The Consequences of Tax Base Rules on Enterprise Innovation in the European Union

Žaneta Lacová and Ján Huňady

Abstract Traditionally, there is an important role that external conditions such as establishment of tax rules can play in fostering innovation process in companies. When considering Innovation Union in the European Union context, we need to take into consideration the fact that companies meet twenty-eight different tax systems. While the differences concerning the nominal tax rates are obvious, another aspect comprising tax base rules differences is less visible, although they can play a relevant role in stimulating innovation activity. In some countries, the tax base composition is affected by the existence of R&D tax incentives concerning the company's income tax, but the situation differs according to the EU member state.

Our study questions the existence of the link between the above-mentioned aspects of national tax regulation and a country's innovation performance with a special emphasis on the entrepreneurial innovation activity. In accordance with a broader definition of innovation activity, both the R&D expenditure and the non-R&D innovation expenditures in the business sector are taken into account in our analysis. For empirical testing, the Granger causality methodology and panel fixed-effect regression analysis are applied.

Our results find evidence that countries proposing more generous possibilities in the statutory or effective tax rates don't meet more suitable performances in entrepreneurial innovation activity. Similar results can be found in estimating the impact of different tax base rules, approximated by the difference between the statutory and the effective tax rate. Another important aspect of our study concerns testing of correlation between different forms of R&D tax incentives and enterprise innovation activity. Our results indicate a positive relationship between R&D tax incentives and enterprise R&D expenditures while a negative relationship between such incentives and enterprise non-R&D innovation activities can be identified as well. It seems that tax incentives affecting the income tax base composition (enhanced allowances and accelerated depreciation) do not indicate considerably different results from those proposed by the tax incentives affecting the income tax rate (tax credits and patent boxes). In conclusion, the results we have identified are

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interpreted in the context of the European Commission initiative of the rebirth of the Common and Consolidated Corporate Tax Base (CCCTB) proposal, announced in 2016. Thus, the chapter tries to contribute to the renewal debate concerning the consequences of CCCTB from the perspective of business innovation activities.

Keywords Enterprise innovation • European Union • Common and Consolidated Corporate Tax Base • Tax incentives

1 Introduction

As a part of the Europe 2020 strategy, fostering the conditions for innovation plays an important role among priorities of the policy-making in Europe. What concerns the tax rules conditions for companies as a factor influencing enterprise innovation process in Europe, a heterogeneity among the European Union (EU) member states persists. The existence of 28 tax systems means that enterprises need to adapt to a country-specific tax conditions when making all kind of decisions, including the innovation strategy decisions. In such circumstances, the development of two phenomena is specifically not desirable: (1) companies innovation strategies can become limited by tax system borders, and (2) multinational companies are motivated to waste their innovation capacity for tax planning strategies (so-called tax innovation) instead of using it for innovation activities in the areas with the potential of growing productivity and efficiency (e.g. the core-business activities). To avoid the occurrence of such phenomena, the projects in order to some forms of standardisation or harmonisation in this area are highly welcomed (see Uramová et al. 2016). The directive proposal of Common and Consolidated Company Tax Base (CCCTB) of the European Commission (EC) from 2011 was presented as an initiative with two principal objectives: to make the corporate tax framework in Europe to be more simple, and to reduce opportunities for multinational companies to avoid income tax payments. The main idea was that companies operating within the EU would have to comply with only one system for computing its taxable income, rather than different sets of rules in each member state in which they operate. It is important to underline that according to this project, each member state will keep its right to apply its own corporate tax rate. However, this proposal hasn't met a necessary political support within the European Council yet.

As the priority is to harmonize the national corporate income tax base and establish a Common Company Tax Base (CCTB), the current debate of types of common rules which would best foster the innovation activity of companies is necessary. Our paper tries to contribute to this debate by identifying the potential causalities between tax rules and innovation activities in the EU member states (especially the business innovation activities) at three levels. Firstly, we focus on the links between innovation activity and nominal tax rates in order to confirm the relevance of the approach "tax base harmonisation only" for the innovation process in the EU. Afterwards, we directly concentrate on the links between innovation

activity and tax base rules in the EU member states. Finally, we look to the potential causalities between country-specific tax incentives driving the innovation process in companies and the enterprise innovation performance in these countries. Our ambition in such testing was to identify the role of these incentives for innovation process in Europe from the perspective of an eventual impact of the CCTB proposal.

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2 Literature Review

Mulgan and Albury (2003) define innovation as the successful implementation of a new or significantly improved product, service, marketing strategy or new organization method that will bring substantial improvement to the economy, efficiency or quality of the outputs. According to this definition of innovation activity, firm's investment in innovation comprises the R&D investments as well as the non-R&D investments, and both of these aspects should be taken into consideration. Concerning the R&D innovation only, Zemplinerová and Hromádková (2012) argue that private companies invest in this innovation less than would be socially desirable.

The literature is proposing several external factors which can drive entreprise innovation processes focusing mainly on enterprise R&D activities. In this context, the public financial support as a factor promoting R&D in business sector is usually tested. As reported by Hunady et al. (2014) the public financial support for R&D and innovation is one of the most important factors affecting the firm's innovation activities. The authors also found many other determinants of innovation such as market competition, type of the industry as well as export focus of the firm. Based on the date from OECD countries, Falk (2005) found that there are two important political instruments supporting R&D in firms: special tax treatment for companies that invest in R&D and direct financial support.

What concerns the tax incentives efficiency, the evidence in literature is ambiguous. Based on the data from Canadian firms, Czarnitzki et al. (2011) conclude that R&D tax credit increase the R&D engagement at firm level. Similarly, Cappelen et al. (2012) found that use of tax credit often lead to successful developed of new production processes and products in the case of Norwegian firms. On the other

hand, Tassey (2007) stated that R&D tax credits when applied in US, were ineffective. He proposes the changes that should be made to increase its effectiveness. He argues that a flat rate applied to all R&D is the most effective way to promote R&D. In the context of the European Union, Ientile and Mairesse (2009) also conclude that the impact of R&D tax credits on R&D investment is quite heterogeneous, likely sensitive to the country analysed and methodology used. The authors identified that while the R&D tax incentives appear to be efficient in Norway and France, evaluations for Spain and The Netherlands provide less convincing results.

Several characteristics of the existing literature appear to be relevant for our research: (1) the authors concentrate on R&D expenditures and the impact of tax conditions on innovation (e.g. the non-R&D innovation) is missing, (2) most of the studies focus on R&D tax credits and other forms of tax incentives (enhanced allowances and accelerated depreciation) are not analysed, (3) there is no one 'perfect' way how to assess the effectiveness of tax conditions and the results depend on data and methods applied. When choosing methodology of our research, we were trying to reflect this characteristics.

3 Data and Methodology

In order to reach the potential causalities between chosen aspects of the tax system and the innovation activities in the EU member states, diverse data sources were used (Table 1). Most of the data were retrieved from the following EC publications: European Innovation Scoreboards (2007–2009) and Innovation Union Scoreboards (2010, 2011, 2013–2015), Taxation trends in European Union (European Union 2014b), Tax reform in EU Member states 2015 (European Union 2015) and EC Study on R&D Tax Incentives (European Union 2014a).

We obtained panel data for the first six variables. In the case of SII, STR, EATR, TB and Firm's R&D expenditures, we used the data for 28 EU countries in the period of 2007–2014. Thus, we gained 196 observations, but this number has been slightly decreased by the application of first difference in the models. Due to the several missing observations, the number of observation for non-R&D innovation expenditure was lower and included 162 observations.

As our approach took into consideration the potential impact of tax base composition, we needed to choose a quantitative indicator to capture this phenomena. For this purpose, we used the effective corporate tax rates (the third variable) which implicitly contains the effect of the tax base composition as well as the effect of a statutory tax rate level. Furthermore, we also calculated the difference between effective and statutory tax rate (the fourth variable) in order to approximate only the potential effect of tax base (without a rate dimension).

Concerning the tax incentive score (the seventh variable), data for a certain period (year 2014) were available for 26 EU member states. Data for Germany and

Table 1 Description and data sources of variables used in the analysis

Variable's abbreviations	Description	Source
SII	Summary innovation index—the composite indicator published in European Innovation Union scoreboards	European Union (2015)
STR	Top statutory corporate tax rate (%)	European Union (2014b)
EATR	Effective average corporate tax rate (%)	European Union (2014b)
TB (EATR–STR)	A proxy of corporate tax base calculated	Own calculation
Firm's R&D expenditures	All R&D expenditure in business sector (as % of gross domestic product)	European Union (2015) and previous reports
Firm's non-R&D innovation expenditures	Sum of total innovation expenditure in business sector (as % of total turnover)	European Union (2015) and previous reports
Tax incentives score	Average of scores for all existing tax incentives in order to facilitate R&D in a specific country	European Union (2014a)

Estonia are missing due to the fact that these two countries haven't implemented a specific tax incentives to facilitate enterprise R&D activity in their tax systems.

Different types of analysis have been conducted in this dataset in order to test assumed correlations or causal relationships: correlation analysis, panel Granger causality tests and panel fixed-effect regression analysis. In the first two parts of our analysis, we applied the panel data analysis to search for potential dependencies between indicators of innovation performance and tax system specificities (corporate tax rates and corporate tax bases). In this case, we were able to capture the dynamic aspect as well as to test the lagged dependencies between variables. All the variables have been tested for the stationarity with various panel stationarity tests. Most of the tests indicated that all variables appeared to be non-stationary at level, but stationary at their first difference. In accordance with these results, we decided to use differenced data in order to avoid the potential problem of spurious regression, which seemed to be very high.

In the third part of our analysis, the correlation analysis based on the cross-section data were used. As this part of our analysis focused on examination of link between R&D tax incentives and innovation activity in EU countries, we put under the question the assumed correlation between R&D tax incentives (by country and by tax incentive type) and firm's R&D and non-R&D innovation expenditures.

Table 2 Results of Granger causality tests

Hypothesis	Lags = 1 F-stat	Lags = 2 F-stat
Δ Effective average tax rate (EATR) does not Granger Cause Δ Summary innovation index (SII)	2.64	2.25
Δ Summary innovation index (SII) does not Granger Cause Δ Effective average tax rate (EATR)	0.20	0.02
Δ Statutory tax rate (STR) does not Granger Cause Δ SII	4.47**	4.42**
Δ SII does not Granger Cause Δ Statutory tax rate (STR)	0.90	0.71
Δ (EATR-STR) does not Granger Cause Δ Firm's R&D expenditure	0.07	0.83
Δ Firm's R&D expenditure does not Granger Cause Δ (EATR-STR)	0.50	0.76
Δ Statutory tax rate (STR) does not Granger Cause Δ Firm's R&D expenditure	0.09	0.63
Δ Firm's R&D expenditure does not Granger Cause Δ Statutory tax rate (STR)	1.23	0.41
Δ Effective average tax rate (EATR) does not Granger Cause Δ Firm's R&D exp.	0.33	0.20
Δ Firm's R&D exp. does not Granger Cause Δ Effective average tax rate (EATR)	0.11	0.72
Δ EATR does not Granger Cause Δ Firm's non-R&D innovation expenditure	0.05	0.51
Δ Firm's non-R&D innovation expenditure does not Granger Cause Δ EATR	0.0001	0.35
Δ STR does not Granger Cause Δ Firm's non-R&D innovation expenditure	0.01	1.33
Δ Firm's non-R&D innovation expenditure does not Granger Cause Δ STR	0.03	0.06
Δ (EATR-STR) does not Granger Cause Δ Firm's non-R&D innovation exp.	0.10	0.37
Δ Firm's non-R&D innovation exp. does not Granger Cause Δ (EATR-STR)	0.17	0.85

** represents statistically significant results at 5% level of significance

4 Results

In our analysis structure, three different approaches could be identified. Firstly, we were trying to focus on the relationships between the enterprise innovation activity (both R&D and non-R&D expenditures) on one side and the corporate statutory tax rates on the other side. To identify an eventual existence of innovation transfer between companies and other groups of economic subjects (like the spillovers effects of large companies), we proceeded to enlarge our analysis by taking the Summary innovation index into account. Secondly, we were trying to test the potential causality between the existing tax base rules (represented both by the effective tax rate and by the numerical difference between the statutory and effective tax rate) and the innovation activity (enterprise R&D expenditures, enterprise non-R&D expenditures and overall SII index) in the EU Member states.

Finally, the links between chosen features of tax incentives and enterprise innovation activity as well as between tax incentives' ranking and the innovation activity were tested.

As a first step of our analysis, we tested the Granger causalities between selected pairs of variables. The results of the tests are summarized in Table 2. In vast majority of cases, no significant Granger causalities between the observed variables can be identified. However, it seems that there is a significant Granger causality arising from statutory corporate tax rates to summary innovation index. This could represent a kind of causality in Granger sense between the level of corporate tax rates and the innovation performance of the whole economy. Surprisingly, no analogical significant evidence for statutory tax rates and enterprise innovation activity represented by R&D and non-R&D expenditures can be identified. Although it seems that level of corporate tax rate can have a positive impact on innovation activity in a specific country, there is no evidence that this impact passes through the innovation activity of the all companies sector.

What concerns the effective corporate tax rates and the difference between statutory and effective tax rate (approximations of tax base), the Granger causality between these variables and firm's R&D and non-R&D innovation expenditures appear to be insignificant. So it seems that different rules of tax base composition in the EU member states don't influence the innovation activity in these countries, at least for the analysed period.

As a next step of our analysis, we decided to explore potential causalities using simple panel fixed-effects regression models. To keep it simple, each model

Table 3 Results of panel regressions with Summary innovation index as dependent variable

Dependent variable: Δ Summary innovation index (SII)						
Regression no.	Independent variable	Coef. (t-stat)	Fixed effects	No. of observations	R-squared	Akaike criterion
1.	Δ EATR	0.0005 (1.06)	Cross-section	168	0.0876	−5.463
2.	Δ EATR	0.0005 (1.148)	Period	168	0.0607	−5.696
3.	Δ EATR (lag = 1)	−0.0011* (−1,723)	Cross-section	140	0.1389	−5.363
4.	Δ EATR (lag = 1)	−0.0014* (−1.879)	Period	140	0.0713	−5.616
5.	Δ STR	0.0003 (0.672)	Cross-section	168	0.0858	−5.462
6.	Δ STR	0.0002 (0.318)	Period	168	0.0573	−5.693
7.	Δ STR (lag = 1)	−0.0013* (−1.966)	Cross-section	140	0.143	−5.368
8.	Δ STR (lag = 1)	−0.002*** (−2.783)	Period	140	0.085	−5.631

Symbols */**/*** denotes statistically significant at the 10/5/1 percent level

Table 4 Result of panel regressions with firm's R&D expenditures as dependent variable

Dependent variable: Δ Firm's R&D expenditures						
Regression no.	Independent variable	Coef. (t-stat)	Fixed effects	No. of observations	R-squared	Akaike criterion
1.	Δ EATR	−0.0024 (−0.768)	Cross-section	168	0.223	−1.302
2.	Δ EATR	−0.0041 (−0.679)	Period	168	0.018	−1.330
3.	Δ EATR (lag = 1)	−0.0026 (−0.885)	Cross-section	140	0.225	−1.117
4.	Δ EATR (lag = 1)	−0.0049 (−0.976)	Period	140	0.021	−1.272
5.	Δ STR	0.0004 (0.142)	Cross-section	168	0.222	−1.301
6.	Δ STR	−0.0012 (−0.401)	Period	168	0.016	−1.328
7.	Δ STR (lag = 1)	0.0006 (0.161)	Cross-section	140	0.224	−1.176
8.	Δ STR (lag = 1)	−0.0023 (−0.437)	Period	140	0.018	−1.269

contained one dependent and one independent variable. All variables have been used at their first differences, thus the number of observation have been redacted by one period for each country. Furthermore, the White diagonal robust standard errors have been applied in all the models. We alternated the cross-section and period fixed-effects in each model. The outcomes of the first models are shown in Table 3. In this case, the Summary innovation index is used as a dependent variable.

In most cases, the outcomes of regression analysis are in line with the results of Granger causality tests. On one hand, there is no evident relationship between tax rates and innovation index, when using the variables from the same period. However, the negative effect of tax rates becomes significant at 10% level, once we lag the tax rates variables by one period. Moreover, the impact of statutory tax rates in period fixed-effect model seems to be significant even at 1% level of significance. Hence, there is some evidence that higher nominal corporate tax rates can have a negative effect on overall innovation performance of the country.

Furthermore, we continued in proceeding analogical regression analysis, but with the Firm's R&D expenditure and non-R&D innovation expenditure as a dependent variable. The outcomes of the models are summarized in the Tables 4 and 5, respectively.

Based on the results, we can say that there is no significant relationship between the firm's R&D expenditures and effective or statutory tax rates. The same is true for the firm's non-R&D innovation expenditure (Table 5). While performing 16 fixed-effect regressions with different specifications, we failed to find any statistically significant causality.

Table 5 Result of panel regressions with firm's non-R&D innovation expenditures as dependent variable

Dependent variable : Δ Firm's non-R&D innovation expenditures						
Regression no.	Independent variable	Coef. (t-stat)	Fixed effects	No. of observation	R-squared	Akaike criterion
1.	Δ EATR	−0.0042 (−0.951)	Cross-section	135	0.163	0.339
2.	Δ EATR	−0.0079 (−0.597)	Period	135	0.104	0.082
3.	Δ EATR (lag = 1)	−0.0017 (−0.313)	Cross-section	108	0.237	0.506
4.	Δ EATR (lag = 1)	−0.0001 (−0.006)	Period	108	0.102	0.244
5.	Δ STR	−0.0058 (−0.738)	Cross-section	135	0.163	0.340
6.	Δ STR	−0.0081 (−1.082)	Period	135	0.103	0.083
7.	Δ STR (lag = 1)	0.0149 (1.277)	Cross-section	108	0.240	0.503
8.	Δ STR (lag = 1)	−0.0020 (−0.130)	Period	108	0.102	0.244

To sum it up, we can say that probably, there is an impact of corporate tax rate on innovation performance of the country as whole. However, this effect is delayed by at least 1 year. On the other hand, any comparable causality was not found in the case of firm's R&D expenditures and non-R&D innovation activities.

In the context of innovation fostering, the existence of various tax incentives supporting the R&D activities in almost all EU member states can eventually represent an efficient channel. To test this assumption, we decided to study the impact of R&D tax incentives on enterprise innovation activity. As described in details by European Union (2014a), different types of R&D tax incentives as well as other tax rules and tax administrative features (eventually beneficial for the tax payer innovation activities) are applied by EU member states. From this point of view, Belgium and the United Kingdom are the leading member states with relatively more suitable tax rules for R&D and innovation. On the other hand, the tax system of Germany and Estonia do not use any specific initiative to focus on innovation activity. What concerns the form of the most widely used tax incentive, the tax credit for R&D expenditures are the most represented—this instrument which is not affecting the tax base rather decreasing the corporate tax rate, is applied in sixteen EU member states.

To find an evidence concerning eventual efficiency of different tax incentives, we decided to proceed the correlation analysis between selected features of R&D tax incentives and firm's R&D and non-R&D innovation expenditures. Firstly, we calculated standard Pearson correlation coefficient for all selected variables in the sample and we found a positive, but weak correlation between most of the R&D tax incentives and firm's R&D expenditure (Table 6). The total number of R&D tax

Table 6 Pearson correlation coefficients for selected variable (cross-sections)

	Firm's R&D expenditures	Firm's non_R&D innovation expenditures	Summary innovation index
Total number of R&D tax incentives	0.279	−0.510	0.303
Tax credits	0.166	−0.318	0.221
Enhanced allowances	−0.088	−0.040	−0.150
Accelerated depreciation	0.178	−0.310	0.020
Patent box	−0.207	−0.330	0.085

Table 7 Tetrachoric correlations for binary variables (cross-sectional data)

	Firm's R&D expenditures	Firm's non_R&D innovation expenditures	Summary innovation index
Tax credits	0.353	−0.415	0.131
Enhanced allowances	0.232	0.131	−0.216
Accelerated depreciation	0.201	−0.705	0.204
Patent box	−0.131	−0.482	−0.131

incentives, calculated as the sum of tax incentives used in certain country, correlates positively with firm's R&D expenditure, but this correlation is rather weak. The same evidence is true for tax credits and accelerated depreciation. On the other hand, there is rather significant negative correlation between total number of R&D tax incentives and firm's non R&D innovation expenditure. Moreover, all tax incentives are negatively correlated with non R&D innovation expenditures.

According to these findings, the firms in the tax environment with more R&D tax incentives prefer to spend more on R&D. But this readiness to invest in R&D seems to have a negative impact on other forms of innovation activities (represented by non-R&D innovation). This could indicate that tax incentives could have more effect on the structure of innovation activities (the share between R&D and non-R&D innovation expenditures), rather than on the total volume of R&D and non-R&D innovation expenditure.

One can argue that the method we applied is not appropriate for the analysis of discrete binary variables, which are mostly used in the sample. Thus, we also decided to apply the tetra choric correlation, suitable only for binary variables. Therefore, the continuous variables had to be recoded to binary ones. The average value of each variable has been used as the threshold between zero and one. The results we obtained are to some extent similar to those concerning the Pearson correlation coefficients. However, the negative correlation between non-R&D innovation expenditure and tax credit, accelerated depreciation as well as patent box appears to be even stronger. This observation is especially true for the form of

Table 8 Pearson correlation coefficients (cross-sectional data)

	Firm's R&D expenditures	Firm's non_R&D innovation expenditures	Summary innovation index
R&D tax incentives score	0.538	−0.538	0.413

accelerated depreciation, where the correlation seems to be very strong, as indicated in Table 7.

Since different types of tax incentives ensure different conditions for enterprise innovation activity, we also decided to apply the results of ranking of tax incentives in respect to R&D activities in European countries, calculated by EC Study on R&D tax incentives (European Union 2014a). The latter study takes into account three categories of features of the R&D tax incentives: (1) scope of the policy, including the type of R&D tax incentive and costs covered, (2) targeting of specific groups of firms, according to their size, age, region, etc. (3) organization, including administrative practices and evaluation (European Union 2014a, p. 73). According to this ranking, Denmark and Ireland seem to have the most suitable R&D tax incentives among the EU member states. On the other hand, the results of this ranking indicate that the least appropriate R&D tax incentive can be found in Malta, Cyprus and Greece.

The results of the correlation analysis between the tax incentives scores and other selected variables are presented in Table 8. These results are in compliance with the previous results gained by testing different forms of tax incentives independently. They indicate that there is a positive correlation between a country's R&D tax incentives score and enterprise R&D expenditures. In addition, the positive correlation between better-scored country's tax incentives and higher values of country's summary innovation index can be found. In accordance to our previous results, the correlation between R&D tax incentives score and non-R&D innovation expenditure is again negative in our sample of the 28 EU member states.

5 Discussion and Conclusions

The objective of our study was to find an evidence about the relationship between chosen features of national tax system related to tax base composition and the innovation activity in EU member states with a special emphasis on enterprise innovations. The empirical testing of such relationship is interesting by itself. However, as our research tries to contribute to the renewal debate concerning the CCTB proposal, we proceed in interpretation of our findings from this point of view.

The first characteristics of the CCTB directive proposal is related to the fact that harmonisation of tax base rules doesn't need any harmonisation of corporate tax rates in the EU. As we found no evidence of the impact of statutory tax rate on

enterprise innovation activity, we can support this approach of not bringing such politically difficult topic into consideration. However, one should notice, that a possibility of positive impact of the level of corporate statutory tax rate on overall innovation activity in a specific country may exist thanks to effects of spill overs between a certain groups of economic subjects (e.g. large companies) and other groups of economic subjects (e.g. innovation activity in the public sector). The probability of an existence of such effects seem to increase with the identification of the link between the statutory tax rates and Summary Innovation Index.

Further, an EC initiative towards harmonisation of tax base rules should have neither positive nor negative impact on enterprise innovation activity as the latter seems to be unaffected by the composition of tax base rules. At least in the analysed period, the approximation of tax base composition by two measurable variables—the effective tax rate and the difference between statutory and effective tax rates—seems not to be able to explain the differences in enterprise or overall innovation activity in EU member states. Eventually, other variables representing the tax base differences can be taken into account for further research, but in this case a firm-level data approach should be appropriate.

Although it seems that the enterprise innovation activity is not influenced by the tax base as a whole, our results indicate it might be affected by a certain part of tax base related to corresponding tax incentives effect. The use of R&D tax incentives to wider extent in some EU member state seems to lead to higher R&D innovation activity in companies in this country, as well as to higher overall innovation activity. On the other hand, our results indicate that the choice of a specific tax incentive might influence the structure of innovation schemes. For instance, while R&D tax incentives stimulate the enterprise R&D activity, they affect negatively the non-R&D activity in the companies.

From the perspective of the CCTB proposal, the effects of tax incentives having impact on tax base (enhanced allowances and accelerated depreciation) can be compared to those having impact on tax rate (tax credits and patent boxes). There is an evidence towards the preferable use of base-affecting tax incentives in the form of enhanced allowances which seem to be the only tool to affect positively both the R&D and non-R&D business activity. On the other hand, if the form of accelerated depreciation is applied in the new CCTB proposal in order to stimulate enterprise innovation activity in European companies, this can produce a strong negative effect in companies' non-R&D activity. Thus, our results can lead to suggestion to implement the best practices of R&D tax incentives of the EU member states considered as having the best scores in tax incentives ranking (especially Denmark) into a new CCTB proposal. However, the results we obtained should be treated with attention because only a static approach was applied in this part of our research for the reason of a limited access to data about development of tax incentives in the EU member states. More detailed data in this field would lead to adoption of more appropriate methods (like panel data regression analysis) in empirical research of tax incentives efficiency. From this point of view, the further research in this area is needed.

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