countries that have implemented reforms and those that have not, Saavedra (2007) concludes that the reforms could improve tax morale in countries where they were accompanied by a simplification of the administration but they had no significant effect on revenues. Tax evasion was reduced in countries where personal incomes and corporate profits were taxed at the same rate (i.e., where the system was closer to the classic flat tax regime). The few studies that use micro-level data come to similar conclusions. Ivanova et al. (2005) find that contrary to expectations, the Russian tax reform did not bring about significant changes in tax payment among income groups for whom marginal tax rates were substantially reduced (i.e., where an increase in labour supply was expected), while groups whose marginal tax rates did not change (poorer sections of the population) paid significantly more tax, presumably owing to improved enforcement. Using an estimation method based on discrepancies between consumption and income before and after the Russian tax reform, Gorodnichenko et al. (2008) reveal a significant reduction in tax evasion among people who faced high marginal tax rates before the reform and find a positive albeit weak effect on labour supply.

[19] One explanation is that detailed analyses need either long time-series data or detailed (micro-level) data, and these are either not available for the reform countries or are not accessible to researchers.

Summarizing the conclusions of the introduction of flat tax systems, Saavedra (2007) notes that where a reform involves lowering tax rates, the only way to avoid reduced revenues is to close loopholes and eliminate the range of allowances and exemptions. Reforms implementing a radical reduction in allowances and exemptions also proved to be the most successful with respect to improving tax morale, transparency and revenues. A further lesson of the reforms is that in order to expand the income tax base and perceptibly improve tax compliance, the reforms must extend to the social security system as well. This is explained by the fact that as social security contributions and income tax are calculated for almost the same tax base in most countries, a high marginal tax rate on contributions provides a strong incentive for the taxpayer to under-report taxable income (regardless of the lower income tax rate). Finally, Saavedra (2007) also points out that flat tax reforms are meant to restructure incentives to a substantial extent, which brings about changes in the behaviour of economic actors and thus makes it difficult to predict their effects. For this reason, it is only safe to introduce a reform of this kind in a stable fiscal environment (with a low level of debt, low budget deficit and improving growth rate). Most of the countries that implemented flat rate reforms had budget deficits of less than 3% or even a budget surplus. The one exception is Lithuania, where government debt, however, was essentially zero when the reform was introduced.

A further objection to flat tax reforms is that they mostly favour high-income groups and significantly reduce the redistribution effects of the tax and social support system, which should function to mitigate income inequalities. A flat-rate reform must involve a significant reduction in tax rates if it is to reduce tax avoidance and boost economic performance to an appreciable extent. This is most likely to be achieved by reducing the tax burden for people with high incomes taxed at relatively high rates before the reform. If government revenues and/or spending are to remain constant, this means that people with lower incomes will face an increased tax burden (since the expansion of the tax base cannot compensate for the loss of revenue caused by the lower tax rate). The redistribution effects of a flat tax regime are investigated by Paulus and Peichl (2007). In their micro-simulation model, three versions of a flat tax system supplemented with tax credits are run with the income distribution of the EU-15 countries.[20] The results suggest that with current government spending held constant, fiscally neutral flat tax reforms would favour high income groups at the expense of households with low or medium-level incomes, i.e., income inequality and poverty would increase. The adverse redistribution effects may be avoided by setting the flat rate at a higher level; in this case, however, considerably weaker incentive effects are expected. A similar simulation model on Hungarian data reported in Benedek and Lelkes (2006) gives similar results. There is a good reason, then, why a flat tax system has only been introduced in Iceland in Western Europe, while in other

[20] Tax deduction remains at the initial level in their default scenario. The flat rate increases by 10% in the second and by 20% in the third scenario relative to the default, and tax deductions are adjusted such that the reform remain fiscally neutral. See Davies and Hoy (2002) on calibrating rates.

countries of the region, it has not had sufficient social support owing to its unfavourable consequences for redistribution. A similar conclusion is drawn by Carone et al. (2007), who argue that the decision to implement a flat tax system is not so much a question of efficiency but one of values. It requires a decision on the extent of redistribution to be achieved by taxation, on the relative taxation of labour and capital, and on the trade-off between efficiency and the reduction of inequalities.

4. Labour demand

The level of employment is jointly determined by labour supply and labour demand. Demand (Ld) is a function of productivity; employers make their wage offers along the demand function. If taxes have to be paid, net wages will be reduced by the amount of tax: this is illustrated in Figure 6. With a given level of supply and demand, it is the tax burden that determines the distance of employment level from the state of equilibrium in the absence of tax (E*): as taxes rise, so the pay offer shifts to the "left" on the demand curve. Also, with a given tax wedge, the more responsive demand or supply is to wage changes, the lower will be the level of employment (E).

Figure 6. Employment level with taxed wages

Depending on the process of wage bargaining, in the short term it may be important who bears the direct burden of contributions. A reduction in employers' contributions, for instance, instantly decreases wage costs, while a reduction in employees' contributions or income tax cannot have an effect until gross pay agreements have been revised.

In the medium term, employers invariably transfer most of the tax burden to workers (Nickell, 2004). Employment level will thus be unaffected by who pays the taxes. A similar observation holds for tax evasion: both parties are motivated not to pay tax and to share the gains; thus the only advantage of transferring all responsibility of tax paying to the worker is that it may improve tax awareness.

As shown in the above figure, the demand for labour decreases and labour supply increases with a rise in wages. The supply effect does not always follow, as we shall see in the next section. The theoretical effect of wages on labour demand is unambiguous, however: demand is a negative function of wage costs, thus it declines with an increase in wage taxes and contributions. Contributions payable by the employer therefore have a direct effect on the demand for labour.

The tax burden on labour in Hungary

In 2007, employers in Hungary pay 29% of the payroll as social security contributions (21% goes to the pension fund plus 8% to the health insurance fund), 3% as employment contribution and a fixed sum of 1950 Hungarian forints (about 8 Euros) of health care contribution. This is topped by a contribution of 1.5% towards training, and a contribution to rehabilitation programmes, which is calculated relative to the number of employees with

impaired work capacity and is paid by companies with a workforce of over 20 people. Workers pay income tax – the applicable tax rate depends on the worker's total income, - plus 8.5% of their gross wages towards pension funds, 1.5% as employees' contribution and 7% towards the health insurance fund.

The total tax and contribution burden on wages is measured by the tax wedge, which is computed as the difference between the total wage cost and the net wage. OECD statistics take the ratio of this difference to the total wage cost:

tax wedge = (employers' and employees' contributions + income tax)/
/(employers' contributions + gross wage).

In Hungary, the average annual gross income is about HUF 2,000,000 (about EUR 8,300) for 2007; the tax wedge on this income amounts to 54%, which is made up of 26% employers' contributions, 15% income tax and 13% employees' contributions.

The relationship between a high tax wedge and the minimum wage on the one hand and low demand for labour on the other has been discussed in Section 2 above. We have seen that employment among unskilled workers is especially badly affected. In order to improve the demand for unskilled labour, its high wage costs (relative to productivity) need to be reduced first of all. The best short-term solution is to reduce employers' contribution liability, especially by removing the lump sum health care contribution and abolishing or improving the targeting of the rule that, under certain circumstances, requires employers to pay contributions on a double contribution base (targeting may be improved by restricting the rule to workers with at least secondary education); or by substantially cutting employers' contributions in regions with the highest levels of unemployment. These measures would decrease the costs of employing low-wage (typically unskilled, low-productivity) workers, i.e., the demand for unskilled labour would increase at a relatively small cost to the central budget. In the medium term, the solution lies beyond the tax system: moderation in the increases of the minimum wage and public sector wages or perhaps a selective reduction of the minimum wage (specific to region or age) are possible options.

Arbitrage potential between incomes subject to different taxation rules

Taxation and contribution rules differ between incomes from employment and incomes from business activities. The employer, who seeks to minimize wage costs, and the worker, who seeks to maximise net wages, are both motivated to choose the type of labour arrangement that will reduce their tax and contribution liability. Assuming that the employer makes the decision on the optimal arrangement and the worker complies, the problem is best examined from the perspective of labour demand. Table 1 shows the labour costs of different types of labour arrangement – subcontractor using simplified entrepreneurs' tax scheme (EVA), subcontractor using simplified entrepreneurs' tax and contribution payment scheme (EKHO), and employee - and their net wages at three different income levels.[21] Workers opting for the EVA scheme

[21] The income levels under analysis were chosen with respect to employees' average

provide the least costly labour for employers at all three income levels, the next cheapest type of arrangement is EKHO and employees are the most costly to keep. This indicates that the tax system "prefers" subcontracting to employment, which encourages the rise of bogus contracts.

Table 1 Annual tax and contribution liability and net income in 2007 (HUF)[22]

Item	Total annual income		
	2 000 000	4 000 000	10 000 000
Simplified tax scheme (EVA)			
Net income as a percentage of gross income	53.8%	63.9%	69.9%
Net income as a percentage of payer's costs	64.5%	76.7%	83.9%
Simplified tax and contribution scheme (EKHO)*			
Net income as a percentage of gross income	78%	81.1%	83.4%
Total employer's costs	2 529 510	4 929 510	12 129 510
Net income as a percentage of the total employer's costs	61.7%	65.8%	68.8%
Employment			
Net income as a percentage of gross income	63.2%	54.6%	51.5%
Total employer's costs	2 693 400	5 363 400	13 373 400
Net income as a percentage of the total employer's costs	46.9%	40.8%	38.5%

Note: *People offering services that help provide information relevant to public issues and those offering art services are eligible for the EKHO scheme provided that in the given tax year they receive income which falls under the standard tax regulations (i.e., is subject to personal income tax and social security contributions). If a taxpayer's income reaches a threshold of currently HUF 25 million, the taxpayer loses eligibility for the ekho scheme. Source: www.apeh.hu/adoinfo/inf2007/k30.html

Simplified tax schemes may have some advantages regarding administration costs, which justifies their availability. In order to reduce arbitrage potential, however, it is certainly advisable to narrow the gap between the tax burdens on different forms of labour arrangement.

The significance of fringe benefits

As of 1st January, 2007, employers face a tax burden of 54% if the value of non-taxable in-kind benefits they offer to workers exceeds the limit of HUF 400,000.

Regulations on tax-free benefits have an indirect effect on labour demand, since they influence payroll costs. International empirical studies (Long & Scott,

gross labour income, which is estimated to be approximately HUF 2,000,000 (about EUR 8,300) per annum in 2007.

[22] Personal income tax returns for 2005 reveal that 3.6-3.7 million people earned their income as employees; according to information supplied by the Hungarian tax agency APEH on February 21st, 2007, there were 103,170 people using the EVA scheme; no figures are currently available on the number people taxed under the EKHO scheme.

1982; Woodbury, 1983) corroborate the hypothesis that the share of fringe benefits in the total labour costs paid by the employer increases as a result of increases in tax and contribution burdens. These studies also demonstrate that in addition to taxes, the statutory age of retirement and the power of trade unions also have a strong effect on the share of non-taxable benefits.

Adjusting the regulations applying to fringe benefits could in theory be a means of boosting or curbing the demand for labour, since raising the value limit or relaxing the conditions of entitlement reduces the labour costs of the employer and thus increases labour demand. The results of a study by Horváth et al. (2006), however, indicate that Hungarian employers do not typically offer fringe benefits equivalent to the statutory limit at all income levels (fringe benefits and standard wages appear to be correlated).

5. Labour supply

In analysing the impact on labour supply, we start with the premise that the worker's objective is to maximise his or her welfare, that is, to secure the greatest possible income with the smallest possible work effort. In the event of a decrease in *net wages*, the worker will be able to afford less leisure time and will work more (income effect). On the other hand, lower wages also result in a decrease in the amount of labour income missed while resting (or working in the home): thus there is less motivation to work (substitution effect). Whether the end result of taxation is an increase or a reduction in labour supply depends on the relative strengths of the two effects, which can only be established on an empirical basis. The more an individual values leisure time as opposed to consumption, the stronger the substitution effect will be, and a stronger substitution effect will be more likely to counterbalance the income effect.

A decrease in the tax burden on wages may therefore either increase or reduce labour supply. The indeterminacy of the effect is further increased by the fact that changes in taxes and contributions are not necessarily, or not instantly, reflected in net wages. Since wage bargaining between an employer and a worker is directed at gross wages, a decrease in income tax and employees' contributions increases net wages in the short run but employers may take some of the income gain away by retarding gross pay rises in the medium term. Conversely, a decrease in employers' contributions first reduces wage costs, but at the next opportunity, workers may successfully negotiate a greater wage increase to have their share of the income gain. We are not aware of any research giving a quantitative estimate of the outcome of wage bargaining in Hungary.[23]

[23] Neumann (2005) contends that collective bargaining covers a quarter of employees, and barely 14% of affected workers *believe* that collective bargaining has an effect on wages. These findings (in combination with the high level of unemployment and other indirect indicators) suggest that employers' interests are dominant in reaching pay agreements.

As a general rule, welfare benefits (and one of their special incarnations: negative taxes) clearly decrease labour supply, since they allow individuals to secure an income without sacrificing their leisure time. The disincentive effect is even stronger if the scheme is only accessible to those who are out of work (poverty trap).

Labour supply is influenced both by the conditions on claiming welfare benefits and by the amount of benefit that may be claimed. Entitlement rules[24] determine who can receive benefits and how much they are entitled to; a high replacement rate or a long claim period, for instance, clearly discourage labour supply. In the case of means-tested assistance, both the income effect and the substitution effect are felt, since it increases the effective marginal tax rate on labour income. In this case, however, both effects are negative (Moffitt, 2002).

Eligibility conditions ensure that only those receive assistance who cannot be held responsible for their situation. Unemployment benefit, for instance, is paid to those who are genuinely unemployed (i.e., searching for a job and available for work) and are willing to cooperate with job centres in order to find work. The set of conditions may include job search or compulsory community work, for instance, and that a refusal to comply with the requirements will result in sanctions (e.g., the suspension of the support). The requirement to engage in activities that help return to work directly encourages labour supply.

Table 2 The labour supply effects of tightening taxes and welfare benefits

Measure	Consequence	Income effect	Substitution effect
Increasing personal income tax or contributions	reduced net wages	+	-
Reducing the amount of cash benefit	reduced income	+	0
Tightening entitlement conditions*	reduced income	+	+
Tightening eligibility conditions	reduced leisure time	0	+

* Lowering the income threshold for a means-tested welfare benefit. In the Hungarian unemployment assistance programme, it is not the claimant but other members of the claimant's family that may be affected, since this type of benefit is not legally accessible to people who work. See also Semjén (1996) and Gál (1996).

In summary, the effects of taxes and social contributions on labour supply are dependent both on individual preferences and on wage bargaining, while the

[24] *Entitlement conditions* specify the criteria to be used in evaluating a given claim: e.g., whether the claimant has used up his or her unemployment entitlement but remains out of work, whether the claimant's income is lower than a given threshold, whether social contributions have been paid for the required period of time, etc.

incentive effects of welfare benefits are clearly predictable. The adverse effects of welfare benefits on labour supply can be counterbalanced by adjusting regulations (Table 2).

The effects of labour income tax on labour supply may be estimated from the responsiveness of labour supply to changes in net wages – no estimate of this kind has been made, however, on Hungarian data.[25] In an analysis of US data, Hausman (1981) finds that a decrease in income tax rate significantly boosts labour supply and the effect is greater among high income workers. Data from other countries (UK, Sweden) give similar results. As methods have become more sophisticated, however, researchers have come to the unanimous conclusion that the taxation system has no significant effect on the labour supply of primary earners (men).

A number of studies analysing US data on subsidiary earners (women) have found a high net wage elasticity of labour supply. In her analysis of the changes in tax rates following the 1986 tax reform in the US, Eissa (1995) estimates an elasticity of 0.8 for women in the top decile of the income distribution. This includes taking up employment and increasing working hours in approximately equal proportions; but only the former can be regarded as robust. The effects are therefore significant for high-earning women due to the US system of family taxation (Benczúr, 2007).

Labour disincentive effects

In the personal income tax system of Hungary, labour incomes (such as labour wages, redundancy payments, etc.) are added to the aggregate tax base and are taxed in accordance with the progressive personal income tax table (18, 36 and 40%). In 2007, 70% of taxpayers fell into the lowest tax bracket and 2% into the top bracket.[26] Capital gains (such as dividends and rental income) are so-called independently taxed incomes with a different set of tax rates. Workers pay a compulsory health insurance contribution (7%), a pension fund contribution (8.5%) and an unemployment contribution (1.5%).[27] Certain types of

[25] Bakos et al. (2008) estimated of the changes to reported income following areduction of income tax rates. This study, however, does not isolate the effects of changes in labour supply and tax evasion. A study using Household Budget Survey data by Eszter Nagy and Ferenc Szűcs is currently in preparation.

[26] In 2007, a special tax of 36% is levied on incomes over 1.7 million Hungarian forints and 4% on incomes over 6.75 million forints (http://www.apeh.hu/adotablak and http://www.apeh.hu/fizetendo_jar). It should be noted that not all taxpayers in the lowest bracket earn the minimum wage: a third of these people have low incomes for the year because they did not work for some of the year (due to sickness, unemployment, childbirth, studies, etc.).

[27] A discussion of the adequacy of the current system of financing health care is outside the scope of this study. We would like to note, however, that it would be possible to raise the necessary funds through taxes rather than social contributions. This would further enhance the progressive structure of the deduction system.

part-time employment (e.g., labour supply by pensioners or parents on child care leave) are exempt from some of these contributions. Pension fund contributions may not exceed HUF 573,652; other types of social security contribution have no upper limit.

The minimum wage is essentially tax-free owing to a system of tax credits, which may be claimed by employees but not by self-employed workers. In 2007, tax credits were made up of two items. The standard credit amounted to 18% of labour wages up to a total of 9,000 Hungarian forints (about EUR 38) per month. The top credit rate of 18% on an annual income of up to HUF 1.5 million (about EUR 6,300) gradually declined to zero per cent on an income of 2.1 million forints. The second, supplementary credit amounted to 18% of incomes over 50 thousand forints a month, up to a monthly value of 2,340 forints. This ensured that labour incomes up to 63 thousand forints per month were tax-free. The credit rate gradually declined for annual incomes of between 1 and 1.5616 million forints. The supplementary credit was abolished in 2008 and currently 18% of incomes of up to 1.25 million forints - but no more than 11,340 forints a month – may be deducted from the tax liability, and this rate gradually declines to zero for an annual income of 2.762 million forints.

We are not aware of any economic arguments or efficiency considerations in favour of the minimum wage being exempt from income tax. The tax regimes of some countries grant exemption primarily on the grounds of social or political considerations. There may be two drawbacks to having a tax exemption bracket up to and including the level of the minimum wage. First, both the minimum wage and the system of taxation brackets reduce the elasticity of the market wage and may divert wage levels from the market level that would develop under perfect competition conditions (the minimum wage sets a lower limit, while tax brackets encourage wages to stay in the regions immediately beneath the tax bracket thresholds). If the two kinds of inflexibility meet at the level of the minimum wage, a significant degree of distortion may follow. Second, if tax exemption is to apply to employees only, a system of tax credits must be introduced rather than a zero tax rate (this is the case in Hungary), and declining credit rates result in high marginal rates at comparatively high income levels.

As net income is jointly shaped by taxes and welfare support, the two need to be considered together in analysing labour supply effects. The combined labour supply effect of taxes, social security contributions and welfare transfers is measured by the marginal effective tax rate (METR): the METR shows the proportion of lost income gains following an increase in working hours.[28]

$$METR = 1 - (\text{change in net income})/(\text{change in gross income})$$

One of the consequences of a high marginal effective tax rate is the poverty trap, where an individual chooses not to enter employment or work

[28] The effective tax rate may in principle have a negative or a positive effect on labour supply. Empirical studies show that labour supply is not increased by high rates in most tax brackets and may even be reduced for secondary earners.

longer hours because this would reduce his or her disposable income as a result of losing entitlement to certain benefits. The inadequate integration of the welfare support system and labour income taxes and contributions may give rise to a situation where the marginal effective tax rate approaches or even exceeds 100%.

Figure 7 displays the absolute value of the gains to work (GTW[29]) for the primary earner of a three-person household (one child, an active and an inactive parent) as a function of gross income, under the conditions of Hungarian regulations effective in 2007. A reference curve is included showing an income-independent, constant deduction of 18%. In certain segments of the GTW curve (such as the segment marked with a circle) the growth of the gross wage is accompanied by a minimal increase in net income and at a certain level of gross labour income, the GTW actually drops.

Figure 7. GTW (HUF 1000) for an individual entitled to unemployment benefit and housing benefit living in a household with an inactive spouse and one child, 2007

Source*:* Authors' calculations

The METR figure below (Figure 8) shows the marginal tax rates as a function of gross income for the primary earner in the same household type. The fluctuation in the marginal effective tax rate is caused by the nature of the welfare support system (1-2) and the taxation system (3-8). Two exceptionally high values[30] can be observed here: the first of these (1) occurs when an individual starts a job and loses unemployment entitlement; and the second (2) occurs when the individual's income reaches HUF 1,400,000 per annum, at which level the household is no longer entitled to housing benefit. In both of these cases, gains in gross income effect a reduction in disposable income.[31]

Figure 8. Marginal tax rates and wage distribution for individuals entitled to unemployment benefit and housing benefit living in a household with an inactive spouse and one child, 2007

Source*:* Authors' calculations; wage distribution from the 2005 Household Budget Survey data of the Hungarian Statistical Office (KSH), indexed to 2007.

[29] GTW = the difference between net incomes secured with and without work. That is, it shows the "gains" of employment.

[30] When a rise in gross income effects a reduction in net income, the METR is set at 120% in our model. This simplification is needed for expository reasons.

31 Note that due to the nature of the indicator we deal with an arbitrarily small increase in gross income throughout the analysis.

Further instances of high marginal effective tax rate in the income range of HUF 760,000—2,100,000 per annum:

- The start (5) and end (8) points of the gradual decline in the low income tax credit, which raises the marginal effective tax rate to 71% in the income band starting at HUF 1,700,000 per annum up to the point where the credit runs out;
- The start (4) and end (6) points of the gradual decline of the supplementary tax credit;
- At the point when the tax burden on the individual's gross income first exceeds the upper limit of tax credit and supplementary tax credit entitlement and thus tax has to be paid for the first time (3);
- When the individual's gross income crosses the threshold of HUF 1,700,000 and he or she enters a higher tax bracket (7).

The figure also shows that a significant proportion of primary earners living in this household type – approximately 36,000 people – earn the minimum wage. For these people, the most striking effect on labour supply is observed when the income threshold of tax exemption is crossed (arrow 3 in the Figure).

A possible means of reducing disincentives

The marginal effective tax rate, and therefore disincentives to labour supply, may be reduced by replacing the gradually declining system of tax credits with a zero tax bracket as a means of granting exemption on low incomes. Although this change would in itself increase the burden of the central budget,[32] fiscal neutrality could be ensured by adjusting tax rates.

The abolition of tax credits would result in a simpler METR graph, almost entirely free from high values. The only remaining saliently high value is observed when the household loses housing benefit entitlement: this could be smoothed by gradually phasing out the support. The next figure shows a scenario where housing benefit is terminated gradually in the income band of HUF 1,000,000—1,400,000 per annum and the new tax rates are applied.

Figure 9. Marginal tax rates for the first earner with no tax credits, new tax rates and gradually decreasing housing support*

Source: Authors' calculations Note: * in the same household type as in Figure 8.

In summary, work disincentive effects may be dampened by reforming the system of tax credits and refining the rules of welfare entitlement. It should be noted, however, that the welfare system is likely to have features not discussed here which create more significant work disincentive effects.

[32] While only people meeting certain criteria qualify for tax credits, a tax-free income band applies to everyone.

6. Production and investment

The decisions most strongly affected by corporate and dividend taxes are whether to start a business and whether to make an investment. In addition, the taxes create arbitrage opportunities between different forms of operation and financing (i.e., they may assist in obtaining extra profits without any risk). An entrepreneur will therefore consider the expected tax liability on future profits in making a decision on the size of investment he or she is prepared to make in the country and in choosing the best form of operation for the business, the primary source (internal or external) of financing and the best method of releasing the profits such that post-tax gains are maximised.[33] The distortion effects of taxes are due to the fact that they reduce the expected returns to investment and therefore deter entrepreneurs from making investments which would be worth their while in the absence of taxes.

All income generated in an economy is ultimately traced back to individuals and redistribution realized through taxes ultimately restructures the relative income positions of individuals. In theory, then, it is not the business but the owner of capital gains (the person and not the institution) that should be taxed. There are some practical arguments, however, for corporate taxation:

- certain types of capital gain are more difficult to tax at the level of the individual (the retained earnings of a company owned by several persons, for instance);
- corporate tax can be regarded as a fee for using public assets;
- the institution of corporate tax can be used to tax foreign nationals who are present in the country as investors while staying in their home country as private individuals (Devereux and Sorensen, 2005).

Corporate tax rates show a decreasing and converging trend for the countries in Hungary's region (Figure 10) – one explanation for this trend is tax competition,[34] i.e., central efforts to attract foreign direct investment. We can further see that corporate tax burden is typically lower in Hungary than in neighbouring countries (and it also falls below the EU-27 average).

Figure 10. Corporate income tax rates in the region, %*

Source: European Commission (2007)
Note: * Top (standard) rate and average local taxes

Although it would be useful to compare implicit tax rates, such an analysis is beyond our means as no accurate data are available on taxable

[33] In their analysis of data on European companies, de Mooij and Nicodéme (2007) find that declining corporate tax rates bring about a substantial restructuring of incomes from those subject to personal income tax towards those subject to corporate tax.

[34] Cf., Ivanya (2007) argues that as relative tax rates do not shape the competitiveness of a country alone but relative to the standard of public services, tax competition does not necessarily entail declining rates (see Sweden and Finland).

income, i.e., total gross income. According to a study by the European Commission, implicit tax rates were relatively stable (20-25%) in the 25 member states between 1995 and 2003, and the implicit tax rates of new member states had closely approached this range by 2003.[35]

The standard rate of corporate income tax in Hungary is 16% of the positive tax base, which is supplemented by a supplementary tax (or solidarity tax)[36] of 4% from September 2006. From January 2006, the first 5 million HUF of taxable income is taxed at a reduced rate (10%), but this lower rate is only available to businesses which do not receive other tax allowances and pay contributions on at least one and a half times the minimum wage per employee on average. Cash flow data show a government revenue of HUF 469 billion (about EUR 2bn) raised by corporate income tax in 2006, which accounts for 47% of revenues from the business sector (payments by business organizations, excluding VAT and social security contributions) and 7.1% of total central government revenue.

The tax base of corporate tax is the pre-tax surplus but the law on corporate and dividend taxes names 35 circumstances which reduce the pre-tax surplus and 18 circumstances which increase it. Tax allowances also constitute a significant sum: in 2005, companies using double-entry bookkeeping claimed tax allowances amounting to HUF 120bn on a tax liability of HUF 473bn . As a result of the substantial allowances, corporate tax liability effectively comes to 10.9% of the pre-tax surplus (which can be regarded as the implicit rate of corporate tax).

Table 3. Corporate tax liability, 2005

Item	Example	Value (bn HUF)
Pre-tax surplus		3 240
- Items deducted	accrued loss	4 569
+ Items added	deductible costs independent of the activities of the business	3 200
Taxable profits		1 836
Tax		473
- Allowances	investment tax allowance	120
Tax liability		352

Source: APEH (2006c) data. As there are further minor items, the pre-tax surplus, deductions and additions do not add up to taxable profits.

[35] European Commission (2006). Implicit tax rates were defined as the ratio of corporate tax revenue to the aggregate gross operating surplus.

[36] The supplementary tax (Act LIX of 2006) was introduced to improve budget balance; its tax base is more rigorous than that of corporate tax, e.g., loss accrual is not permitted and it cannot be adjusted for deductions.

Some of the items deductable from the pre-tax surplus (which totalled HUF 4500bn (about EUR 19bn) in 2005) may act as incentives (values are given in brackets; APEH, 2006c):[37] research and development costs (HUF 120bn); an allowance if trainees in vocational education are employed (20 or 12% of the minimum wage depending on the type of employment contract, HUF 2.4bn in total); social security contributions paid on the wages of a previously unemployed person, applicable for a period of at most 12 months (HUF 0.9bn); the wages of employees with at least 50% impaired work capacity, up to the minimum wage (provided that the average number of workers employed by the taxpayer does not exceed 20 people in the given tax year, HUF 0.6bn in total). While these allowances may be incentives to employ disadvantaged workers and to improve performance, we do not have any empirical evidence for their actual impact.

The implicit rate of corporate tax is also influenced by tax allowances:

- a tax allowance may be claimed on the following types of investment until 2011: investments of at least HUF 3bn which create production jobs in disadvantaged regions, specifically, counties with high unemployment rates (HUF 99bn);
- and investments of at least HUF 10bn which create production jobs (HUF 12.8bn);
- investments made within the framework of a development programme are subject to a tax allowance, e.g. investment in research or in environmental protection (HUF 3.4bn);
- small and medium-sized businesses are granted a tax allowance of 40% on the interests on loans used to purchase equipment.

In 2005, a substantial share of the tax allowances totalling HUF 120bn was claimed by companies after major investments (APEH, 2006c). Tax allowances on investment are a means of attracting foreign direct investment (FDI), which, in addition to a faster accumulation of capital, also has the benefit of technological progress and other positive externalities.[38] Fiscal discrimination of this type, however, necessarily damages the relative competitiveness of local companies. Sass (2003) demonstrates that government support in the 1990s had a prominent

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[37] Favourable tax regulations apply to charitable bodies and other public foundations, social institutions, public bodies, social associations and housing associations (up to a revenue of HUF 10 million or 10% of the total revenue). Revenues realised from preferential activities are exempt from taxation since they are not regarded as business activities. For a charitable body, the upper limit of this tax-free income is set at 10% of the total revenue but no more than HUF 20 million. The pre-tax surplus is reduced by 20% of the pre-tax profits of business activities. We are not aware of any empirical studies investigating the existence and extent of tax avoidance by abusing the regulations to establish a preferential form of business.

[38] De Mooij and Ederveen (2006) present an overview of the results of international empirical studies investigating the sensitivity of FDI to corporate tax. The median results show a 2.9% increase in FDI as a consequence of a 1% decrease in corporate tax rate.

role in the realisation of major investments in Hungary and this policy gained further significance as the countries of the region were becoming increasingly similar in other respects (infrastructure, institutions).[39]

The average corporate tax liability of companies in foreign ownership does not differ significantly from that of Hungarian-owned companies, notwithstanding exemptions and allowances encouraging foreign capital flows (Table 4).

Table 4. Corporate tax liability according to ownership type, 2004

% foreign ownership	Tax liability (billion HUF)	Average tax burden (Tax liability/Positive tax base, %)
0	165.8	15.4
25-50	13.0	15.5
100	71.1	13.4

Source: APEH (2006c)

Issues related to dividends

Organisations covered by the Act on corporate tax are exempt from paying dividend tax – which is essentially a measure to avoid the double taxation of income. The dividend income of private individuals is, however, subject to taxation. The tax rate on dividends is 25 or 35% depending on the proportion of received dividends to the share of ownership;[40] a reduced tax rate of 10% applies to dividends from shares introduced into any EU stock market.

The treatment of dividends as a separate income, the special rules applying to EU stock exchange shares and lower level of the dividend tax rate are justified as long as these are associated with higher risks. If, however, there is no difference in risk, the lower tax rates – the 20% tax rate applying to profits from interests and stock market activities versus the 25% tax rate on profits from foreign exchange market trading – can generate an arbitrage potential since, for instance, they may discourage financing from own equity in favour of external financing (an incentive of this kind is provided by the fact, e.g. that interest payments are deducted from the tax base of corporate tax, while dividends are paid from the taxed surplus).

[39] The significance of allowances is highlighted by the regulation known as "Lex Audi", which allows R&D expenses to be deducted from the tax base of the 4% supplementary tax. This allowance prompted Audi to continue its investment programme in Hungary.

[40] The legislation on personal income tax states that the individual's share of capital shall be calculated and a tax rate of 35% shall be applied to the portion of dividends exceeding 30% of that share.

Dividend tax may therefore essentially affect two decisions: whether to finance the business from internal or external sources; and whether to retain (re-invest) profits or share them as dividends.[41] Since wages bear a heavy burden of income tax and social security contributions, and dividends are also taxed at a high rate, companies frequently choose to release their profits through the petty cash fund.

Local business tax

Local business tax is imposed on individual enterprises and joint enterprises based or resident within the jurisdiction of a given local government. The tax base is the net income of the business without VAT less the procurement value of sold goods, the value of provided services and the cost of materials. The local business tax rate is determined by the local administration but it cannot be higher than 2% of the tax base. 40% of local government revenues comes from central subsidies, tax revenues play a comparatively minor role.[42] In 2006, a revenue of HUF 347bn was raised in local business tax, which accounted for 3.5% of consolidated general government revenues.

The business tax revenue of a local government is not proportional to its tasks (settlements located in areas favourable to businesses, for instance, will collect higher tax revenues). Although this is a problem with respect to fairness, it may provide an incentive for local governments, since local business activity, and thus revenues, may be boosted by providing high quality public services.

Local governments do not always have the capacity for business tax administration, and compliance is expensive. This is especially a problem for companies operating on more than one site: the tax base has to be divided between the different locations using complicated formulae and the company has to keep track of changes in the regulations introduced by the various local governments year after year. To make matters worse, tax return forms are not standardised: both their format and their contents may vary between locations.

Finally, the debate over the EU-conformity of the business tax has now been settled: in October 2006, the Court of Justice of the European Communities ruled that the Italian business tax (IRAP) was conformant with EU law, and the Hungarian local business tax is highly similar in character to IRAP.

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[41] Australian Government (2006)

[42] 14% of revenues is raised by local taxes (e.g. local business tax, communal tax, tourism tax), 16% by the distribution of tax revenues (e.g. personal income tax, vehicle tax) and 41% comes from so-called normative, central subsidies. Other revenues (e.g. rental incomes) constitute 26% of revenues for local governments and 23% for county administrations. (Source: Trendek az önkormányzati finanszírozásban [Trends in financing local governments], www.mfb.hu)

7. Consumption and saving

7.1. Indirect taxes

Indirect taxes have a major impact on the consumption decisions of households. Saving behaviour is, in addition, affected by taxes on interests and assets. In this section, the effects of indirect taxes are discussed first. Major tax types falling into this category in Hungary include VAT, excise duty and registration duties; the tourism tax and certain components of the simplified tax scheme EVA also qualify as indirect taxes.

Consumption tax has moderate administration costs owing to the fact that the tax agency needs to maintain contact with a relatively small number of taxpayers. Consumption tax is also difficult to evade compared to other tax types.[43] It will not introduce distortion into the structure of consumption if the tax rates are inversely related to the price elasticity of demand – this condition, however, requires a system of several different tax rates, which would have high administration costs. If, in contrast, a broad range of products fall under the same rate, there will be less room for tax evasion. Tax rates higher than the standard rate should only be imposed on goods with low responsiveness to price changes (e.g. basic goods), goods with negative externalities (e.g. alcohol), goods consumed by high-income populations (e.g. luxury goods) or products for which compliance is easy to enforce (Alm, 1996).

As was discussed in the comparative analysis of European data in Section 2, indirect taxes in Hungary represent a high proportion both of the total revenue and relative to GDP. Figure 11 shows that from 2003 onwards, the share of VAT decreased relative to both consumption expenditure and GDP: VAT revenue per unit of consumption gradually decreased from 2003 onwards. This trend is explained by a reduction in VAT rate (from 25% to 20%) and the introduction of the EVA tax scheme.[44]

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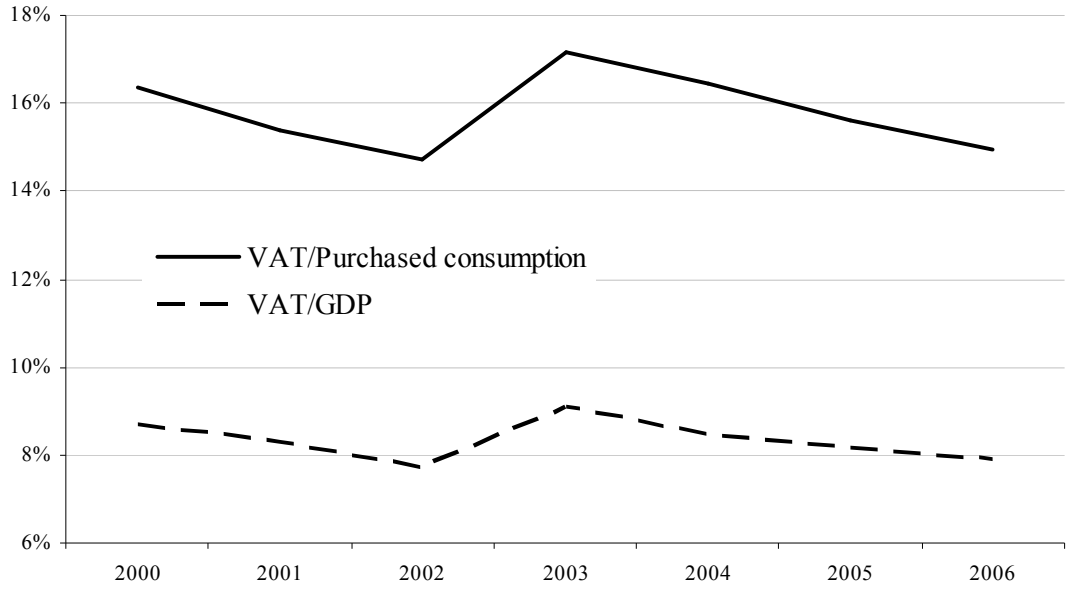
[43] If certain conditions are met, the flat consumption tax can be shown to be equivalent to income tax. It is not, therefore, a lower level of labour market distortion that makes it attractive, but the fact that it is difficult to evade and it may lower administration costs (see e.g., Myles, 1995). People in different income groups will also display different consumption structures: the poor spend a greater share of their income on consumption and a drop in their income leads to a greater reduction in their well-being. These redistribution effects could be handled with the help of a finely graded system of VAT but compensation methods relying on income tax or welfare support tend to be more efficient.

[44] Act XLIII of 2002 on the simplified corporate tax came into effect on January 1st, 2003. The Act states that taxpayers opting for EVA are regarded on the day of lawfully registering their intention as if their VAT liability was cancelled on the last day of the tax period in which they registered.

Figure 11 Proportion of VAT revenues, 2000-2006



Source: Ministry of Finance

VAT has a uniform flat rate of 20%: on January 1st, 2006 the previous higher VAT rate of 25% was reduced to 20% and on September 1st, 2006 the previous lower VAT rate of 15% was increased to 20%. There are certain goods and services – drugs, medical instruments, books – which are subject to a 5% VAT rate and some other products and services are VAT-free. Finally, exemption is granted to companies with annual product and service sales of at most HUF 4 million (or 6 million for family enterprises).

The values of sales in 2005 falling under the reduced or the zero VAT rate are shown in Table 5 – their combined value accounted for almost 10% of total sales. VAT had three different rates in 2005, the lowest rate applied to the set of products which are currently also preferential. In terms of its function, the reduced VAT rate is equivalent to a price subsidy but its administration costs are lower.[45]

Table 5 Supplies subject to the reduced VAT rate or 0% VAT, 2005

	Tax base, M HUF	Distribution, %
Tax-free sales	5 393	7.0
Sales with 5% VAT rate	1 660	2.2
Total sales	76 672	100.0

Source: www.apeh.hu, VAT: tax authority data

[45] For the redistribution effects of the various levels of VAT burden, see Benedek, Firle and Scharle (2006).

The zero percent VAT rate applies to the supply of goods and services where the end consumer receives the services free of charge (e.g. public education, social services), the consumer is the public (e.g. government administration) or tax administration would generate unreasonably high expenses (e.g. financial services).

The IMF carried out an international comparative analysis of data from 2003-2004 to examine the profitability of VAT, where profitability is defined as the ratio of VAT revenues to consumption (i.e. the implicit tax rate) relative to the standard (non-reduced) VAT rate. As measured by these indicators, the profitability of VAT in Hungary falls below the OECD average. The consumption-based indicator, for instance, was 0.46 for Hungary as opposed to an average of 0.54 for OECD countries (IMF, 2006, p. 46). The high proportion of VAT refunds and a general negative attitude towards tax paying could be among the reasons but the indicator value is also lowered by the reduced VAT rate.

Relative to other types of tax, however, VAT profitability does not appear to be too bad. Our own calculations (using data provided by the Ministry of Finance) put the ratio of VAT revenues to purchased consumption at 0.14 for 2006, which is 72% of the standard 20% VAT rate. At the same time, the ratio of income tax revenues to wages was around 0.19, which is approximately equivalent to the lower income tax rate of 18%; that is, in terms of the implicit /normal tax rate indicator, VAT has higher profitability.

An investigation into the effects of changes in VAT rates should account for the extent to which the changes are carried through to consumer prices. International data suggest that luxury goods have a higher price elasticity than basic goods. As far as we know, no estimates of price elasticity have been published for Hungary – the international experience is that most items of consumption have an estimated price elasticity of demand[46] of between -0.5 and -1.5 (estimates for Eastern Europe are provided by Stavrev and Kambourov, 1999).

A distortion in the consumption of a given good or service may increase efficiency if the social costs of its consumption are not reflected in its market price. This provides a justification for a reduced VAT rate on products which are consumed not only to the benefit of the consumer but also to the benefit of society as a whole. Some of the products currently taxed at the reduced rate raise doubts, however, as to the validity of this justification. It is arguable, for instance, whether the allowance on newspapers and books (taxed at the 5% VAT rate) or on each of the VAT-free products is in proportion with the positive externalities associated with the consumption of these products. Also, we are not aware of any studies investigating the question whether the income threshold of VAT-exemption of enterprises is set at the appropriate level in terms of administration

[46] Price elasticity of demand: The percentage change in the consumption of a given good or service in response to a 1% increase in its price.

costs (the Hungarian regulations specify a threshold above the Polish but below the Slovak and the Czech levels).

In addition to VAT revenues, the class of indirect taxes includes motor vehicle registration and excise duties, which constitute relatively stable and significant revenue for the budget (HUF 850bn, 3.7% of GDP in 2006). There are a number of arguments for excise duties on alcohol and tobacco products.[47] First, since these products have a low price elasticity of demand, increased taxes have relatively little effect on their consumption. Second, as they are detrimental to health, the consumption of these products increases health care costs, some of which burden public funds – the excise duty may be seen as a contribution to this fund.[48] Also, empirical studies on data from other countries indicate that higher prices do curb substance consumption despite the low price elasticity of demand, because higher prices motivate people to give up substance use and also decrease the probability of people becoming addicted (see e.g. Chaloupka et al., 2000).

7.2. Interest tax and tax allowances on savings

Interest tax may affect decisions of saving as it reduces the gains realised from savings.[49] A decline in savings (the substitution effect encourages increased consumption) may lead to an increase in the costs of loans, which may in turn be a disincentive to investment. The income effect, however, may encourage the reduction of household consumption, since a decrease in post-tax gains has a negative effect on incomes realised from future interests.

As of September 2006, the interest on savings of individuals is subject to interest tax and income realised from stock exchange activity is subject to exchange gains tax. The tax rate is uniformly 20%. It is the responsibility of the financial institution to calculate and deduct the tax, thus it does not impose additional costs of compliance on individuals.[50]

Looking at changes in real interests, Árvai and Menczel (2002) were unable to show any significant effect on households' saving decisions in

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[47] Excise duty is currently imposed on mineral oil, alcohol products and tobacco products.

[48] Negative externalities arise when consumption has the effect of reducing the overall well-being of society – due to environmental pollution or health damage, for instance – and this effect is not reflected in the market price. It is a problem with respect to equity, however, that the excise duty on cigarettes and alcohol constitutes a disproportionately higher burden for people with low incomes.

[49] A common argument against taxing interests is that savings come from income which has been taxed under the income tax scheme, i.e. interest tax introduces double taxation. The real gains (gains beyond inflation), however, constitute independent income and thus they can be taxed without the problem of double taxation.

[50] Data from the current convergence programme indicates that the revenue from taxing capital gains is expected to amount to 0.1% of GDP in 2007-2010.

Hungary and no unequivocal consensus exists in the international literature, either, on the direction or magnitude of the responsiveness of saving to interest rates. The authors find, however, that relative differences in gains do exert an effect on decisions about the allocation of savings.

Since the launch of private pension funds, voluntary pension fund contributions have been encouraged by granting substantial tax allowances.[51] This has resulted in a significant loss of central revenue, which could potentially be counteracted, however, by the economic growth induced by increased savings (and investment). Nevertheless, for the effect to appear, the allowances must bring about a genuine increase in savings rather than a restructuring towards more favourable forms of investment, i.e. contributions to private pension funds should not displace other forms of saving. In a study based on the difference in differences method of estimation and cohort analysis, Vidor (2005) examines TÁRKI Household Monitor data to look into the saving patterns of Hungarian households. The results indicate that preferentially taxed pension-based savings do not displace other forms of saving, i.e. new savings also appeared as a result of the introduction of tax allowances.

7.3. Taxes on property

Property taxes include taxes on the stock of real estate, net wealth and on transactions or inheritance events involving any of these; this section is concerned with property taxes burdening private individuals. From the point of view of efficiency, it may be costly to determine the value of taxes payable on assets (e.g. real estate price evaluation) but from the point of view of equity, the introduction of or an increase in taxes on assets may be justified in a situation where tax evasion prevents income taxes from fulfilling their function of redistribution. The most important argument for taxing assets is that it may shift savings towards other, more productive uses, or that it may reduce administration costs if it can replace other taxes.

In Hungary, currently it is the jurisdiction of local governments to impose taxes on buildings and land (in proportion with the ground area of the building or size of the land and their market value), tourist tax on buildings and communal tax, which is a fixed amount payable by item (building, land).

The figures on revenues from property taxes are shown in Table 6. The total value of taxes on property and of duties on property acquisition was HUF 124bn in 2005 (approximately HUF 50bn of which was revenue raised in vehicle tax) – this accounted for around 1.3% of the consolidated total general government revenue.

The major advantage of taxing real estates is that it allows black market incomes and real gains to be taxed (by taxing real estates purchased with those

[51] When private pension funds were launched in 1994, the total amount of contributions could be deducted from the tax base. This was modified to 50% of contributions in 1995 and as of 2000, 30% of contributions may be deducted.

incomes). In the case of Hungary, however, its redistribution effect is questionable. Semjén (2006) argues that taxes on real estate have the potential to boost the progressiveness of the tax regime as a whole and could therefore be used to complement a possible flat-rate personal income tax.

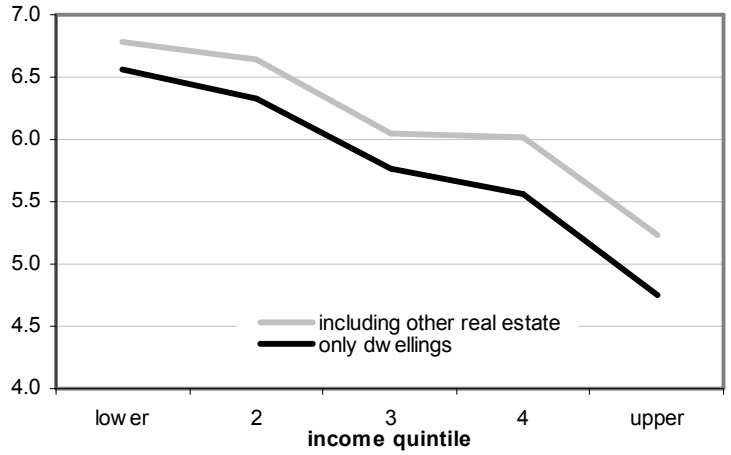
Table 6. Taxes on property and on acquisition of property (m HUF), 2005

	Revenue, M Ft
Local taxes	58 836
Building tax	44 440
Land tax	5 184
Communal tax of individuals	7 954
Tourism tax on buildings	1 257
Tax on vehicle	49 177
Duties on conveyances	15 610
Inheritance	12 678
Gift	2 932

Source: Ministry of Finance

The results of our analysis (of data from the Household Budget Survey), however, indicate that the introduction of a flat-rate tax on property would have a regressive effect (Figure 12). Part of the explanation is that the privatisation of local council housing meant that people in lower income groups acquired significant property transfers. Also, as a result of the escalation of house prices and the availability of subsidised loans, people with greatly divergent incomes have been able to acquire property of (eventually) very high value. Regressiveness may be reduced by taxing other (non-residential) real estates at a higher rate than residential property.

Figure 12. Housing assets relative to annual net income by household income quintiles, 2005



Source: Authors' calculations based on the Hungarian Statistical Office Household Budget Survey of 2005.

8. New trends: an enhanced role for green taxes

Environment polluting activities have direct and indirect social costs which, in the absence of taxes, are paid by society rather than by the polluter. To take a simple example, the extensive urban use of cars generates direct financial damage by e.g. increasing the expenses of the health service (due to accidents and pollution-related health problems) and by corroding infrastructure. In addition, there are costs related to vehicle use which cannot be directly expressed in monetary terms, such as the "cost" of time wasted in a traffic jam. If (some of) the costs are not paid by those whose activities generate them, the consumption of the product or service in question will exceed the optimal level – this effect is corrected for by introducing ecotaxes.

Expected effects

An ecological tax reform consists of a revenue-neutral restructuring designed to shift the system away from taxes burdening labour towards taxes imposed on activities causing environmental pollution. The expected effects of ecotaxes are examined here with this scenario in mind. [52]

Reduction of negative impact on the environment. A decline in environment affecting activities will automatically follow, and the quality of the environment will consequently improve – the only question is the extent of improvement. Empirical studies provide evidence that the price elasticity of transport fuels is relatively low: a synthesis of fifty estimates reported by Goodwin et al. (2003), for

[52] For a summary of the effects, see Pataki et al. (2003) and references therein.

instance, puts short-term elasticity at -0.25 and long-term elasticity at -0.64.[53] This means that a price rise of 1% will result in a decline of at most 0.25% in fuel consumption within 1 to 2 years, but after 5 to 10 years, the decline will amount to about 0.64% thanks to innovations. The price elasticity of household energy consumption appears to be similarly low (Haas and Schipper, 1998), while – thanks to technological innovations – corporate energy consumption shows considerably higher price elasticity: elasticities of over 1 have also been observed (Kiss, 2002b).

Double dividend. Ecotaxes – in contrast with e.g. wage taxes – belong to the small class of non-distorting taxes, since they are introduced precisely with the purpose of counteracting the effects of a market distortion. The efficiency of a taxation system may therefore be improved if the fiscal effects of reductions in distorting taxes are counterbalanced by introducing ecotaxes. This type of indirect benefit of ecotaxes is termed "second dividend" in the literature (the "first dividend" being the environmental benefit), and the majority of model simulations run at the level of national economies concur that a second dividend indeed exists – in the form of rising employment (see Bosquet (2000), although it should be noted that a quarter of the reviewed studies failed to show a positive effect of this kind). The magnitude of the positive effect on employment is dependent on the elasticity of the labour market and on the distorting effects of existing taxes.

Effects on competitiveness and prices. Prices necessarily rise as a consequence of an ecological tax reform, and increased costs may impair the competitiveness of local businesses in the short run. Some of these negative effects, however, will be mitigated over time through technological substitution and innovation – one of the goals of the ecological tax reform is, of course, to provide strong incentives to innovations of this kind. Energy intensive industries lose out, while labour intensive industries gain with the tax reform.

Equity. Considerations of equity also call for the costs of environmental damage to be paid by those (or at least mostly by those) responsible for the damage.

Income distribution effects. The tax imposed on household energy consumption is degressive, while fuel tax tends to be progressive; therefore the overall distribution effect of ecotaxes is determined by their composition: studies investigating this issue come to varied conclusions (Bosquet, 2000). Potential negative distribution effects may in any case be mitigated through the welfare support system.

General international experiences

The proportion of revenues from environmental taxes to GDP was 2.6% in Hungary in 2004, which placed the country in the mid-range of OECD member

[53] According to another estimate, EEA (2000, p. 45) the long-term price elasticity of motor gasoline is between -0.65 and -1 and that of diesel is under -0.65 (in absolute value).

countries (the tax/GDP ratio was higher in 15 countries and lower in 14). The highest tax revenues in the OECD - relative to GDP - were collected by Turkey and Denmark (both with values over 4.5%), while the lowest value was that of the United States (below 1%). In contradiction with common belief, Hungary came before Germany (2.53%) with respect to the GDP-related value and was only slightly behind Austria (2.7%).

The minimum rates of the most significant environment affecting taxes, the energy taxes, are regulated by Directive 2003/EC/96 of the European Union. The specified minimum rates – less the extorted exemptions -, however, do not constitute a genuine lower limit for the majority of taxes and countries because their rates are already higher than the required values. Over the past decade, a number of member states (e.g. Denmark, Sweden, the Netherlands, Great Britain, Finland and Austria) have implemented ecological tax reforms independently of EU regulations. The most significant measures of the reforms involved an increase in taxes related to energy consumption involving the emission of pollutants and - in a substantial proportion of the countries - in taxes related to waste management. It remains a fact, however, that taxes imposed on road traffic (excise duty on fuels, vehicle tax) tend to constitute the most significant contribution to revenues raised in environment affecting taxes.

The German tax reform received perhaps the greatest publicity, where ecotax revenues (from taxes levied on fuels, electric power, heating oil) were increased by 55% (their ratio to GDP also increased by a quarter) in several steps (between 1998 and 2003) and almost all of the resulting revenue gain was used to reduce pension contributions. The effects of the tax reform were analysed in various models, which predicted a decline in carbon-dioxide emission, no significant change in GDP and an increase in employment (a total of 250 thousand new jobs in Germany by 2010). The energy sector is expected to suffer the greatest loss and either the construction industry or the service sector (depending on the choice of model) is predicted to reap the greatest benefits.[54]

Possible shifts in some areas of ecotaxation

The following paragraphs present a detailed analysis of possible shifts in some areas of ecotaxation.

Energy related taxes

The undesirable negative externalities associated with the consumption of (fossil) energy sources consist in the social cost of health damage caused by SO_X, NO_X, etc. emissions and the cost of global warming attributable to CO_2 emission. These factors are very difficult to quantify and the cause-and-effect relationship between carbon dioxide emission and climate change is to some extent disputed. It must also be taken into account that – especially in the case of CO_2 – negative effects surface on a global rather than a local level, which means that a unilateral

[54] See also Kiss (2002a) and an overview by Bach et al. (2002) with a detailed sector level impact analysis.

tax increase in any one country will not necessarily correct for negative externalities and a locally implemented pollution reduction measure will not necessarily bring about a decrease in negative effects.

Two types of tax may be introduced within this group. The first type is imposed directly on CO_2 (carbon tax), SO_X and NO_X emissions (but only for spot polluters – emissions associated with road traffic are treated differently) and the second type is levied on energy consumption. From the perspective of environmental economics, the first type would be the preferred solution, since it provides a direct incentive to emission reduction, while the second solution requires separate provisions for e.g. energy from renewable sources, water power or atomic power. Nevertheless, the EU Directive mentioned above (and the majority of national regulations) follows the path of taxation on energy consumption, presumably because it makes it is easier to discriminate on the basis of the target of consumption (e.g., household – business – community).

In 2007, energy taxes in Hungary affect natural gas (56 HUF/GJ = 0.22 EUR/GJ) and electric power (186 HUF/MWh = 0.75 EUR/MWh) but households are exempted. These rates are higher than those specified by the EU Directive as minimum rates for business use (0.15 EUR/GJ and 0.5 EUR/MWh) but their share in environment affecting taxes is still negligible: they constitute an annual revenue equivalent to 0.05% of GDP. For comparison, tax rates in Germany and Austria are several times higher: the standard rates of natural gas tax are 1 and 1.9 EUR/GJ respectively, and the rates for electric power are 20.6 and 15 EUR/MWh, although there are substantial concessions for various groups of consumers.[55] (The new or increased energy taxes are the primary source of the tax revenue gain achieved by the German ecological tax reform.) A slow rise in energy taxes – after thorough impact analyses – could be considered in Hungary as well but it would certainly need to be counterbalanced by simultaneously reducing wage taxes and contributions. Even so, some undesired sector level effects will inevitably ensue in energy intensive industries.

Neither the low rates of energy taxes – compared to the German and Austrian rates – nor the subsidies on energy costs help to encourage responsible energy consumption in Hungary. Households are not only exempt from paying energy taxes, but also receive an average gas price subsidy of around 500 Ft/GJ (2 EUR/GJ).[56] Phasing out these subsidies would have a definite positive effect on the environment – although, as we have seen, household energy consumption is one of the least price elastic uses of energy resources. (Haas and Schipper (1998) observe that even long term elasticity is weaker than -0.3.)

Taxes and charges related to road traffic

[55] Source: http://www2.oecd.org/ecoinst/queries/index.htm. and http://www.foes.de/en/EncyclopediaETR.php.

[56] Authors' estimates, assuming a total of HUF 75bn gas price subsidy and consumption of 4.5bn m^3 gas.

Negative externalities to be corrected for include, among others, the costs of accidents, the cost of time wasted in traffic congestions and the cost of health damage caused by the emission of pollutants, some of which are reasonably simple to quantify. Assessments of data on old EU member countries indicate that revenues associated with road use cover at most half of the costs of externalities and this top value is only attained by the most environmentally conscious Northern countries: Denmark and Sweden (Kiss, 2002b). This implies that raising associated taxes and charges would make economic sense, however, the best means of doing so is not necessarily an increase in excise duties.

Three main types of charge imposed on road traffic:

- Excise duties on fuels. The EU Directive of 2003 specifies minimum rates for these duties as well, but Hungarian excise duties (103.5 HUF/litre for petrol, 85 HUF/litre for diesel oil) are already higher than the minimum rates prescribed for 2010, i.e. Hungary is not directly required to raise these taxes. The greatest share of Hungary's environmental tax revenues, amounting to 1.9% of GDP in 2006, is provided by fuel excise duties. In Germany, the tax on diesel oil is about 30, and the tax on petrol is around 60 forints higher per litre – taking an exchange rate of 250 HUF/EUR – but the tax rates of neighbouring EU countries do not differ to a significant extent.[57] A major rise in taxes – especially when the frontier traffic of fuel is considered – is not practicable. A method of indexing excise duties, however, would be worth some serious thought. The introduction of an indexation system would effect automatic small-scale increases on a yearly basis and less frequent large-scale rises could thus be avoided. Indexing would have to be treated with caution because of inflationary expectations but just a 2% annual tax rise, for instance, would bring a gain of around HUF 10 billion in budget revenue.
- Taxes and charges associated with road use. These constitute a more modern means of compensating for negative externalities than do excise duties, since the former specifically target associated externalities (e.g. those caused by accidents or congestions). The external effects of peak-time urban driving per 1 litre of petrol are several times greater than those of off-peak country road driving but these differences are not reflected in excise duties. Road charges include motorway tolls and other road charges (the latter are currently limited to a few roads in Hungary) as well as congestion charges, which are becoming increasingly popular in cities abroad. In Hungary, annual revenue of only 0.1% of GDP is raised in road charges, which will indisputably need

[57] For tax rates in new EU member states, see the website http://www.foes.de/en/StudiesEUDatabase.html, while the interactive query interface at http://www2.oecd.org/ecoinst/queries/index.htm provides information on OECD countries. The tax on unleaded petrol was 9% lower in Slovakia than in Hungary in 2005, while the tax on diesel oil was 5% higher. Petrol tax in Austria was effectively the same as in Hungary and the diesel tax was 14% lower. These figures can of course show substantial changes within shorts periods of time due to fluctuations in exchange rates.

to be increased – following thorough impact analyses. The economic principle of payment in proportion with use applies in this case as well.

- Taxes associated with vehicle ownership. The motor vehicle registration tax belongs to this class.

Other specific taxes, charges and contributions

Items in the current taxation system belonging to this category include environmental product fees (raising revenue of 0.09% of GDP), a water stock contribution and other, even smaller items, such as an environment and land protection contribution. These usually have a small capacity for raising revenue even in countries with extensive ecotaxation systems but they may be useful in suppressing specific polluting activities. For this reason, it is primarily the responsibility of environmental professionals to devise them. Among methods not used in Hungary but common in other countries, waste disposal charge deserves special mention, the introduction of which – following appropriate impact analyses – is an option to consider for at least solid household waste.

9. Tax administration and tax evasion

For a tax system to be efficient, its administration must impose the smallest possible burden on the tax agency and the taxpayer. The expenses of the tax authority can be reduced if the tax system is composed of a relatively small number of tax types, if a relatively small number of tax returns need to be processed, and if the costs of enforcement are fairly low. The evaluation of the large number of allowances in the tax structure is subject to debate – while they increase the costs of administration, they may be needed to achieve objectives which are deemed to be important. If so, the real question is whether it is easier to implement them as part of the taxation system or as a separate programme.

Tax evasion presents a problem not only because of lost revenue but also because it distorts the redistribution effects of taxation, since it gives rise to an unintended redistribution between tax evaders and taxpayers, and may allow businesses resorting to tax evasion to gain unjustified competitive advantage. Tax evasion may also have the effect of decreasing competitiveness in that loopholes may encourage investment in relatively less profitable businesses and they can engage entrepreneurs' creativity and capacity for innovation. If the tax system, however, presents a barrier to certain economic activities, tax avoidance (and continued activity) may be more beneficial to social welfare than abandoning that activity.

In a standard economic approach, tax evasion is essentially a function of its relative gains, i.e. how much can be saved by avoiding tax liability. The gain is determined by the level of taxes on the one hand, and the efficiency of enforcement on the other. For tax enforcement to be successful, it needs to create adequate disincentives to tax evasion. To put it simply, a risk-neutral taxpayer will not be motivated to evade tax if:

Tax liability < P(getting caught) * Tax liability and fine if caught;

where P(.) stands for probability.[58] That is, higher fines and/or more efficient enforcement can provide a disincentive to tax evasion.

The results of experimental economic science demonstrate that in addition to financial incentives, the behaviour of rational agents is also sensitive to norms and principles of behaviour, such as fairness, conditional co-operation and reciprocity. The equitability of the distribution of the tax burden, information about the tax paying behaviour of other people, the standards of government policy and the customer friendly operation of the tax agency therefore all have an impact on tax compliance.

Little information is available on the process of tax administration: the information provided by the central tax agency, APEH is rather limited (because of tax secrecy or because publishing their enforcement methods, for instance, would undermine their effectiveness). Data on the administration costs burdening the Hungarian Customs and Excise Guard (which collects customs and excise duties) or those incurred by local governments are not available at all.[59]

9.1. Tax administration: the number of tax types

According to its publications, APEH collected total national revenue of HUF 6,631.9bn in 17 types of tax and other charges (fines, surcharges, duties) in 2005. The values of levies are shown in Table 7. Taxes and tax-type revenues administered by (Excise duties collected by the Customs and Finance Guard are not listed.)

Another issue to discuss in our overview of the tax structure is the number of tax types contributing to the total tax revenue and the share of minor taxes in the system. The question is important, as tax administration costs can be kept lower if the system is composed of a relatively small number of tax types.

Table 7. Taxes and tax-type revenues administered by APEH, 2005

	Tax base	Revenue (M HUF)
Social security contributions	Gross earnings	2 272 933
VAT	Purchased consumption	1 785 316
Income tax	Gross earnings	1 437 773
Corporate tax	Pre-tax surplus	430 051
Employers' contributions	Gross earnings	172 605
Health care contribution	(Fixed sum/person)	164 407
EVA	Revenues	91 365

[58] The probability of tax evasion is further influenced by the risk-avoidance behaviour of the taxpayer as well as social norms.

[59] Semjén (2001) is a notable exception, where APEH publications and interview data with APEH employees, tax advisors and officers of the State Audit Office are used to draw conclusions about the efficiency of the operation of APEH (e.g. legal administration, audit activities) in the period between 1991 and 1999.

	Tax base	Revenue (M HUF)
Gambling tax	Winnings	66 377
Employees' contributions	Gross earnings	52 263
Financial institutions' surtax	Interest spread or pre-tax surplus	35 574
Training levy	Gross earnings	24 857
Innovation contribution	Net revenue – materials – procurement value of sold goods – value of services	20 548
Environment protection product fee	Sold products (mass or number of items)	19 516
Fines, self-correction fee	—	15 735
Overdue payment fee	—	12 628
Rehabilitation contribution	(Fixed sum/person)	11 404
Cultural contribution	Revenue from sale of goods and services subject to the contribution	7 277
Entrepreneurs' contribution	Income included in the tax base of health insurance contribution	6 524
Environmental pollution charges	Quantity of polluting substance emission	3 154
Other revenues*	—	1 586
Total		6 631 893

Source: APEH (2006a, b) data; *Including market introduction support return.

Minor tax is defined as a tax or tax-type revenue with a revenue yield of less than 1% of GDP (based on cash flow data). According to figures provided by the Ministry of Finance, 37 types of tax belonged to this category in 2006 with a combined revenue amounting to 5% of GDP.[60] Between 2000 and 2007,[61] surtaxes (for joint enterprises, credit institutions, financial businesses and individuals), the entrepreneurs' contribution, the luxury tax, the innovation contribution, the simplified tax scheme EVA, the energy tax, the environmental and land pollution charges were introduced, while the tax on foreign vehicles and the tourism contribution were abolished. In conclusion, the number of minor taxes has increased over the past few years (there were 29 of them in 2000), which has probably increased tax administration costs.

Half of the revenue raised in minor taxes and levies contributes to the central budget revenue and also close to half of these taxes are administered by APEH.[62] About half of the minor tax types are justifiable on the grounds that

[60] This figure does not include payments of contributions beyond those burdening employees, employers or businesses.

[61] The revenue from health care contribution was more than 1% of GDP between 2000 and 2002, thus it was not a minor tax according to our definition in these years.

[62] Most minor taxes burden goods or services (18 types, 4 of which are imposed by local governments and 5 by the Ministry for Agriculture and Rural Development) or assets (6 types, 5 of which are levied by local governments). The remaining types are social security contributions (5 types, none local gov.), taxes and contributions on wages (3

they correct for some kind of externality (e.g. environmental pollution charge) or market failure (e.g. employers' contributions funding the unemployment support programme). Some of these, however, could be merged with other types of tax (e.g. local governments' taxes on property and land polluting contributions), and the goals of some others could be attained more efficiently by other means (e.g. innovation contribution).

A study by the IMF (IMF, 2006) recommends that tax administration costs should be reduced by minimizing the number of tasks which are not connected to tax administration but are currently handled by APEH, and by decreasing the number of minor taxes. The study finds that efficiency could be further enhanced by restructuring the tax agency – especially by centralising certain administration tasks. Human resources policies should also be modified to boost the motivation of APEH employees – for instance, factors other than the amount of collected tax should also be considered in assessing productivity. The recommendations of the World Bank (2008) note that an enhanced co-operation between enforcement agencies, such as APEH, the Customs and Finance Guard and the Labour Inspectorate may be a step towards cutting back tax evasion.

9.2. Tax administration: fiscal decentralisation

The main argument in favour of fiscal decentralisation is that it can help improve the efficiency of the supply of certain public services (partly because a competition could develop between local governments and partly because it makes it easier to observe the preferences of the local population). On the other hand, fiscal decentralisation may constitute a barrier to country-wide stabilisation, since a centralised government administration is more efficient in tackling inflation-induced or cyclic real economic shocks, for instance. International comparative data, however, show no evidence for decentralisation endangering macrostability. If regionally asymmetric shocks, automatic stabilisers and the information advantage of local governments (e.g. with respect to ways of tackling local unemployment) are considered, a decentralised government may be able to fulfil stabilising functions. Also, international data on developed countries display a positive correlation between GDP per capita and local government spending, although there is no consensus in the literature as to the cause-and-effect relationships behind this phenomenon (Ebel and Yilmaz, 2002).

The OECD (2001) report identifies a major problem with the local government system in Hungary: there are several small local governments burdened with tasks which are disproportionately large for their means – each local government has the same rights and duties regardless of the size of the population and its financial means. The parallel presence of wide-ranging duties and insufficient resources is generally typical of countries in Central and Eastern

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types, 1 local gov.), income taxes (3, 1 local gov.), and other types of tax or tax-type payments (2 types). See also Bakos et al. (2008).

Europe, which is explained by the centralised system of socialism being followed by a marked decentralisation effort after the regime change.

As recommended by the World Bank (Ebel and Yilmaz, 2002), local taxes should meet the following main requirements in order to achieve efficiency and transparency in fiscal decentralisation and at the same time maintain national integrity and political stability:

- the tax bases of local tax revenues should not be easy to transfer between regional units;
- taxes aimed at redistribution should be collected at the central level;
- services provided by local governments should be financed – as much as is practicable – by their beneficiaries in the form of fees and taxes;
- taxes with a tax base unequally distributed over the regions of a given country should also be centralised.

An international comparison of tax revenues classified according to level of government is complicated by the fact that in several member countries, those with federal government systems, there is an intermediate (state) level of government between the level of central administration and the level of local administration. For an accurate comparison we would need to know whether the intermediate level takes over tasks from the central government or from local governments. If the state level is assumed to be similar to the central level, the proportion of central tax revenues is 2 percentage points higher in Hungary than in the EU-27 on average. However, as no data are available on revenues from social security contributions in the UK, the figures attribute an unrealistically large role to central administration there. This suggests that the gap between the actual EU average and Hungary is greater. The relative revenues of local governments are highest in the Scandinavian countries (32% of the total tax revenue in Sweden and 33% in Denmark).

Figure 13 reveals a slight but clear increase in local governments' average share of total tax revenues in the EU-27 countries. In Hungary, their share is close to the EU average and a similar increasing trend is observed. Neighbouring countries initially showed a relatively varied picture with respect to local governments' share of tax revenues but the differences were reduced by 2005.

Figure 13. Local governments' tax revenues as a proportion of the total tax revenue, international comparison

Source: European Commission (2007)

The data on the tax revenues of local governments are summarised in Table 8. As we can see, local and transferred taxes account for about 30% of revenues. The group of transferred taxes comprises the personal income tax, vehicle tax, luxury tax and the tax imposed on agricultural land rental. This ratio has not changed significantly in the past five years and the proportion of local tax revenues to the total revenue of local governments is relatively high in a Central and Eastern European comparison (Hőgye, 2000). Other significant

sources of local government revenue include state subsidies (27%), a share of the central budget (14%) and revenues from institution operation (9%).

Table 8. Revenues of local governments and local minority governments

Revenue (bn HUF)	2002	2003	2004	2005	2006
Local taxes	297	323	367	398	449
Transferred taxes	350	437	502	489	512
Total revenue	2 316	2 599	2 761	3 010	3 245

Source: Ministry for Local Government and Regional Development

9.3. Costs of tax enforcement and compliance

In 2005, APEH spent HUF 68.2bn, which was 1.0% of the revenues it raised. APEH employed an average workforce of 11,605 people in the same year, which means that on average there were 870 citizens to each employee.

Figure 14. Costs of tax enforcement in some OECD countries (2004)

Source: IMF (2006)

These two IMF indicators reveal that although the administration costs observed in Hungary are higher than the average costs of Western European countries, Hungary is among the countries with medium level administration burden in the OECD (Figure 14). The results may be difficult to interpret, however, as the data for Hungary, for instance, do not cover the administration costs incurred by the Customs and Finance Guard or local governments – with these figures included, the ranking of the countries may be different.

In addition to the costs discussed above, tax administration also imposes expenses on the taxpayer: time and money spent on calculating tax liability and paying the tax. The costs of compliance have an impact on the competitiveness of businesses as well as on the evaluation of Hungary as a target of foreign investment.

Compliance costs were presumably reduced with the introduction of downloadable software and electronic tax returns: in 2006, more than half of tax returns were completed with the help of software available to download from the Internet and a third of returns were submitted electronically (APEH, 2007). Taxpayers' compliance costs are also sensitive, however, to the frequency of changes in tax regulations and to the clarity and straightforwardness of these changes. In an international comparison, Hungarian compliance costs, especially those burdening businesses, are high. According to the Doing Business Economic Ranking of the World Bank, the administration of tax returns is the second most complicated and costly task of all business administration tasks in Hungary, preceded only by the task of obtaining permissions. The ranking measures the difficulty of tax return administration in terms of the number of tax types applying to businesses, the time needed to prepare tax returns and the amount of total tax liability expressed as a share of profits.

The efficiency of tax audit activities appears to have improved between 2004 and 2005 in that the number of audits decreased by 11.5%, while the net tax discrepancy detected increased by 13.3% - one reason for this change is that there was an increase in the proportion of highest liability taxpayers among those audited after filing tax returns (from 1.6% to 3.5%). We have anecdotal evidence, however, that there is still plenty of room for improvement in the efficiency of audit activities. There could be improvement in the process of selecting companies for audit, determining the length of time auditors need to spend with each company and motivating auditors to detect real irregularities.

Full audits may be unnecessary in certain cases and László (2006) suggests[63] that "audit procedures should be developed which allow the authority to use systematic, limited scope, random sample assessment to reveal in a short period time whether the given business needs to be observed for months or the auditor should move on to taxpayers promising more success." Computerized systems used by larger companies typically guarantee the legitimate calculation of tax liability and APEH may therefore be unjustified in focussing its audit activities on large companies.[64] This practice should be replaced by a compliance risk-based selection process, which could be implemented with the help of sector and micro-level analyses. The efficiency of inspection would also be improved if companies' computerized systems were made accessible to APEH auditors. The adoption of this new approach to audit activities would also require appropriate training and the reorganisation of human resources.

[63] Based on KPMG experiences.

[64] The law on taxation states that APEH is required to audit the 3000 highest liability taxpayers at least every 3 years – but it is in the auditor's discretion to decide how long he or she should spend with each company.

[This paper reflects the views of the authors]

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