“R&D deductions in the Czech Republic: Is the amount dependent on the size of a company?”

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ARTICLE INFO	Zdeněk Brabec, Martina Černíková and Šárka Hyblerová (2023). R&D deductions in the Czech Republic: Is the amount dependent on the size of a company?. *Knowledge and Performance Management*, *7*(1), 150-162. doi:10.21511/kpm.07(1).2023.12
DOI	http://dx.doi.org/10.21511/kpm.07(1).2023.12
RELEASED ON	Friday, 29 December 2023
RECEIVED ON	Sunday, 21 May 2023
ACCEPTED ON	Sunday, 17 December 2023
LICENSE	This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Knowledge and Performance Management"
ISSN PRINT	2543-5507
ISSN ONLINE	2616-3829
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	Sp. z o.o. Kozmenko Science Publishing

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
48	5	6

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

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R&D DEDUCTIONS IN THE CZECH REPUBLIC: IS THE AMOUNT DEPENDENT ON THE SIZE OF A COMPANY?

Abstract

Research and development (R&D) is considered a critical factor in the long-term performance of companies. Governments are therefore seeking to increase the availability of R&D support for enterprises. This support may include indirect or tax support, often offered as deductions from the tax base or credits on already calculated tax. The paper analyzes the average amount of R&D deductions depending on the size of enterprises in the Czech Republic that use R&D deductions. The research sample includes all companies residing in the Czech Republic that filed tax returns between 2009 and 2021. The methods of descriptive statistics, analysis of variance, and trend analysis were used to test the hypotheses. The results suggest a statistically significant difference ($\alpha < 0.01$) between the average R&D deduction of companies using the R&D deduction and a company's size. Furthermore, it was found that the average amount of the R&D deduction has changed and is expected to change as well. This trend in the case of micro companies is negative, and by other groups, it is relatively constant or slightly rising and is also expected to increase. Authorities could use these results to adjust tax laws governing R&D deductions in the Czech Republic.

Received on: 21st of May, 2023
Accepted on: 17th of December, 2023
Published on: 29th of December, 2023

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Keywords indirect government support, innovation, research and development, tax incentives, trend analysis

JEL Classification O32, O38, H25

INTRODUCTION

Countries face new challenges related to energy, economic, social, and environmental sustainability. These situations and problems need to be adequately addressed. The basis for a successful solution to current problems is state support for the innovative potential of companies. The world's developed economies construct various schemes of support for corporate R&D. The most critical instruments include indirect or tax support for companies' research activities. This is most often offered as deductions from the tax base or discounts on the already calculated tax. Tax incentives are designed across the board and can be used in virtually all companies. R&D support schemes that are aimed at supporting SMEs are currently being discussed. These entities play an irreplaceable role in the economies of developed countries. Their possibilities to finance their innovation activities are limited for several reasons. Several advanced economies emphasize supporting SMEs and accelerating their innovation potential. The Czech Republic has offered tax support for R&D in the form of a tax deduction from the tax base since. While parts of the Act No. 586/1992 Coll., on Income Taxes have been amended to reflect European trends in this area, the current R&D tax incentive is somewhat complex and causes difficulties for companies in using it.

Conflict of interest statement:
Author(s) reported no conflict of interest

http://dx.doi.org/10.21511/kpm.07(1).2023.12

1. LITERATURE REVIEW

Research and development is an essential part of developed market economies. Supporting R&D ensures the prosperity and competitiveness of businesses that can anticipate future trends and respond to current dynamic changes in energy, industry, and environmental protection. The state will achieve higher tax revenues from business entities by supporting these progressive activities, enabling the national economy's development. The support of R&D ensures the development of companies, better competitiveness, and the economic profit of countries (Szczygielski et al., 2017). Thanks to R&D activities, companies can cope with the current challenges and assert themselves in a fiercely competitive environment (Donbesuur et al., 2020). In a small open market economy like the Czech Republic, it is crucial to stay competitive internationally. The role of R&D in launching innovative products is irreplaceable. In this sense, Thompson and Woerter (2020) state that a company needs to achieve a market that is big enough to sell its products profitably. The government's trade policy should reduce barriers to accessing international markets and thus encourage innovation in companies.

R&D support can be implemented through various instruments (Moon, 2022). According to Bloom et al. (2019), R&D tax credits and direct public funding seem to be the most productive tool in the short run. However, in the long run, increasing human capital supply (for example, relaxing immigration rules) is likely more effective. In recent years, supranational authorities and national governments have emphasized the area of indirect support. Indirect public financial support for R&D by the government can exist through tax incentives, accelerated depreciation, subsidized loans, venture capital support, etc. Tax incentives supporting R&D are widely used in many countries, including most EU member states. Tax incentives can be in the form of tax credits or deductions (deductible items) from the income tax base. They are expected to stimulate the growth of corporate R&D expenditure (Cernikova & Hyblerova, 2021). This form of indirect support is viewed quite positively in many articles, such as Caleb et al. (2021), Li et al. (2020), Klímová (2018), and Květoň and Horák (2018) for several reasons. However, Pöschel (2020) argues that the average actual effect of tax incentives on R&D expenditures varies considerably. Thanks to the possibility of universal application, the competitive environment is not distorted (a level playing field is set for all stakeholders). The support for investment in research, development, and innovation takes place across the entire business sector. It contributes to the creation of a general pro-innovation climate with the ultimate effect of increasing the competitiveness of enterprises or the growth of the national economy (Bednář & Halásková, 2018). Another positive aspect is the higher objectivity of the market assessment of the allocation of funds (as opposed to direct funding, where it is challenging to eliminate the subjective interests of evaluators or specific groups participating in allocating support). Suppose the advantages of R&D tax support are discussed. In that case, one cannot ignore the fact that the choice of own research and innovation priorities creates a natural pressure for higher efficiency in the corporate environment (albeit with some risk of market failure) (Dimos et al., 2022). The R&D tax support system can be set up relatively simply and transparently for companies if some stability of tax legislation can be assumed. The risk of this instrument is that there may not be a parallel between the use of support and relevant R&D results. Establishing a clear link between tax savings and meaningful R&D outputs is usually tricky (Chatterjee & Bhattacharjee, 2021). Frequent amendments to relevant provisions of tax legislation can also be problematic for the effective use of tax incentives, which then become less clear or transparent. The result is quite counterproductive: firms fear non-compliance with the diction of the law and subsequent sanction by the responsible authorities, and their loss of interest in R&D tax incentives cannot be ruled out (Brabec et al., 2022). In addition, Alam et al. (2019) have revealed that government effectiveness, the rule of law, and quality or regulation positively impact emerging markets, while corruption and political instability harm R&D investment. This topic is further studied by Rodríguez-Pose and Zhang (2020), who found out that in China, the cost of weak institutions for innovation is higher for private than for state-owned firms, at least in the early stages of innovation.

The choice of tax scheme to support R&D depends on the practices of each country. The design of tax incentives does not preclude the possibility of a total exemption. Still, it is usually dealt with as a deducti-

http://dx.doi.org/10.21511/kpm.07(1).2023.12

ble item (from the tax base) or offered as a discount on the tax already calculated as payable. In both approaches, research and development expenditures (costs) are sometimes claimed twice. First, the expenditure (cost) can be deducted as an expense (cost) to earn, secure, and maintain income for tax purposes, and second, through a deductible item or as a deduction or credit of part of the tax. However, several conditions under the relevant legislation must be met to claim the expenses in this way.

The level of corporate R&D in each country is influenced by many factors, such as the international openness of the economy, the extent of intellectual property protection, the relevant professional qualifications of the population, the degree of government priorities towards R&D, and so on. The sectoral structure of a country's economy and, in particular, the size structure of firms also plays an essential role (Barajas et al., 2016). Governments of developed countries consider the development and transformation of innovation systems as an important way to promote the competitiveness of national industries and services.

Several papers, such as Seo and Cho (2020) and Lai et al. (2015), discuss the innovation potential of firms concerning their size. According to Xu and Xiao (2014), it is evident that firm size is an essential attribute in the formation of a country's innovation ecosystem. Small and medium enterprises (SMEs) play a vital role in the economies of most countries (Gyamfi et al., 2019). The positive role of micro, small, and medium-sized enterprises in innovation activities has been widely documented to date; in addition to contributing to GDP and employment growth, they are also considered important drivers of innovation and channels for knowledge commercialization (González Cabral et al., 2021; Cuckovic & Vuckovic, 2018; Hong & Lee, 2016; Radas et al., 2015; Kobayashi, Y., 2014; Belás et al., 2018). Although they have been shown to contribute to economic development, they are constrained by inadequate funding to engage in R&D for innovation. This creates relative and comparative disadvantages for SMEs compared to larger competitors (Gorodnichenko & Schnitzer, 2013; Alvarez & Crespi, 2015; Sasidharan et al., 2015). To reduce market failures in access to finance, SMEs need various forms of support to grow their innovation activities (OECD, 2021; Radas et al., 2015).

The discussion on SME support for R&D is ongoing in virtually all developed countries. Seo and Cho (2020) confirm the increasing prosperity and performance of SMEs that receive R&D funding; therefore, they emphasize the support of the innovation activities of these entities. Hwang et al. (2022) also point out that widespread public support for R&D increases the concentration of the industrial structure by providing higher profits to industries with already established R&D activities.

However, according to Radas et al. (2015), it is not easy to define the effects of tax incentives on small and medium-sized enterprises (SMEs). Empirical evidence on the effectiveness of public R&D support for SMEs is almost non-existent. Still, it is clear that public support, including tax incentives, not only strengthens the R&D orientation of SMEs but also contributes to improving the innovation ecosystem in the domestic economy (Guo et al., 2022). Historically, some countries have embarked on special programs supporting small enterprises' innovation activities (Small Business Innovation Research (SBIR) in the U.S.). The EU authorities have also emphasized the need for a differentiated approach to providing R&D support (EC, 2010). SMEs are favored over large firms in many countries regarding R&D tax incentives and allowances applied (e.g., the UK, Canada, Japan, and other countries). Also, young innovative firms set up with a high-tech orientation or R&D activities, in general, are exempted from tax for a certain period or receive various tax benefits in some countries (e.g., France, Ireland, and Portugal) (Appelt et al., 2016).

In the Czech Republic, all companies can benefit from the tax deduction of their research and development expenses (costs) from the income tax base (Act No. 586/1992 Coll., on Income Taxes) since 2005 (Legislation of Czech Republic, 1992). Many companies in the Czech Republic currently use this tax deduction for research activities they carry out independently (about 35% of the total number of companies carrying out research and development activities) (Czech Statistical Office, 2022). In the context of international comparisons, the use of the tax incentive is relatively low. This is due to the duration of the tax credit and its overall set-up in the Czech Republic. The provisions governing the possibilities of using the R&D tax incentive are frequently amended in Czech legis-

http://dx.doi.org/10.21511/kpm.07(1).2023.12

lation. The adopted amendments accentuate international trends in the construction of tax deductions, but the mechanism of granting tax relief is somewhat complex and causes particular difficulties for enterprises. The current legislative regulation of the R&D tax incentive system does not offer a different approach according to a company's size. Still, given the previous experience in the Czech Republic and other developed economies, expert authorities are discussing whether it would not be advisable to reflect in the legislation a different amount of deduction for R&D support for SMEs and large enterprises also in the Czech Republic.

This paper is trying to fill the gap in providing the data focused on the amount of deduction for research and development. More specifically, this study aims to analyze the relationship between the average amount of the R&D deduction and the size of a company in the selected period in the Czech Republic. Furthermore, the evolution of the average amount of the R&D deduction for individual groups of companies divided according to their size is examined over time. Based on this analysis, the paper tries to forecast the average amount of R&D deduction in the future. Following the literature, the hypotheses were formulated as follows:

H1: *The average amount of the deduction for research and development is not dependent on the size of a company.*

H2: *The average amount of the deduction for research and development in a given category of companies is constant over the time.*

2. METHOD

At first, the average amount of the deduction for research and development used by each of the four groups of Czech companies is analyzed. To analyze if a company's size influences the average amount of the tax deduction mentioned, the analysis of variance was used. The assumptions of this method (normality of samples) were verified by the Jarque-Bera test (Malá et al., 2021).

Subsequently, the trend analysis of time series was chosen to describe the development of the average amount of the deduction for research and development over time. Within this method, the time series y_t for $t = 1, 2, ..., T$ can be written as:

$$y_t = Y_t + a_t = T_t + e_t, \tag{1}$$

where Y_t represents the theoretical model of the systematic component of the economic indicator Y at time t. T_t is the systematic component representing the deterministic trend. The parameter a_t expresses the unsystematic component of the model with the properties of white noise. The linear trend function has the form

$$T_t = \beta_0 + \beta_1 t, \quad t = 1, 2, \ldots, T. \tag{2}$$

The estimate of the linear trend is

$$\hat{T}_t = \hat{y}_t = \hat{\beta}_0 + \hat{\beta}_1 t. \tag{3}$$

The quadratic trend function has the form

$$T_t = \beta_0 + \beta_1 t + \beta_2 t^2, \quad t = 1, 2, \ldots, T. \tag{4}$$

The estimate of the quadratic trend is

$$\hat{T}_t = \hat{y}_t = \hat{\beta}_0 + \hat{\beta}_1 t + \hat{\beta}_2 t^2. \tag{5}$$

The third-degree polynomial has the form

$$T_t = \beta_0 + \beta_1 t + \beta_2 t^2 + \beta_3 t^3, \quad t = 1, 2, \ldots, T. \tag{6}$$

The estimate of the third-degree polynomial trend is

$$\hat{T}_t = \hat{y}_t = \hat{\beta}_0 + \hat{\beta}_1 t + \hat{\beta}_2 t^2 + \hat{\beta}_3 t^3 . \tag{7}$$

The trend parameters are estimated using the least squares method. The quality of the prediction was checked using the Chow forecast test (Hand & Judge, 2012). The trend analysis can model the average deduction amount in each category of companies classified according to the number of employees in each year. The time series y_t was split into two parts, $T = T_1 + T_2$, to check the model fit based on extrapolation criteria. The first part, T_1, is used to select the trend model, estimate its parameters and verify the model fit using interpolation criteria. The second part is used to determine the prediction of a known fact and verify its accuracy. Thus, this criterion was used to verify whether the selected trend function model is suitable for making predictions. The Chow forecast test was chosen to represent the extrapolation criteria. Thus, the T_1 part is used to estimate the trend model, and the T_2 part to check whether the parameter vector is constant. The null hypothesis in the Chow forecast test can be understood as the absence of the structural change before and after the start of the forecast period. If the null hypothesis is not rejected, the model is suitable for forecasting. To perform all the analysis, EViews 13 software was used.

3. RESULTS

The research sample contains the data provided by the Financial Administration of the Czech Republic. It includes all companies residing in the Czech Republic that filed tax returns between 2009 and 2021. The period 2022 is not incorporated into the analysis as the data are not currently available. From the whole set, only the data for companies that were using R&D deduction were selected. From this dataset, no data were subsequently removed. The classification of companies is done according to the Commission Recommendation of May 6, 2003, and the Act No. 563/1991 Coll., on Accounting (Legislation of Czech Republic, 1991). Based on the number of employees, four categories are defined: micro, small, medium-sized, and large enterprises (2003/361/E.C.).

Unfortunately, the Financial Administration of the Czech Republic does not provide the exact amount of the deduction for research and development applied by a single company. Therefore, the average amount of the R&D deduction was calculated annually for each category mentioned above. As the analysis is performed for all four groups of companies classified according to their size, there were no outliers in the data to be handled whatsoever. Table 1 shows the absolute and relative number of companies that filed their tax returns and those using the R&D deduction.

The summary statistics inform about the average amount of the R&D deduction (see Table 2). The average amount of the R&D deduction in CZK for the whole period (2009–2021) is described by mean, minimum, maximum, and standard deviation. The average amount of the R&D deduction shows considerable variability, as seen by the difference between the minimum and maximum values. In the case of micro-enterprises, the maximum value is more than double that of the minimum. The skewness and kurtosis values indicate an approximately normal distribution of the data, which is confirmed for all categories by the histograms and the Jarque-Bera test (see Figure 1).

The development of the average amount of the R&D deduction for the four groups in individual years is shown in Figure 2. The figure shows that larger companies are using, on average, a higher amount of deduction for research and development.

Table 1. The structure of the research sample

Source: Compiled by based on data from Brabec et al. (2022).

Year	Total number of companies		Companies using the deduction	
	n_i	p_i	n_i	p_i
2009	396,925	6.19%	655	5.06%
2010	411,060	6.41%	745	5.76%
2011	432,741	6.75%	891	6.89%
2012	454,172	7.08%	1,029	7.95%
2013	476,797	7.44%	1,091	8.43%
2014	492,276	7.67%	1,193	9.22%
2015	512,307	7.99%	1,264	9.77%
2016	531,296	8.28%	1,230	9.51%
2017	549,184	8.56%	1,148	8.87%
2018	551,067	8.59%	1,057	8.17%
2019	508,126	7.92%	958	7.40%
2020	565,764	8.82%	840	6.49%
2021	532,437	8.30%	839	6.48%
Total	6,414,152	100.00%	12,940	100.00%

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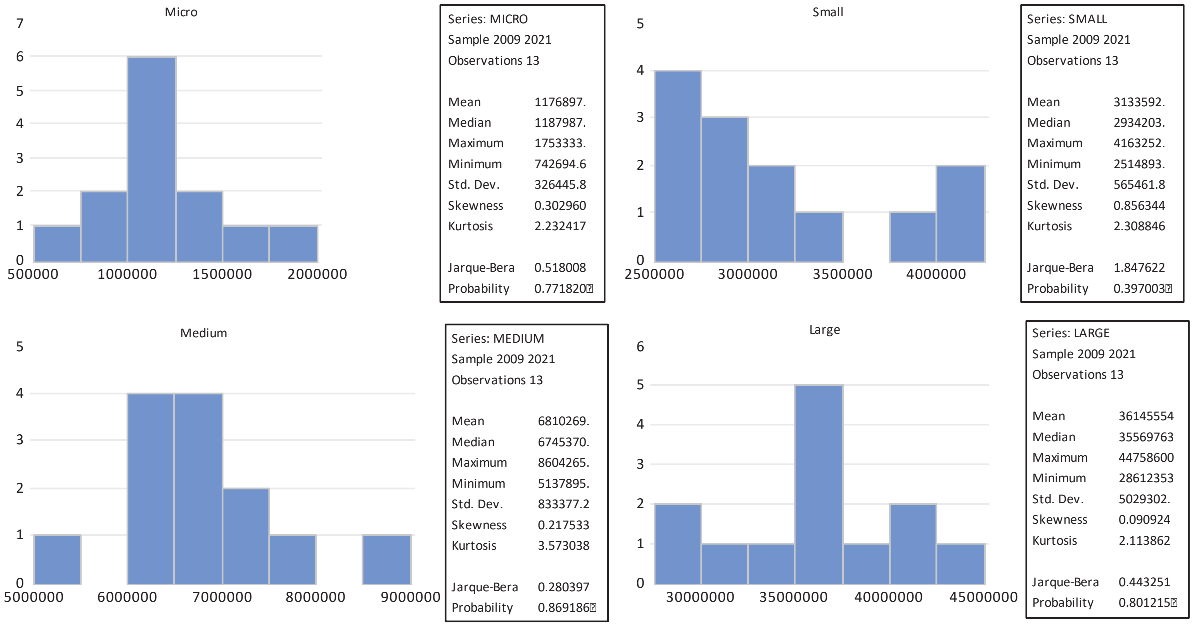

Figure 1. Jarque-Bera test

Table 2. Summary statistics describing the average amount of deductions for R&D

Source: Own elaboration.

Statistic	Category			
	Micro	Small	Medium-sized	Large
Mean	1,176,897.00	3,133,592.00	6,810,269.00	36,145,554.00
Median	1,187,987.00	2,934,203.00	6,745,370.00	35,569,763.00
Maximum	1,753,333.00	4,163,252.00	8,604,265.00	44,758,600.00
Minimum	742,694.60	2,514,893.00	5,137,895.00	28,612,353.00
Standard Deviation	326,445.80	565,461.80	833,377.20	5,029,302.00
Skewness	0.3030	0.8563	0.2175	0.0909
Kurtosis	2.2324	2.3088	3.5730	2.1139
Jarque-Bera test	0.5180	1.8476	0.2804	0.4433
JB Probability	0.7718	0.3970	0.8692	0.8012

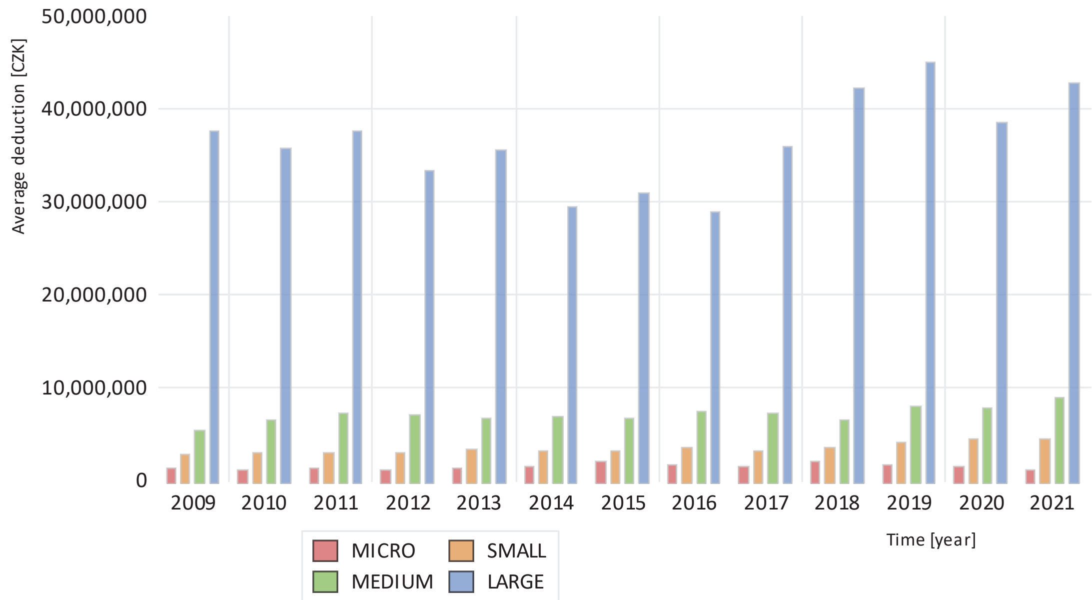

Figure 2. The average amount of the deduction for R&D

3.1. The average amount of the deduction for R&D

Firstly, analysis of variance tests is used to test whether a company's size influences the average amount of the R&D deduction. It was found that there is a statistically significant difference between the average amount of the deduction for research and development used by companies classified according to their size. Hypothesis *H1* may be rejected at the 99.0% confidence level because the P-value is lower than 0.01 (see Table 3).

The difference between individual groups' uncertainty intervals was demonstrated using boxplots (see Figure 3). The ANOVA test results demonstrate a statistically significant difference between the average amount of the R&D deduction and company size. Due to the significant increase in the values of the average deduction between the different groups, the values of the boxplots are shown in a logarithmic scale for better clarity. The analysis shows that larger companies are using a considerably higher average amount of R&D deduction. This statement is especially relevant for large companies.

3.2. Dynamics of the average amount of deductions for R&D over time

Subsequently, the development of the average amount of the deduction for research and development over time used by the four groups of companies mentioned above is studied. For this purpose, the method of trend analysis was applied. The results are shown in Figure 4.

The red curve indicates the original time series. The green curve is the least squares trend interpolation of the time series. The blue curve represents the residuals. $\hat{a}_t$. The residuals represent the difference between $y_t - \hat{y}_t$, and they express estimates of the unsystematic component at time $t = 1, 2, ..., T$. The values for the original time series and the interpolated values are shown on the right-hand side of the y-axis. The value of residuals is shown

Table 3. Results of analysis of variance

Analysis of Variance	Sum of Squares	Df	Mean Square	F-test	P-Value
Between groups	1.05E+16	3	3.49E+15	528.6080	0.0000
Within groups	3.17E+14	48	6.60E+12		
Total	1.08E+16	51	2.12E+14		

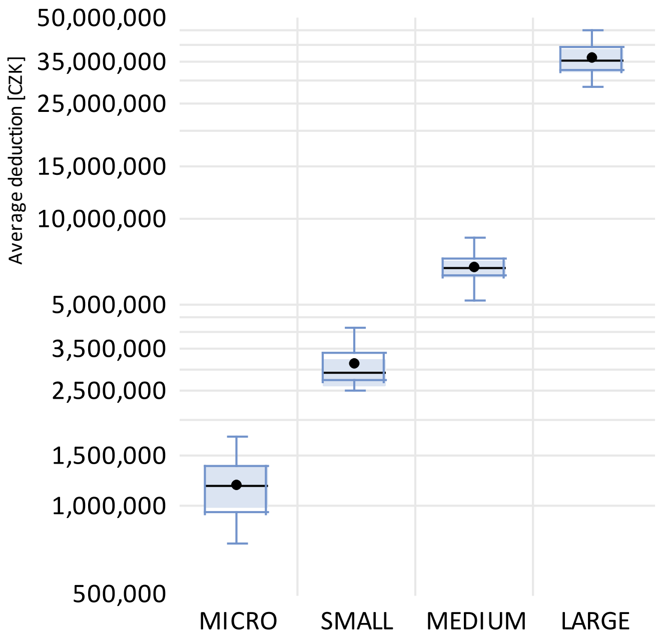

Figure 3. Boxplots of average deductions depending on company size

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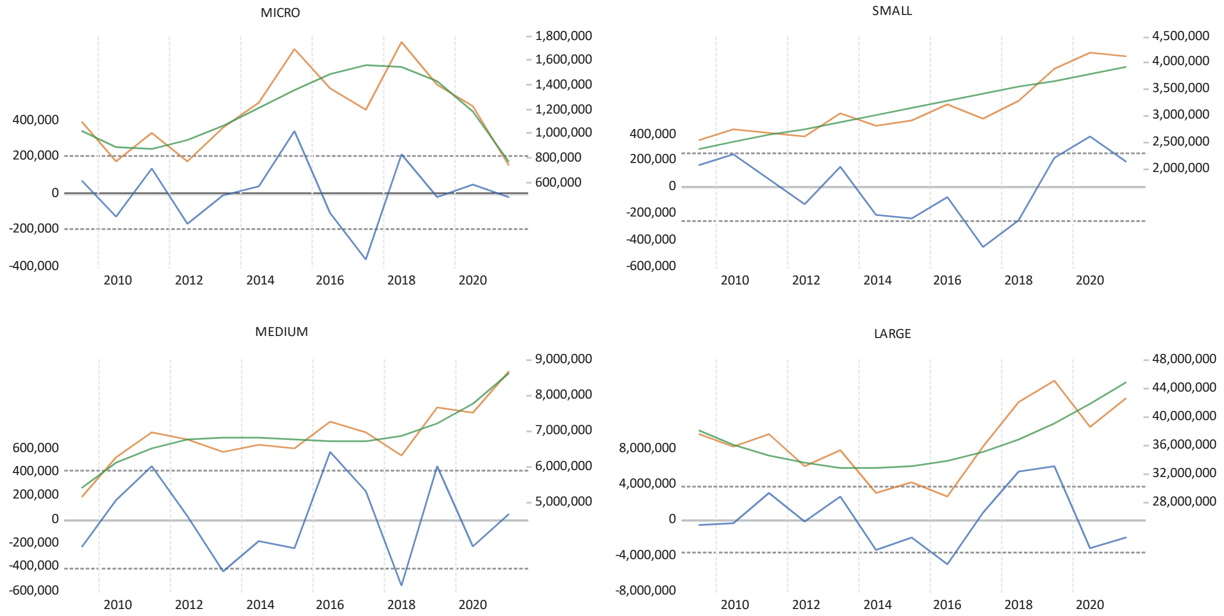

Figure 4. Actual, fitted and residual lines of the average deduction in each categories

on the left-hand side. For each category of companies, the time series trend was best captured either with a linear trend function, a quadratic trend function, or a third-degree polynomial. The trend parameters were estimated using the least squares method. The resulting variables of the models that passed the diagnostic tests can be written as shown in Table 4.

P-values for all coefficients in t-statistic are lower than α 0,05. The coefficient of determination and adjusted R^2 reach fair values. F-tests P-value is lower than α 0,05. In the correlogram are the first columns of ACF and PACF within the confidence band. Durbin-Watson's statistic is around 2, which indicates no autocorrelation of the residuals. The estimates of all parameters are statistically significant at the 95% confidence level (see Table 5). Therefore, all applied models are statistically significant. According to the Chow forecast test results, the models are suitable for forecasting. P-values for all coefficients are higher than α 0.05.

Table 5. Interpolation criteria

Model Diagnostics	Micro	Small	Medium	Large
R^2	0.705	0.805	0.820	0.550
Adjusted R^2	0.607	0.788	0.760	0.460
F-test	7.187	45.476	13.661	6.102
P-value (F-test)	0.009	0.000	0.001	0.019
Durbin-Watson	2.597	1.066	2.429	1.578

Table 4. Estimation of model parameters and t-statistic values

Variable		Coefficient	Std. Error	t-Statistic	P-value
Micro	C	1,287,665.00	180,634.70	7.13	0.000
	β	−344,015.80	133,057.30	−2.59	0.029
	β^2	82,262.16	24,806.28	3.32	0.009
	β^3	−4,529.32	1,246.76	−3.63	0.006
Small	C	2,221,549.00	153,355.10	14.49	0.000
	β	130,291.80	19,320.93	6.74	0.000
Medium	C	4,359,822.00	623,117.30	7.00	0.000
	β	1,183,610.00	371,157.90	3.19	0.011
	β^2	− 85,225.00	60,449.44	−3.06	0.014
	β^3	9,159.11	2,845.55	3.22	0.011
Large	C	40,469,303.00	3,618,886.00	11.18	0.000
	β	−2,731,465.00	1,188,874.00	−2.30	0.044
	β^2	234,865.20	82,632.43	2.84	0.018

3.3. Forecast of the average amount of deductions for R&D

Based on the results obtained in the previous part, the forecast concerning the average amount of R&D deductions was made. Firstly, the ex-post forecast was made. Time series y_t, for $t = 1, 2, \ldots, T$ was divided into two parts. The first part of the series (the test part) has T_1 observations and is used to select the trend model, estimate its parameters, and verify its fit using interpolation criteria. The second part of the series has the length $(T - T_1)$ observations for $t = T_1 + 1, T_1 + 2, ..., T_1 + T_2 = T$ and is used to determine forecasts of a known fact (ex-post forecasts). For the time series forecast, the period 2019–2021 is chosen. The results of the Chow forecast test are shown in Table 6.

Table 6. Chow forecast test

Chow Forecast Test	F-statistic	Probability
Micro	0.03076	0.96980
Small	3.41110	0.07900
Medium	0.37035	0.70330
Large	3.32109	0.08910

Based on interpolation and extrapolation criteria, a suitable prognostic model was found. Forecasts were constructed for the period 2022–2024. The results of the forecasts are shown in Figure 5.

4. DISCUSSION

It can be assumed that the small amount of the R&D deduction used by micro companies is primarily related to the relatively complex administration of this tax benefit, which is difficult for the smallest enterprises with a limited number of employees to cope with. Concerns of businesses about penalties from the tax authorities in case of any error in claiming the deduction also play a role. However, Pfeiffer and Spengel (2017) suggest that fiscal incentives are a better form of supporting R&D as they are easier to implement and less complex to monitor compared to direct R&D grants or subsidies. As found out in part 4.1, larger companies in the Czech Republic are using a considerably higher average amount of R&D deduction. This statement is consistent with the findings of Pisár et al. (2020) and Sterlacchini and Venturini (2019).

However, the effect of the use of indirect aid in the case of large enterprises could also be open to debate. The tax optimization of multinational holding structures is linked to the sensitive issue of transferring company profits to foreign owners. This is closely related to the provision of indirect R&D support in the form of a reduction in the tax base. Profits, including tax savings, can be

Figure 5. Prediction of the average deduction based on the calculated models for years 2022–2024

http://dx.doi.org/10.21511/kpm.07(1).2023.12

taken out of the economy by the companies' foreign owners in the form of dividends (Bösenberg & Egger, 2017). In 2021, Czech enterprises reported a total of CZK 76.6 billion as R&D expenditures. Of that amount, the expenditures of large foreign-controlled enterprises amounted to more than CZK 42 billion (i.e., 56%). In the group of companies that spent over CZK 100 million on R&D, the share of foreign-controlled enterprises was as high as 70% (Czech Statistical Office, 2022). However, the information mentioned above cannot be perceived only negatively, as foreign investors often bring modern technologies to the domestic economy in addition to capital and the creation of new jobs. The Technology Agency of the Czech Republic perceives the possibility of drawing tax resistance to R&D activities by foreign companies as a form of public tax incentive that should bring research centers of foreign companies to the Czech Republic (Vicenová, 2016).

Considering the results of the forecasts shown in Figure 5, applying the selected trend models, in reality, would be a bit problematic. Especially in micro companies, the amount of the R&D deduction cannot reach harmful numbers. However, it seems pretty clear that the average amount of the R&D deduction will probably decline. Also, for medium-sized and large companies, it seems unrealistic that the average amount of the R&D deduction will rise so dramatically. Nonetheless, it can be anticipated that the average amount of the R&D deduction will increase in small, medium-sized, and large companies. The dramatic development of the forecasts is probably caused by the data's short period; in this case, the more complex models may not be the best choice for prediction. Moreover, the uncertainty of the results is considerable, as the data are subject to many external influences, such as legislative changes.

Due to the importance of micro companies in the Czech Republic, the negative trend of using R&D deductions is quite alarming. Not only was the number of companies using the R&D deduction recently falling, as shown by Brabec et al. (2022), but also the average amount of the R&D deduction was and is also expected to be decreasing. On the contrary, in the case of small and medium-sized companies, although the number of companies using the R&D deduction is falling, the average amount of the R&D deduction was and will probably be rising. The number of companies using R&D deductions was relatively constant for large companies. The average amount of the R&D deduction was also constant or slightly rising and is also expected to increase. By those three groups of companies, it seems evident that those companies who remained using the R&D deduction increased the average amount.

CONCLUSION

This study aimed to analyze the relationship between the average amount of the R&D deduction and a company's size between 2009 and 2021 in the Czech Republic. For this purpose, the data were obtained from filed corporate income tax returns recorded in the database of the Financial Administration of the Czech Republic.

Firstly, it was found that larger companies are using a considerably higher average amount of the R&D deduction. Secondly, it was revealed that in each group of companies classified according to their size, the average amount of the R&D deduction shows a particular change over time. Quite alarming is the falling number of micro companies using this deduction and the decline of the average amount of this deduction. The reasons for the negative trend identified are open to debate. Still, there can be no doubt about the vital contribution of these entities to creating a healthy economic environment in any country. On the contrary, in the case of small, medium-sized, and large companies, the average amount of the R&D deduction was relatively constant or slightly rising and is also expected to increase in the future.

State authorities should use these findings to adjust the tax legislation governing R&D deductions in the Czech Republic. The goal of this change should be twofold. Firstly, micro and small companies should be encouraged to use R&D deductions. This could be obtained, for example, by changing the legislation in a way that prefers smaller companies. Secondly, all companies should be motivated to increase the usage of R&D deductions to enhance their innovation potential. As a way of doing so, reducing administrative barriers when using this type of indirect support seems appropriate.

The classification according to CZ NACE should be applied to better understand the effects of using the R&D deduction in the Czech Republic. Furthermore, a subsequent analysis should focus on the types of companies using R&D deductions in the Czech Republic.

AUTHOR CONTRIBUTIONS

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ACKNOWLEDGMENT

This article was written as one of the outputs of support from the project of Excellent Research called "The impact of tax optimization of intangible assets on corporate finances and national public budgets," which is being continuously implemented at the Faculty of Economics of the Technical University in Liberec within the years 2021–2022.

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