

# Methodology for Calculating the Tax Reliefs (Tax Expenditures) in the Czech Republic

The report includes a calculation of an estimate of tax reliefs (tax expenditures) in the Czech Republic relating to value added tax, corporate income tax and personal income tax at the public budget level. In 2014 first estimates of tax reliefs (tax expenditures) will be published for the years 2011 and 2012, including a forecast of tax relief development in the period of 2013-2015.

The principal data sources, on which the calculation of estimated tax reliefs (tax expenditures) in the Czech Republic was based, are: the Automated Tax Information System (ADIS), publicly available data of the Czech Statistical Office, the Czech National Bank, internal sources of the Ministry of Finance and other involved departments (e.g. the Ministry of Defence) and other publicly available information.

The Report on the Impact of Tax Reliefs (Tax Expenditures) on General Government will be published annually in the second quarter of a calendar year.

Starting from 2014, the Czech Republic is obliged to publish an analysis of tax reliefs (tax expenditures). This requirement is set forth in Directive 2011/85/EU, article 14.2., in the following wording: "Member States shall publish information on the impact of tax expenditures on revenues". Nevertheless, a systematic analysis of tax reliefs must also be viewed as a basis for various recommendations on fiscal policy, facilitation of the budget process, formulation of tax reforms and increased transparency for the public.

For the time being, the European Commission only issues certain recommendations on preparation and content of the tax relief analysis and does not prescribe any strict rules. The main reason is the difficulty of drawing up a single (unified) methodology so that the outputs could be compared internationally. Having been charged with the preparation of the tax relief analysis, the Ministry of Finance therefore first drew up a methodology of tax relief calculation. To ease orientation in the text, let us first explain the term 'tax relief':

Tax relief is understood as a measure giving the taxpayer the advantage of paying a lower tax, or allowing him to delay paying the tax, compared to the situation before this measure was included in legislation. Although, taking into account the term 'tax relief', one would expect reduced tax burdens, there are also measures increasing the payer's tax burden. It concerns, for example, impossibility to deduct certain expenditures from gross income, or double taxation of certain types of income (income taxes), or the limited right to apply deductions to certain goods or services used for business purposes (value added tax). Such measures are usually based on a concern over abusing certain types of expenditures.

Technical articles also use the technical term 'tax expenditure' which is, for the purposes of our analysis, understood as a subset of tax reliefs. It concerns such tax policy tools which can be applied (and it is often suitable) via the expenditure side of the state budget. We are referring to such parts of the tax legislation which are motivated by other goals than is to collect revenues as effectively as possible.

## 1. Applied Method

As it has been said in the introduction, there is currently no unified methodology for calculating the tax reliefs, nor there are other limiting rules for analysing the tax reliefs. The European Commission allows Member States relative latitude and just formulates certain recommendations which are reflected in the following text. To calculate tax reliefs, the Czech Republic has opted for the revenue foregone method. It is based on quantification of the decrease of revenues achieved by the tax relief, provided that the taxpayer applied the tax relief. In other words, it is a static<sup>1</sup> calculation of lost revenues incurred by the public sector.

In general, a lot of data is necessary to define the amount of individual tax reliefs. However, here we have a problem with collection of basic data as, in many cases, it would cause an excessive increase in administrative burdens of the entities involved. Although the applied foregone revenue method also requires quite a lot of

---

<sup>1</sup> Static in the sense that it does not consider the change in behaviour of taxpayers. If a tax relief is cancelled, taxpayers can change their behaviour which might result in a different impact of the tax relief cancellation on public budgets.

data, compared to other methods it is relatively simple and, taking into account other reasons, it seems to be the most convenient. Apart from that, it is the most often applied method.

Naturally, we work with several simplifications. It is very difficult to quantify the real amount of the tax relief and, doing it in a completely exhaustive way, it would also have to include the changes in behaviour of taxpayers, for example. However, the applied method omits this fact therefore, for example, the cost of a tax rebate should be determined as a sum of those tax rebate parts of individual payers that could have been applied, i.e. those which did not exceed the amount of the tax. Similarly, the costs of a deductible item are the product of the total amount of the effectively used deductible item and the marginal tax rate. If there is only one rate for the income tax, the determination is simple. With progressive tax rates it is necessary to calculate the average marginal rate according to division of payers to individual income groups.

## 2. Quantification of tax reliefs

The following part presents main formulae used for calculation of the most significant tax reliefs. We do not provide their detailed derivation in this text as there is no sufficient room for that.

### 2.1 Income Taxes

Taking into account the fact that the nature of personal income tax and corporate income tax is similar, you can apply same quantification methods.

#### a. Tax reliefs decreasing the tax

The following equation is applied only to personal income tax and compares the amount of the tax with and without the tax relief:

$$DÚ = \sum_{i=1}^n t'_i - t_i$$

in which:

$DÚ$	<i>represents the amount of the tax relief for the entire economy</i>
$n$	<i>represents the number of taxpayers in the Czech Republic</i>
$t_i$	<i>represents the tax of the <math>i</math>th taxpayer with the tax relief</i>
$t'_i$	<i>represents the tax of the <math>i</math>th taxpayer without the tax relief</i>

#### b. Items deductible from the tax base

In these cases it would be desirable to work with individual data from tax returns in order to calculate the real amount of the tax relief. However, the duty not to disclose tax data renders this impossible and therefore it is necessary to work with the aggregate data concerning the amount of legitimate entitlements to the deductible item, i.e. not with the data about their effectively used part. The method thus results in overestimation of the tax relief amount.

The tax relief amount can be expressed using the following formula:

$$DÚ = ODP \cdot T^e$$

in which:

$ODP$	<i>represents the total deductible item applied by all taxpayers</i>
$T^e$	<i>represents the average effective tax rate for all taxpayers</i>

Overestimation of the tax relief can be expressed as follows:

$$\sum_{i=1}^n (odp_i - eodp_i) \tau_i^e$$

in which:

$odp_i$  represents entitlement to the deductible item as prescribed for the  $i$ th taxpayer by law  
 $eodp_i$  represents the effective level of the deductible item i.e. the amount of tax by which the  $i$ th taxpayer's tax base has been reduced  
 $\tau_i^e$  represents the effective tax rate of the  $i$ th taxpayer

As far as the personal income tax is concerned, the situation is complicated by the fact that employees are allowed to apply deductible items through their employer and that the tax administration does not have the data about these employees as employers are obliged to report only the aggregate data about their employees. Only the data about the taxpayers who filed a tax return is therefore available. For this reason it is necessary to estimate the amount of deductible items applied by taxpayers who do not file a tax return and we must work on the assumption that the average amount of a deductible item is the same for both – the taxpayers who file a tax return and the taxpayers who do not file a tax return. The calculation is based on the following equation:

$$ODP = ODPDAP \cdot \frac{n}{n_{dap}}$$

in which:

$ODPDAP$  represents the total amount of the deductible item applied by those taxpayers who filed a tax return  
 $n$  represents the total number of natural persons who are DPFO (personal income tax) payers  
 $n_{dap}$  represents the number of taxpayers who filed a tax return

### c. Tax rebates

The amount of the tax is expressed as a difference between the tax before rebate and the tax rebate. As in the previous case, only aggregate data about the total amount of applied tax rebates is available for calculation of the tax relief for rebates. The following formula shall be used to quantify tax rebates:

$$DÚ = SLEVA$$

in which:

$SLEVA$  represents the total amount of the tax rebate applied by all taxpayers, i.e. the following equation shall be used:

$$SLEVA = \sum_{i=1}^n sleva_i$$

Speaking about personal income tax, we face again the problem that the tax administration does not have any data about the employees who have the opportunity to apply tax rebates through their employers. It is therefore necessary to estimate the amount of the tax rebate applied by these taxpayers using the following formula:

$$DÚ = SLEVA = SLEVADAP \cdot \frac{n}{n_{dap}}$$

#### **d. Exempted revenues**

Again, the available aggregate data about exempted revenues shall be used to quantify the exempted revenue. It shall be assumed that, although the taxpayer cannot deduct from the revenues classified as exempted the cost of achieving, ensuring and keeping such revenues, this opportunity would become available after cancellation of the exemption. In the opposite case, a negative tax relief would be created. The amount of exempted revenues shall be derived according to the following formula:

$$DÚ = (OSVPŘ - VÝDAJOSVPŘ) \cdot T^e$$

*in which:*

*OSVPŘ* represents the total amount of the particular type of exempted revenue for all taxpayers  
*VÝDAJOSVPŘ* represents the total amount of expenditures spent by taxpayers in order to achieve, ensure and keep the particular type of exempted revenue or otherwise related expenditures  
*T<sup>e</sup>* represents the average effective tax rate for all taxpayers

Quite often a situation arises when the cost of achieving, keeping and ensuring the exempted revenue equals or exceeds the actual exempted revenue. Such a tax relief would therefore be zero. The same procedure would be applied to revenues excluded from taxation; however, the achieving, ensuring and keeping of these revenues usually cost nothing.

#### **e. Tax reliefs deferring the tax due date**

Depreciation is one of the most important reliefs of this type. Tax relief aimed at faster depreciation (in the sum for the period of usage or depreciation of an asset) has no impact on the total paid tax, just on the cost of servicing the state debt as the state receives the tax revenue later and its debt-financing in the interim is therefore more demanding. However, if tax reliefs are quantified for a particular year, the income may be lower that year.

Considering depreciation from the point of view of the entire economy, no tax relief arises provided that investments of the entire economy are distributed evenly. Nevertheless, the assumption of evenly distributed investments does not apply in practice; there will be tax reliefs in some years and negative tax reliefs in others.

To quantify this, it is necessary to have the data about the real economic life time of individual assets. This data is unavailable in the Czech Republic.

Another possibility is to quantify the tax relief as a net present value of differences between the amount of the tax under tax and economic depreciation. The internal rate of the return achieved by the enterprise is used as a discount factor. This rate represents revenues which can be achieved provided that the enterprise obtains extra money thanks to the tax relief in the form of depreciation, or the opportunity cost if its finances are lower because of the negative tax relief.

#### **f. Reduced tax rate**

This tax relief can only be applied to DPPO (corporate income tax). Its amount shall be calculated using the following formula:

$$DÚ = ZD (T^e - T^{s,e})$$

*in which:*

*ZD* represents the total tax base of all taxpayers subject to the reduced tax rate  
*T<sup>e</sup>* represents the average effective basic tax rate  
*T<sup>s,e</sup>* represents the average effective reduced tax rate

## 2.2 Value added tax

Quantification of tax reliefs under value added tax is complicated by the fact that the data about individual taxable supplies is unavailable, including the information whether or not the supplies go to a VAT payer (only the transactions from a VAT payer when the buyer has no opportunity to claim a refund of input tax, i.e. most often those taxable supplies with the buyer – non-payer of VAT, have impact on net revenues). Therefore we base on the data about the amount of supplies accepted by non-payers which is given in supply and use tables published by the Czech Statistical Office (ČSÚ) and on the General Statement of Own Resources from VAT.

### a. Formulae for source calculations

The average effective tax rate shall be calculated using the following formula:

$$\tau_{cpa}^a = \frac{\tau^z \cdot y_{cpa,z} + \tau^s \cdot y_{cpa,s}}{y_{cpa,z} + y_{cpa,s} + y_{cpa,o}}$$

in which:

$\tau_{cpa}^a$	represents the average effective rate for the particular two-digit code of the CPA
$\tau^z$	represents the basic VAT rate
$y_{cpa,z}$	represents the volume of supplies in the sectors listed in the General Statement under the particular CPA code which are, according to the General Statement, subject to the basic rate
$\tau^s$	represents the reduced VAT rate
$y_{cpa,s}$	represents the volume of supplies in the sectors listed in the General Statement under the particular CPA code which are, according to the General Statement, subject to the reduced rate
$y_{cpa,o}$	the volume of supplies in the sectors listed in the General Statement under the particular CPA code which are, according to the General Statement, exempted from tax

Then the theoretical VAT amount needs to be calculated. This amount differs from the really collected VAT, for example, due to a tax fraud or because the supply and use tables also include shadow economy estimates. That is why the theoretical VAT amount usually exceeds the real VAT collected. We can calculate it using the following formula:

$$DPH^t = \sum_{cpa=01}^{95} y_{DPH,cpa} \cdot \tau_{cpa}^a$$

in which:

$DPH_t$	represents the theoretical VAT revenue
$y_{DPH,cpa}$	represents the total volume of transactions under the particular CPA code when the buyer has no right to deduct VAT
$\tau_{cpa}^a$	represents the average effective rate for supplies under the particular CPA code

The correction coefficient, which can help obtain real estimates of tax reliefs corresponding with the real collection, can be calculated using the following formula:

$$k = \frac{DPH^s}{DPH^t}$$

in which:

k	represents the correction coefficient
$DPH_t$	represents the theoretical VAT revenue
$DPH_s$	represents the real VAT revenue

## **b. Reduced rate**

Quantification of this case is based on the idea that the current reduced rate will be replaced by the basic rate whereas exemptions will be kept. This would cause a situation when the value of the average effective rate remains under certain CPA codes (with an exempted supply) lower than the value of the basic rate.

The VAT revenue amount after cancellation of the reduced rate can be calculated according to the following equation:

$$\tau'_{cpa} = \frac{\tau^z \cdot y_{cpa,z} + \tau^z \cdot y_{cpa,s}}{y_{cpa,z} + y_{cpa,s} + y_{cpa,o}}$$

$$DPH' = \sum_{cpa=01}^{95} y_{DPH,cpa} \cdot \tau'_{cpa}$$

*in which:*

$\tau'_{cpa}$  represents the average effective rate for a supply under the particular CPA code after cancellation of the reduced VAT rate  
 $DPH'$  represents the theoretical VAT revenue after cancellation of the reduced VAT rate  
 $y_{DPH,cpa}$  represents the total volume of transactions under the particular CPA code when the buyer has no right to deduct VAT

The equation for quantification of the tax relief in the form of a reduced tax rate is derived from these relationships:

$$DÚ = k \cdot (DPH' - DPH^t)$$

## **c. Exempted transactions**

The relief in the form of exemption for the particular sector can be expressed using the following equation:

$$DÚ = k \cdot ph_{sektor} \cdot \tau^z$$

*in which:*

$k$  represents the correction coefficient  
 $ph_{sektor}$  represents gross added value in the particular sector marked as OKEČ  
 $\tau^z$  represents the basic tax rate