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Tax Incentives as a Stimulant of R&D Activities in Enterprises with the Special Review on Their Accounting Framework in B&H

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Poreski podsticaji kao stimulansi R&D aktivnosti u preduzećima sa posebnim osvrtom na računovodstveni okvir u BiH

ABSTRACT – *In the centre of attention of Recovery Plan of the EU for period 2010-14 are, so called, "smart investments" which, during long-term, should ensure higher growth and sustainable prosperity. "Smart investments" mean investments in research and development (R&D) and investments in education from both public and private sources of funding. In order to stimulate higher investments in R&D activities by private sector it is recommended to use public – private innovation partnerships (direct way) as well as wider usage of R&D tax incentives (indirect way). As R&D tax approach has a strong policy impact, this paper will deal with different R&D tax (accounting) schemes and their impacts on financial performances of enterprises.*

As Bosnia and Herzegovina admitted International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) for its accounting framework, this paper will examine relevant IAS and IFRS in order to find out "positive" or "negative" effects of each R&D tax accounting scheme for proper financial treatment of R&D activities in enterprises.

The overall aim of this paper is to answer the question: which R&D tax subsidy model would be the most appropriate one for B&H, respecting the present Legal and Accounting Framework, as well as cost and benefits of each recommended model?

KEY WORDS: *accounting treatment of R&D activities, accounting analysis, R&D tax plans and incentives, volume and increment based R&D subsidies, corporate tax as a stimulant of R&D activities.*

The principles of the R&D tax incentives design

The basic question that arises when designing fiscal mechanisms friendly to research and development (R&D) activities is to which companies, sector(s) or technology(ies) will be addressed these stimulants. In this sense, it is possible to develop general approach to stimulating, or such tax environment that would not make any differences among companies according to their size (micro, small, middle and large enterprises), innovation history (innovation active or innovation inactive), sector's affiliation or technology that is used or

developed. This approach has a number of benefits which mainly come from a wide coverage of enterprises (greatest potential for the growth of total investment activity in R&D) as well as minimal negative effects on market mechanisms and doing business conditions. Nowadays, about half of current tax schemes for encouraging R&D activities are general. [1]

On the other hand, certain countries within the general tax system, or as a single part, can be encouraged on extra development of certain group of companies - e.g. small and medium enterprises (SME) and/or development of particularly technologies, through permanent or temporary programs, which usage depends on whether they are defined by national strategic goals or even by the regional aims. By using this approach, greater focus on specific sector or territory can be achieved, and thus, faster development of the specific area. However, these so-called selective tax schemes cause significantly higher costs in terms of operating and administration of such schemes, additional harmonization efforts and analysis of its impacts, in order to avoid undue preference of certain groups of enterprises.

Although in the literature can be found information on coverage and goals of different R&D tax schemes across the EU and OECD countries, over time, a number of modalities were developed within tax systems, either through the creation of temporary funds and programs (e.g. for development of small innovative enterprises, enhancement of cooperation between universities and private sector, overcoming the negative effects of the global crisis etc.) or throughout the systematic legal changes, and as a result it is hard to asses which approach is better nowadays[1]. Actually, the current practices of developed countries as well as evolution of their systems show us that R&D tax system needs to be aligned with the strategic aims and fully and exclusively used to accomplish those goals.

When designing R&D tax incentives is extremely important to take into account the simplicity (the level of administrative and operational costs for private enterprises), consistency (the equal rights for all enterprises, the same interpretation of law by the officers as well as inspectors, etc.) and system's stability (so that enterprises can plan benefits that will be reaped). Therefore, these principles are necessary to bear in mind when choosing any of the tax alternatives, in order to ensure efficiency and effectiveness of established R&D friendly tax environment. In the following chapters, already used R&D tax schemes – throughout mechanisms of corporate tax and wage tax and contributions (as the most commonly used indirect instruments for stimulating innovative activities in the private sector) will be presented.

Corporate tax as a stimulant of R&D activities

Through the institute of corporate tax, member states of OECD and EU have developed the several incentives which may be divided into several groups: a) tax deferral -incentive in the form of delayed tax payments, b) tax credits - reduce tax liabilities and c) tax allowances - on the amount of the current R&D costs before taxation. [2]

[1] For example, Italy and UK stimulated the development of these activities only in SMEs until 2002. After that the scheme was extended to large companies but with a lower preferential rate. Also Norway in 2002 introduced a tax scheme for SMEs for R&D which included the purchase of R&D services from universities and public research institutes. Japan, Spain, Denmark and the UK did the same.

Tax deferral means delay in the payment of corporate tax based on the level of R&D costs, which typically takes the form of accelerated depreciation of internally generated fixed assets (material and immaterial). At this place it is necessary to make a difference in accounting treatment of R&D activities. Expenditures incurred in the research stage (research activities) are treated as costs in period when they incurred while expenditures incurred in the development stage (if they fulfil conditions for recognition under IAS 38) they are recognized as an asset (material or immaterial)[2]. Therefore, these subsidies can be implemented through the accelerated depreciation method of internally generated assets[3] (at a higher rate than for externally generated assets) or even by 100% (and higher) write-off in the first year of use of qualified asset[4]. Through this method of depreciation, innovation-active companies will have higher depreciation costs, and thus a lower liability for corporate tax (in the amount of the value of the asset - for 100% write off in the first year x corporate tax rate or the amount of depreciation x corporate tax rate). In this way Government "rewards" innovative effort of a given company by reducing its corporate tax liability in the first year of exploitation of internally generated innovation. If the Government requires the payment of corporate tax in the following years, previously deducted from the tax liability (in the first year of exploitation), then such a tax incentive has the character of the tax credit or tax asset (because the amount of the costs in the income statement is lower than the amount of the liability for corporate tax). Afterwards, the previously calculated tax asset will be "consumed" as a result of lower costs reported in the income statement and higher calculated liabilities for corporate tax in the tax statement. It is important to note that the listed benefits result primarily from the accounting policy - under International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS), which usage and "stronger" positive effects release on R&D activities are stimulated through the tax system.

Tax credits allow direct reduction of tax liability while the tax allowances are deduction, above normal - 100% of R&D costs of the amount of taxable income. Therefore, the basic difference between these two mechanisms is that tax allowances reduce the gross income while the tax credits directly reduce the amount of liabilities for corporate tax. Common is that both reduce the real amount of R&D costs[5]. [3]

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[2]At this point is important to emphasize the major difference between the accounting regulations in the EU (IAS and IFRS) and accounting regulations in the U.S. (GAAP) which is essential to bear in mind when analysing R&D tax schemes across the OECD member states. In the USA there is no capitalisation of any R&D costs, either for the cost incurred in the research or development phase.

[3] Belgium and Greece allow depreciation of fixed assets (R&D property, plant and equipment) in 3 years, Portugal in 4 years and the Netherlands in 5 years.

[4] This is case in Canada, Denmark, Ireland, Spain and United Kingdom.

[5] By investing in research, a company creates a positive tax savings in the amount of: the costs of research (R) x corporate tax rate (1), which lead to the fact that the real amount of research costs is: R x (1-corporate tax rate) (2). If we treat expenditures inccured in the stage of development as capital expenditures that will affect the Balance Statement – will increase the value of total assets. In the depreciation period of given assets, amount of gross and net income will be reducted and consequently the amount of corporate tax paid. If the company at the same time has active research projects, gross profit for the period will be additionally burdened. Total amount of tax savings in that case will be: (depreciation costs + R) x corporate tax rate (3). This makes an open space for "internally

In countries that use the mechanisms of tax allowances, about ¾ of these countries set the limits or caps on the annual amount of costs deductable for the tax purposes. Through the analysis we found the existence of two types of limits: upper limit on the amount of R&D cost that can be recognized for tax purposes and the maximum amount of tax deduction that can be approved. [4]

In the tax credit systems, some countries (e.g. Australia and Canada[6]) allow transfer of credits (reduction of liabilities for corporate taxes) in the next tax period. In this way, especially in small businesses, it is possible, for the periods when their taxable income is not high - not to take a tax credit and than in periods when they are more profitable - implementation of a patent, new technology etc. to use it.

Another innovation in the R&D tax schemes, in the EU and the OECD countries, is the use of so-called volume and increment tax schemes, which differ in the way that R&D costs are recognised for tax purpose. In the first (volume) or scheme based on volume, all incurred R&D costs are recognized in the tax statement while in the other (increment scheme) the amount of R&D costs above a certain (base level) are recognized as a tax deductable. Therefore, schemes based on the level of R&D costs are useful to stimulate R&D activities in economies where stable market demand for innovation and R&D activities exist either in certain sectors or generally. Schemes based on the increase, which are obviously more difficult to administer, are used in cases where the strategic aim is to support (only or especially) innovation-intensive enterprises or certain sectors or specific technologies. Among countries a tendency of more frequent use of volume based R&D tax schemes is present because of lower administrative costs. The disadvantage of this scheme lies in the fact that it does not only stimulate new R&D activities but also those that would be done anyway. Incremental incentives on the other hand reward extra effort and investment, but the problem to define the base for comparison occurs [5]. Having in mind the structure of EU economies and their innovation policies, both mechanisms meet their needs and are therefore often combined. However, combined option of volume and increment based R&D tax schemes is possible and we will call it a hybrid option[7].

Therefore, tax credits and tax allowances occur in three forms depending on whether they are based on a) the level of R&D costs, b) incremental change in R&D costs or c) the combination of volume and incremental change in R&D costs. In the volume based R&D tax

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generated sources of finance" for R&D activities. In other words, the actual cost of investment in R&D is: the cost of R - (3). [4]

[6] In 2001 Australia introduced a system allowing (only) small businesses to transfer a tax discount to the periods when they have greater corporate tax liabilities instead in the periods when they have very litle or none tax liabilities. Canada also refund unused tax credits and back to a period of three years or forward to 10 years.

[7] For example, in 2001, Australia introduced 175% tax allowance for the amount of incremental increase in R&D costs versus a rate of 125% on the all R&D costs. Companies can use this "extra" rate for additional investments in the R&D if increases the volume of R&D investments above the average amount of R&D investment over the past three years. Austria also made some changes and now has both types of incentives so that companies can reduce their liabilities to 25% on R&D investment and an additional 10% (35%) if the investment is higher than the average amount of investments in the last 3 years. Hungary increased the rate from 8% to 20% of the level of R&D costs and from 30% to 50% of the incremental increase in investment.

scheme, companies that spend a monetary unit on R&D will be able to reduce the amount of taxable income (1+w) (where w is greater than 0). In the case of incremental incentive, the company can reduce a certain percentage - w on the amount of increase to the base level of R&D costs. In the tax credit system, if certain scheme is volume based we have direct deduction of tax liability in given percentage of the annual investments on R&D. In incremental form of R&D tax scheme, reduced amount of tax liability will depend on the nominal change in the cost of R&D, in comparison to the base level of costs in a base period.

Income tax and contributions on wages as stimulants of R&D activities

Having in mind the typical structure of the research costs[8], significant effects can be achieved decreasing the amount of gross wages for R&D staff that employers pay. Although the amounts of taxes and contributions on R&D wages have the character of costs and thus already reduce the amount of liabilities for corporate tax, their reduction will have positive impact on company's cash flow which is extremely important for small innovation intensive enterprises, especially in the initial stages of research when revenues are low and investments in intellectual and human capital high. Additionally, subsidies on R&D staff will have positive effect on the employment in general, in the first line of highly skilled workforce and will create an additional positive pressure on the education system consequently. However, the amount of net wages does not need to be reduced. That is actually a fiscal relief of employer by reduction of the amount of tax and contributions on R&D wages. From the aspect of Government, these tax incentives are much easier to administer and control as opportunities for possible accounting manipulations are minimal.

It is interesting to point out that experience has shown that if the number of scientists and engineers is stable over time (or the labour supply is inelastic), increased volume of R&D activities (as a result of incentives through the tax system) will result in the increase of R&D wages instead of raise in innovative activities [7]. This effect is known as "Earnings Effect" which can be and enlarged if the only qualified costs of research activities are R&D wages, as it was the case in traditional systems of tax subsidies. Furthermore, it would be interesting to determine does the "Earnings Effect" have the positive effect on the quality of R&D activities (in terms of better scientists' education, a higher degree of commercialization, quality of work experience, etc.). However, the results of these studies are not known yet.

Also, the design of tax incentives through taxation of R&D wages, like corporate tax subsidies, arise the question of the level (volume) and selectivity (in all sectors and/or e.g. newly employed in R&D) in the application of these tax incentives. The decision will depend on the objectives and the balance and of the cost/benefit analysis of proposed tax subsidies.

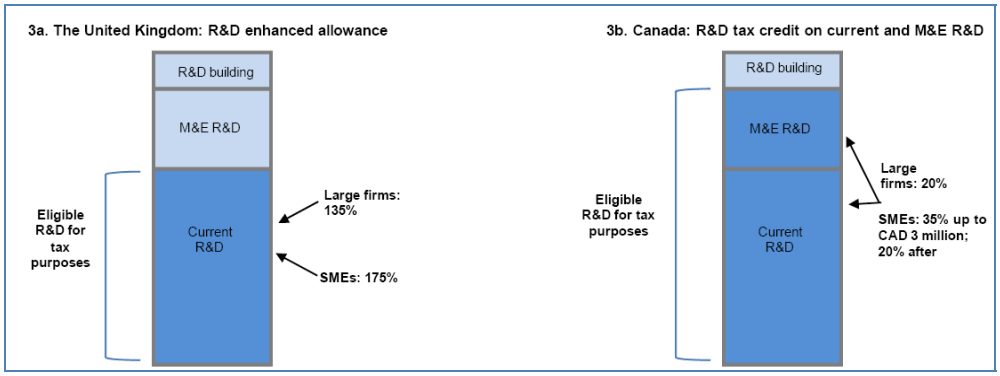
Examples of the practices used in EU and OECD countries

The most commonly used scheme in the EU and the OECD countries is volume based tax scheme (the United Kingdom, Czech Republic, Norway and Denmark) or schemes which in addition to volume based recognise and capitalised expenditures (asset) invested in the purchase of R&D fixed assets (e.g. Canada, Australia, Austria, France and Italy). Generally,

[8] It is estimated that 90% of each R&D cost relates to the cost of R&D wages. [6]

these countries provide greater support to SMEs through the system of higher rate of deduction for the qualified research costs and capitalised expenditures. Based on a display (Figure 1 and Figure 2) we can see that e.g. a small company in the UK can reduce its liability for corporate tax from 0.16[9] for each eligible R&D cost, while in Canada, a tax credit of 35% will reduce the SME's corporate tax liabilities by 0.35 for each corresponding R&D cost and so to a level of 3 million CAD after which companies have a right of reduction of 0.2 per unit R&D cost.

Figure 1. Examples of simple tax schemes, United Kingdom (left), and Canada (right) [8]

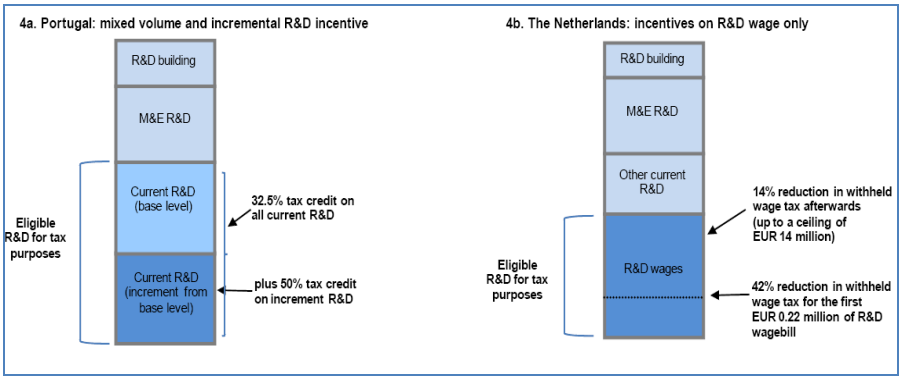


Countries like the USA or e.g. Ireland prefer a increment based system while countries such as Portugal, Japan and Spain use some kind of mixed - hybrid system.

Also there are different practices regarding the consideration of qualified R&D costs, eligible for recognition as a deductable in the Tax Statement. For example, Belgium and the Netherlands as qualified R&D costs consider only R&D wages (gross amount). In addition, Belgium through the institute of corporate tax stimulates and capital investments in scientific research and innovative assets, while the Netherlands additionally stimulate self-employment in S&T sector – for those who have at least 500 working hours per year spent in R&D work.

[9] In the UK, in the system of "extra" reduction, regular corporate tax rate must be kept in mind. A small company in the UK, with a corporate tax of 21%, will reduce its corporate tax liability for (175% - 100% - which is a normal deduction) x 21% = 0.1575 per each unit of the corporate tax liability.

Figure 2. Examples of common modifications of R&D tax schemes, Portugal (left) and the Netherlands (right) [9].



Financial analysis of the existing system of corporate and income taxation in B&H from the aspect of R&D activities

According to the Law on corporate tax in RS corporate tax rate is set at 10%. By the Regulations on the implementation of this Law is determined which revenues and the costs, in what amount, are deductable[10]. R&D costs are fully recognized as corporate tax deductable if they meet the criteria listed in the Regulations. Also, it is noticeable that the criteria in defining and determining the qualified R&D costs match definition and accounting treatment of R&D costs under IAS 38 - Intangible Assets, what is desirable from the point of consistency in applying the accounting regulation given by IAS and harmonization with EU legislation. Also, the Regulations require documenting the R&D activities and corresponding costs either in the form of annual operating or project plan, analysis, reviews, results of research projects, etc. in order to avoid any possible abuse in terms of tax evasion. However, according to the pre-exposed practices of developed countries, we can conclude that these activities are not sufficiently stimulated, but that there is a good foundation for further development and stimulation.

Under the Law on Corporate Tax in Federation of B&H (FBH), corporate tax rate is also 10% and R&D costs are fully recognized as deductable in the Tax Balance. Unlike the Law in RS, in addition to expenditure in the research stage, total development expenditures (immaterial) are recognized as tax deductable in the period when such expenditure incurred. At this place we need to have in mind that the already used tax allowances for the amount of depreciation, impairment and write-off costs in the following years will increase the tax liabilities. So, we see that the FBH has established the stimulation that corresponds to a.m. tax deferrals, and in that sense, the relevant Law in FBH is more competitive than one in RS. But, neither by the Law nor by the Regulations in FBH is further defined the coverage of R&D activities and it is leaved to the IAS and IFRS. Also, Law in FBH do not explicitly require documentation of R&D costs. Due to, abuse or subjective interpretation of IAS and IFRS might occur either by accountants or inspectors.

[10] B&H is a complex state - consist of two entities, where each entity independently create and implement taxation policy, in the domain of corporate and income tax.

Analysing the tax system in the domain of wage's taxation, there are no explicit incentives for staff working on R&D activities, according to applicable regulations in this area. We say explicit because the relevant Laws in RS and the FBH do not provide possibility for reduction of income tax for the regular work (full-time contract or as extra work contract). However, the personal income without contract of employment, specifically in the case of authorship, provides the possibility for exemption of contributions on wages (for health, pension, unemployment and other) if the author of such services is previously insured (has an employment contract in other company or on other types of services). In this way, contractor of those services is required to pay (only) the amount of income tax on the gross compensation of the author's service. Those benefits can be used only if they meet criteria set up by the Law on Copyrights and Related Rights in B&H. However, if we take a look from the other perspective, permanent employment in R&D is conditionally discouraged and/or companies whose main activity is R&D are not stimulated to deal (only) with those activities, and we note there is an additional space for further improvement in this field.

Instead of a conclusion - recommendations for B&H and other Western Balkans countries

Having in mind current doing business conditions in B&H and administrative and tax burden of companies, when designing a R&D tax friendly environment is essential focus on the principles of simplicity, consistency and safety, which were discussed in the first part of this paper. Also, given the current level of total spending (public and private sector) in B&H for the innovative activities (the estimation for the RS is 0.1% of GDP, the level of B&H about 0.07% of GDP) and a condition for joining EU (1% of GDP), the trends of other countries in EU (3%of GDP by 2020.with the respect to the countries that already achieved that level), the structure of B&H export and current level of industrial development, it is necessary to "rise up" the general level of investments in the activities of R&D and by the example of "good practice" to show and prove to businessmen and policy makers the importance of innovation for society as a whole. This leads to conclusion that a general, volume based approach would respond to B&H case. Regarding to the possibility for 100% write-off of internally developed assets and innovations, we would recommend the implementation of the practice of FBH in RS with the possibility for the extension for externally generated intangible assets (as opposed to the current estimated depreciable life of 15 years). Also, given that the existing legal regulations in FBH and RS have included but "hidden" R&D incentives, stronger promotion of existing (hidden) R&D tax incentives is necessary. Therefore, in short term we would suggest the implementation of previously given recommendations which due to the low corporate tax rate of 10% in this post-crisis period will not significantly affect the diminish of the public revenues but may attract "critical mass".

For the medium term, the suggestions would be related to the institutes of corporate and income tax. In this regard, we would recommend the increase in recognition of current R&D costs for the tax purpose and exemption of the contributions on R&D wages (at least partial, either for authorships or for full/part-time contracts) in order to encourage employment of highly skilled workers and as a result a better education of youth. The above measures can be initially implemented through a fund system - as a temporary programme(s) and thus no

system and legal changes will be required. At the same time, this would have a positive impact on the supervisory authorities and inspectors, because they will have an open space for preparation and professional improvement. After a pilot period, based on cost-benefit analysis of those measures, a permanent introduction may be discussed.

In the long run, in line with the development of innovation sector in B&H the introduction of the special incentives for highly innovative enterprises based on the principle of incremental increases would be reasonable. Additionally, difference between "reward" on externally and internally generated innovative products and services may be reduced, but only for innovations purchased from local companies. In this way, bigger innovative company would make a significant positive push to small, resourceful and flexible enterprises and may stimulate the set up of new enterprises and businesses. In this sense, by acquiring the experience of public administration and enterprises, it may be discussed creation of such tax environment that would stimulate R&D activities of innovation active enterprises at the expense of those "inactive" through the all elements of tax environment (taxation of corporate profit, personal income tax, the contributions on wages, VAT, real estate taxation, a system of tariffs, taxes, etc.). In this way we would create a significantly more objective, fairer and more transparent means of motivating (because it is based on market mechanisms), instead of grants, subsidies and donations of local and international institutions, which are very limited, especially after the great economic crisis.

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APSTRAKT - *U centru pažnje Plana oporavka EU za period 2010.-2014. su, takozvane, "pametne investicije", koje treba dugoročno da obezbede veći rast i održivi razvoj. "Pametna investicija" znači ulaganja u istraživanje i razvoj (R&D), kao i ulaganja u obrazovanje iz javnih i privatnih izvora finansiranja. U cilju podsticanja investicija u aktivnosti istraživanja i razvoja od strane privatnog sektora, preporučuje se korišćenje javno-privatnog inovativnog partnerstva (direktan način), kao i šire upotrebe poreskih podsticaja za istraživanje i razvoj (indirektan način). Kako poreski pristup istraživanju i razvoju ima jak uticaj na donošenje odluka, ovaj rad će se baviti različitim R&D poreskim (računovodstvenim) modelima i njihovom uticaju na finansijske performanse preduzeća.*

Kako je Bosna i Hercegovina prihvatila Međunarodne Računovodstvene Standarde (MRS) i Međunarodne Standarde Finansijskog Izveštavanja (MSFI) kao svoj računovodstveni okvir, ovaj rad će ispitati adekvatne MRS i MSFI u cilju identifikovanja "pozitivnih" ili "negativnih" efekata svakog R&D poreskog modela, radi pravilnog finansijskog tretmana ovih aktivnosti u preduzećima.

Opšti cilj ovog rada je da odgovori na pitanje: koja model poreskih subvencija za istraživanje i razvoju bi bio najprikladniji za BiH, poštujući sadašnji pravni i računovodstveni okvir, kao i troškove i koristi svakog preporučenog modela?

KLJUČNE REČI *– računovodstveni tretman aktivnosti R&D, računovodstvena analiza, R&D poresko planiranje i stimulansi, obim i porast R&D baziran na subvencijama, korporacijski porez kao stimulans R&D aktivnosti.*

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