

Relations between R&D Activities and Tax Allowances in Hungarian Car Trade Companies

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SUMMARY

The research, development and innovation (R&D&I) activities of enterprises are highly influenced by the socio-economic environment. The product, process, and organizational innovations of enterprises can be stimulated both by direct and indirect tools. In this study, we listed all the R&D related tax allowances that are part of the corporate income tax regulation. By using primary data (including all Hungarian business associations), we analyzed how the car trading companies could utilize the available tax allowances. Our results showed how effective these tax allowances were in stimulating research and development activities. In our study, our main focus was to identify the reason for the low number of innovation activities.

Key words: business enterprises; SMEs; innovation; R&D; tax allowance

Journal of Economic Literature (JEL) code: G38, L98, M21

INTRODUCTION

A short history of Hungarian car production

The first motor vehicles – which were three-wheelers and were made for the order of the Hungarian Post – were produced 17 November 1900. This date is considered as the start of the Hungarian automotive industry, although larger, industrial scale production started only four years later. By the time of the First World War 10 Hungarian car brands had been introduced. The domestic factories were diversified into two separate industries: the automotive factories for passenger vehicles and the wagon or truck factories. During the First World War, the automotive industry almost vegetated, an dare-boom started in the 1920s, when the production of some car models was started in an assembly line. During these years, the largest engineering companies involved in the production were the Hungarian MÁVAG (Hungarian State Iron and Steel Equipment Factory), and the Manfred Weiss Works. As a result of the global economic crisis in 1929, several factories were closed and people became unemployed, but at the end of the crisis the industry renewed itself. The Second World

War almost eliminated the industry due to the high inflation in the country; the restoration went on only slowly and with difficulties. The birth of the vehicle program was in 1964, and in the 1970s bus manufacturing became preferred. While the commercial vehicle manufacturing gradually eroded, the car manufacturing industry began to develop. In that period modern work culture and new manufacturing techniques were introduced, the automatic program control and robotics appeared, all of which have contributed to the strengthening of the economy and help the country to catch up with Western Europe (Balint 2009).

The car industry of the EU

The importance of the automotive industry both at European Union and national level is undisputedly an integral part of the economy. More than 260 million cars are on Europe's roads, with nearly 7% being new vehicles under one year old. The role in employment is significant, because more than 12 million families depend on this industry for their livelihood. Of new cars, 30% are made in the EU (ACEA 2010).

The car industry, which was basically a manufacturing-based industry, has recently become a knowledge-based sector where the producers are spending €20 billion a year

for R&D activities, which makes the players of this industry the largest private investors in the EU. The car industry also plays an important role in security issues and sustaining mobility (ACEA 2010).

As the automotive industry plays a prominent role in both employment and exports, as well as in research, development and innovation, it tends to receive special attention and assistance from the different governments. "The European Union supports its car industry, by keeping the proportion of the community supply, environmental protection and quality characteristics of requiring tariff protection" (Antalóczy & Sass 2011, p 36.)

Proper regulation is an indispensable condition of the development and maintenance of industry. With more than 80 directives and 115 legislations, the car industry belongs to one of the most regulated sectors in the European Union (ACEA 2010).

The role of the car industry and car trade in Hungary

In Hungary, an increase of the demand for cars was first evident after 1956.

From the 1970s until the beginning of the 1990s the main feature of the Hungarian car market was the lack of supply. The customers could buy only cars made in the socialist countries, and sometimes the customers had to wait for their cars for several years. After the political and economic transition, the Western European market opened and became available for the Hungarian buyers. Thus, the supply of high quality and more expensive cars increased. By this time the demand had gradually decreased. As the first steps, in the beginning of the 1980s, some of the large companies were allowed to buy western cars. By 1989, the duties on cars had been reduced, which resulted in a boom in the trade of mainly used cars. Their price was acceptable and their quality exceeded the quality of new cars made in the socialist countries.

In 1989 the first representatives of the most important car manufacturing companies established dealerships in Hungary. The monopoly of Merkur, the state-owned car dealing company, was terminated. In this period, 30–40% of the cars were sold to individual customers; the greater share was represented by governmental contracts and the demand of large companies.

After the political and economic transition in the middle of the 1990s, Suzuki, Opel and Audi factories were established in Hungary, since then the largest share of the production represent (Kemenzsei 2010).

In 1993, the sales tax for cars was introduced and the number of cars allowed to be imported per family was limited. In this year, 1 657 000 cars were registered in the Hungarian market. In 1994, the establishment of the different car dealerships and service was started. This process improved the selling of cars, because the customers could get additional value in the form of continuous service opportunities. This allowed the situation of car dealers to strengthen compared to that of individual car imports. This boom stopped in 1995, when only 68.654 new cars were sold in the country.

Since the beginning of the 2000s, the significance of Hungarian machine and vehicle manufacturing has been growing continuously. In 2009, 115,000 people were employed in these two industries (of whom 68,000 were in the vehicle industry). This means 20% of the labor force in manufacturing industry.

As a result of the financial crisis the number of car dealer companies reduced from 1,200 (in 2008) to 950 (in 2010). According to the forecasts, this reduction has not ended and in the future 750–800 car dealers will provide the Hungarian customers. In 2010 the number of cars sold decreased to one third of those in 2007. The most acceptable strategy for the car dealers is to combine distribution with car repair and to strengthen the good connections between the manufacturers and the dealers.

The KOPINT Business Climate Survey Research Foundation found that the operating profit level depends on "products manufactured by the company added value, the innovation, the company's strategic planning, and the quality of management and business organization." (Gyukics et al. 2011)

In Hungary in 2010 more than 350 companies produced automotive parts and 70% of them worked under audited quality control. More than 90% of the cars and almost 90% of the motors are exported (Antalóczy & Sass 2011).

The requirements for the main suppliers in the machinery and the automotive industry are considered to be as follows:

- Quality certification, advanced enterprise management and application management systems; reliable and consistent quality, use the VDA system,
- Capital, which is essential for development,
- Number of employees, labor training; ideal for medium-sized companies with reserves,
- Distance from the customer; in time rather than in space,
- R&D, innovation, product quality; maintaining competitiveness, it is necessary to keep up with the ever-changing needs, which is not easy, because the automotive industry is one of the fastest-growing industry (Gyukics et al. 2011).

In the above-mentioned study, some proposals were formulated for improving the Hungarian competitive position of small and medium-sized companies:

- Training of engineers with practical knowledge,
- Development of metallurgical professions education,
- Improving school language teaching
- Acceleration and simplification of grants,
- Simplification of the regulatory environment,
- Lower limit of R&D projects, and lower limit of deductibles,
- More flexible regulations of employment (Gyukics et al. 2011).

The influence of the financial crisis on the car industry

The global financial crisis, which started in 2008, had an adverse effect on the property market and the car market. The sharp fall in liquidity meant the decrease of the financing options, which resulted in the postponement of car purchases, mainly. However, regardless of the crisis, the automotive industry was already having difficulties before 2008. The market began to saturate, capacity surpluses occurred, people bought on credit, and there was a growing demand for energy-efficient cars (Antalóczy & Sass 2011). It can be regarded as a positive indicator that the car factories were not shut down. This could be due to the flexibility of manufacturers, their work and organizational experience and adaptation of the workers (Rechnitzer & Smahó 2012).

Governments of many countries have taken various measures to protect the sector and to promote sales. One of

these measures – also introduced in many countries – is the so-called "scrappage program" which is a government budget program to promote the replacement of old vehicles with modern vehicles. When consumers replace old, polluting, non-energy-efficient cars with new cars, they received support (OECD 2010).

Scrappage programs were touted with different names, mostly referring to an environmental benefit. The Vehicle Efficiency Incentive in Canada was based on fuel-efficiency of cars. In Germany the economic stimulus program was called "Umweltprämie" (environmental premium) and in Austria "Ökoprämie" (eco-premium) while most of the public referred to it simply as "Abwrackprämie" (scrappage premium). Other countries have not tried to connect the program title with an environment aspect - still the Italian "Incentivi alla rottamazione" (scrappage incentives) and French "Prime à la casse" (scrappage premium) require the new car to meet modern emission standards. The German scrappage incentive scheme and the British scrappage scheme do not have such requirements, and the UK scheme was openly sketched on the target to provide financial support to the motor industry. Similarly, the United States Congress devised a scrappage scheme, commonly referred to as "cash for clunkers," as part of a general Automotive Stimulus package series; however, the voucher is only given when the newer car has a better fuel efficiency than the old car.

The scrappage premium program of the United States basically failed. Financed by the tax payers, the program was originally meant to strengthen the market positions of the factories in Detroit, however almost 2/3 of the sold cars were from abroad, mostly from Japan and Korea. As a result of the scrappage premium program, sales initially increased, however after the shopping fever ended, the American motor industry lapsed back into its previous level.

Now we can see that in a number of countries in the world where the motor industry is in an open economy, the demand increased for the non-premium, fuel-efficient cars as a result of the scrappage programs. General experience is that the scrappage programs had no effect on the national employment as well as on stimulating innovation, while the allowance related to the programs made up a significant amount in the country's budget. This explains that after the initial success, these programs died down relatively soon.

According to the consulting firm KPMG (Office of Employment, 2011) in the world there are two largely independent processes taking place in the automotive industry:

"In developed countries, a strong technological renewal takes place, and this is driven by the expansion of production. New, energy-efficient and no or little contaminant models are introduced, as well as layer model sare shown that intend to satisfy the differentiated consumers' needs. This market is only slightly sensitive to price.

In emerging market economies such as the BRIC countries (Brazil, Russia, India and China), by contrast, the focus is on the production quantity, the target is the larger-scale production of traditional models. This market is highly price sensitive."

Ernst & Young's 2010 automotive analysis (Demeter 2010) concluded that, in contrast to Western European countries, the automotive industry in Central and Eastern European countries felt the impact of the crisis to a lesser extent. These countries produce mainly small cars, whose demand did not fall significantly during the crisis, although

the selling indicators of the largest producer of such cars, Suzuki, were also seen to decrease. Audi, the largest exporter, "had difficulties because of the crisis, which arises from the company's premium category role, on the other hand, the engines manufactured in Hungary mainly target those countries which are situated in Europe's crisis-hit regions" (Demeter 2010).

At the "Automotive Hungary" International Automotive Supplier Exhibition (2013), the Executive Secretary of the Hungarian Automotive Industry Association (MGSZ), Csaba Kilian, said that "the automotive industry is the fastest growing sector of the Hungarian economy, which has gone through a quantitative and qualitative leap in recent years, and which received more than 4 billion Euros of capital in the past 5 years" (MTI 2013).

In 2013, the factories operating in Hungary produced nearly a quarter million vehicles. By 2014, this number could increase to 400,000 if Suzuki and Mercedes realize their plans, and Audi will be able to fully take advantage of its expanded capacity. "If this is achieved, then the Hungarian automotive industry would have about 3 percent of the EU's total car production capacity, and will be preceded Italy's performance in 2012, and get closer to the 1.2 million of the Czech Republic and to 0.9 million of Slovakia in last year's data. The number of manufactured cars per thousand inhabitants in the area may be above the EU average in Hungary; in 2014 the expected value is about 40, which is close to the 2012 Spanish level" (Ádám 2013).

In recent years, several research publications have also stressed that building on the results of research, development, and innovation will play a significant role in companies in maintaining competitiveness, and in a quick recovery from the crisis. Further, the financial and structural problems have had serious effects on technical development. Without modern technical solutions and innovative approach, enterprises are hardly able to survive, to be stable, to develop their business, and to improve their competitiveness (Daróczy 2005).

Thus, in the following sections the essence and significance of innovation and R&D are summarized briefly.

The role of R&D in the innovation activity of enterprises maintaining their competitiveness

The definition of innovation in the Hungarian literature is not uniform.

Innovation

- is always something new establishment (production of new products, introduction of new production processes, the acquisition of new markets, access to new sources of supply, the establishment of a new organization)
- innovation process covers the R&D activities, through implementation, marketing, and the practical utilization,
- is a complex system of activities, with the ultimate goal of competitiveness, economic advancement by promoting the always-changing customer / user needs. Based on this, we can say that innovation is a strategic tool for improving competitiveness;
- The success of an innovation will be decided during its practical use, on the market.

In the most of the classical innovative models R&D is the brainstorming phase and the subsequent foundation of the innovation process. In this way, an integral part of the

innovation process is the research and development. This emphasizes the practice which is often mentioned, that RDI is available, indicating the close interaction between R&D and innovation progression.

In Hungary, many synonyms, and definitions are used as substitutes for R&D and innovation, even though the two concepts are not synonymous. The R&D results will not automatically mean economic success; in addition, innovation activities are also required. The RDI activities are important governmental tasks. The introduced technical innovations may only be successful together with other organizational, management and market innovations (Havas 2007).

According to Ivanyi and Hoffer (2011), all R&D is innovation, but not all innovation is R&D. Research and

development is the essence, the initial point of innovation activities.

Basic research takes place mainly in research institutes or higher educational institutions, while experimental development takes place in different enterprises. Applied research is usual in academic and research institutions, in research facilities and in enterprises, too. To use the R&D results in practice, application of other innovation activities is necessary, for example engineering, manufacturing, marketing, etc. Innovation can be financed through R&D expenditures. Nevertheless, innovation should be considered as a more complex activity, which incurs intellectual effort and material expenses (Figure 1).

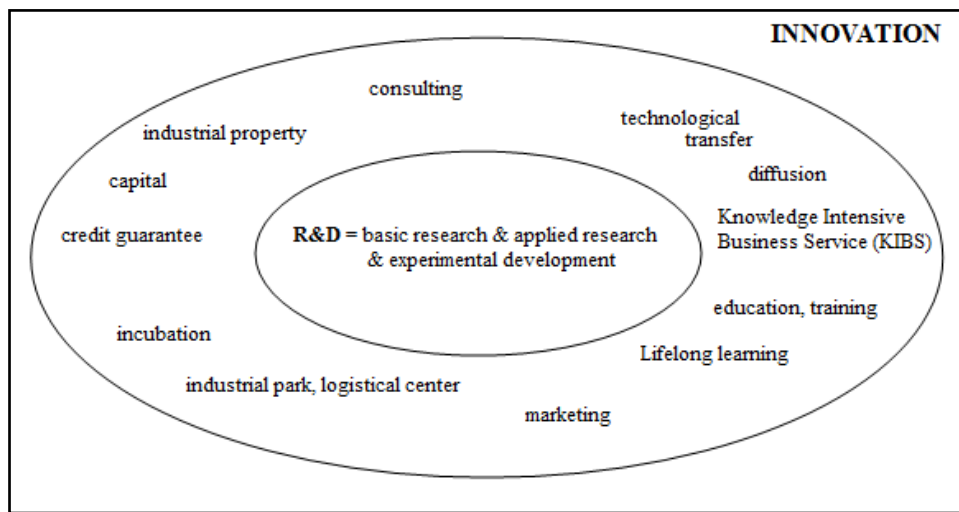


Figure 1. The relationship between innovation and R&D
Source: Hoffer & Katona (2012)

Innovation is also considered as practical application of the research results. It may be well distinguished from the R&D activities. Significant differences between R&D and innovation are in financial issues; innovation needs much more financial assets than R&D. Innovation is part of the establishment of productive capacity, and also means the sales related tasks, and the expenditure them. (Tarnói 1997)

Briefly, innovation is a complex, continuous renewing process of activities which facilitate economic development and growth. Its ultimate goal is the satisfaction of the market's needs as fully as possible by promoting the utilization of research results (Husti 2009).

"The innovation system is the field of knowledge production, dissemination and user institutions that contribute to the development and diffusion of new technologies, both individually and collectively. Capabilities and the relation among them are determined by each institution and shows the innovative performance of a nation or a region's companies. These institutions gave rise to the framework within which governments develop and implement policies in order to promote the innovation process. The operating system of interrelated institutions helps to define, to preserve and transfer new knowledge, new skills and new products to understand the new technology (based on Nelson, Freeman, Patel and Pavitt, and the definitions of Metcalfe)" (Inzelt & Bajmócy 2013).

Innovation should be a tool by which enterprises can increase their profitability and value. The innovative

company enjoys competitive advantages to ensure its proper position in the market in the long run.

Various international surveys and studies have shown a correlation between the size of companies and innovations, a correlation that has become stronger since joining the EU (Illés et al. 2012). In general, large firms are more innovative than micro, small and medium-sized enterprises. However, in most countries, there is no significant difference between the micro-companies and medium-sized enterprises, and even the former's innovation tendency sometimes even surpasses some of the medium-sized companies (Huston interview 2007)

The literature draws attention to the growing consensus that the role of small firms in innovation is increasing significantly. Innovation is an opportunity for survival. In the absence of size benefits, the most important source of competitiveness is innovation (Lewis et al. 2002).

According to a broader approach the most important characteristics of the innovation system are interactive learning and interaction rules, norms, and attitudes. The first striking representative of this trend is Lundvall (1992) who pointed out that the research needs to focus on - in addition to the innovations of users and producers of interactions - the examination of the national system of innovation in a wide variety of interactions (eg. industry and universities, government and the commercial sector).

Kiss points out that domestic firms are less open to external sources of innovation. The strongest factors

inhibiting the innovation activities are problems among the institutional elements, such as policies, legislation, regulations or tax rules (Kiss 2013).

Business Europe (2009) refers that Europe should encourage entrepreneurs through taxation. The organization believes that if governments do not act, the young, innovative companies will succumb to global competition due to the chronic lack of funding. Within Europe, Hungary has the highest proportion of companies that have not performed innovation activities.

A firm with innovation activity can achieve the following results:

- Exploration of new markets;
- Product range expansion;
- Replacement of current products / services / technologies;
- Optimization of the production process;
- Quality improvement;
- Reduction in spending;
- Reduction in consumption;
- Reduction in environmental pollution;
- Adaptation to the changed economic and political controls and regulations.

Innovation is a tool by which the company can increase its profitability and its value. The innovative company can gain competitive advantages to ensure its proper position on the market in the long run. In order for a firm to be innovative, the following factors should be kept in mind:

- The development of an extensive system of relations,
- Ensuring the appropriate level of knowledge,
- Carrying out R&D activities,
- Production of high value-added products / services,
- Fast reactions,
- Initiative.

The competitive advantage of enterprises may be maintained in the long term only in circumstances that allow permanent research and development for innovation.

In the knowledge-based economy, knowledge is in the center of the competitive businesses: a highly skilled labor force is employed in producing new knowledge, high value-added output, and creating innovative products/services/technologies. Only those companies are able to be successful that are able to follow this way of operation.

Mogyorósi et al. (2009) in their study pointed out that innovation activity and innovation capacity are among the most important sources of competitive advantage of enterprises. The role of innovative organizations has increased greatly in recent years.

Inzelt & Szerb (2003) clearly define the innovative firms: those firms that reflect an innovation-oriented approach in their management and operation, and whose basic purpose is to improve their competitiveness.

The appearance of businesses in new markets needs continuous technological improvements. There are several ways of making technological improvements, and every business should consider their own potential. Although it is not possible in all industries to introduce new technologies, continuous renewal is the interest of every business.

Gurabi (2009) address several questions relating to innovation in Hungary. "The increase in R&D and innovation support activities are key economic goals for the current government. Each government is trying to improve the current R&D spending from 0.9% of GDP to 2-3% of the European average. Why are we far from this data? What could be the reason? It is perhaps because of incomplete knowledge of law, unknown financial possibilities, or

simply a dislike of a new thing. We do not know, but anyone who just pays a little attention to innovation recognizes the possibility that built-in incentives of the taxation could lead to a significant increase in development, instead of through paying taxes. Manufacturing and service firms have raised many original ideas, but do not get priority in the absence of the implementation. In the Hungarian society, there is no intention to carry out conscious and continuous improvements, for which the Japanese created the separate concept of "Kaizen". The present tax environment in Hungary may be considered favorable for research and development activities. Experience shows that companies and institutions are still not utilizing the different R&D funding opportunities efficiently."

According to Warda (2006) the indirect incentives of R&D&I activities through taxation can be classified into three groups in the practice of OECD countries:

- Accelerated depreciation for R&D activity of machines, installations,
- R&D costs (fully or partially) reduced the tax base,
- Tax incentives.

Tax reduction programs were introduced for firms performing R&D activities as early as the 1980s. In the past 20 years, changes in the conditions for the program have been made several times, but each program is still in place today. These measures area significant incentive effect on the rate of RDI activities. The programs are basically aimed at the SME group of tax reduction potential, impose relatively little administration on businesses, and provide a significant amount of relief after the R&D activities.

Within the framework of each program precisely definitions are given for the R&D expenditure in respect of which tax allowances may be available (personnel engaged in R&D wages, materials, new machinery, equipment costs, amounts paid to universities, etc.). Those companies that had no taxable income could receive a tax credit. The loan repayment depended on the business tax situation. Companies with lower incomes could group the loan amount into two parts. The current loan financing costs had to be paid back in total, while the capital investment needed to be repaid only in part. Non-profitable businesses could deduct the tax allowance from of their future income. After the third year, the enterprises could get the amount of the still remaining tax credit in the form of support. The young innovative enterprises got special attention and support (8 years and younger and were spending 15% of all R&D expenditures).

After the regime change in Hungary, the most dynamical change was experienced by the car manufacturing and supplier industries. The related R+D activities have also developed as well, the set goal is to have 20 innovation centres for the motor industry in the country by 2018. The Hungarian motor industry is planning to spread the new hybrid and electric cars, this goal is supported by the "Jedlik Ányos" programme.

According to Ernst and Young's study (2013) on the European Motor Industry where they interviewed 300 manufacturers and suppliers, the Hungarian motor industry is one of the most competitive in Europe due to its low manufacturing costs. In the study 15% of the repliers represented the manufacturers, while 85% of them were suppliers. 11% of the repliers found the Hungarian market extremely competitive, while 46% of them thought that it was rather competitive. The Czech Republic ended up on the top of the European competitiveness list, while Slovakia ranked 2nd, followed by Hungary at the 3rd place.

The situation is less favourable in the area of innovation

strength and product quality, where Hungary ranked 11th in Europe in 2012.

The most important long-term goal is to develop a stabilized supplier chain with such technological competencies, that are able to serve the premium motor manufacturers. This requires setting up common businesses in order to strengthen cooperation between manufacturers, the technological development centres and local suppliers.

The 'Car Innovation 2015' study summarizes all the methods that could help car manufacturers and their suppliers renew their products and services to foster economical growth. These development ambitions are based on long-term innovation thinking, intelligent business models, customer oriented innovation marketing and cost effective development procedures.

The motor industry's big players consider the Hungarian R+D condition system a competitive advantage. The human capital has a big role in the fact that more and more manufacturers set up R+D centres in Hungary. These companies also involve the institutions of the national higher education system in their R+D and innovation projects. Good examples for this are the development of the institutes of higher education in the cities of Győr, Kecskemét and Szombathely.

The motor industry means an important breakout point for the Hungarian economy. Businesses from this industry set an example for other designers, researcher or investors and the success is fuelled by innovation. It is important to note that a good idea alone is not enough, companies should also analyse if their ideas are economically viable – only then they will be eligible for financing.

The IT companies are also taking advantage of the Hungarian car market's boost. As a result of this the motor industry's companies more often use innovative technologies, especially in the service areas like controlling, marketing, finance etc. The future is in the mobile devices and cloud solutions. A company in the motor industry can only be successful if it can react fast to the procurer's needs as well as the in-house operational signs. To be able to reach and properly display the data and information – even on mobile devices - is of key importance. (Qualyssoft Information Technology Ltd. 2012)

OBJECTIVES OF THE RESEARCH

Previously, several studies have examined the effects of the operation of the tax system on small and medium-sized enterprises. Illés et al. (2013) evaluated the connections between innovation activities and tax allowances in the Hungarian agribusiness sector. In another paper, during an assessment of the tax system in East-Central Europe – including Hungary– Illés et al. (2011) concluded that the tax system for small and medium-sized enterprises might be considered as an accelerator for development.

Accordingly, the aim of our research was:

- to consider the incentives in corporate tax law increasing there search, development, and innovation activities of enterprises;
- to evaluate the conditions to encourage elements of R&D activities;
- to explore the links between innovation activity to promote R&D activities and the geographical location, the form of business, size of business and the ownership structure;
- by means of statistical analysis to explore the relations that make it clear how the corporation income tax can

serve the current administration's efforts to create a more favourable business environment for corporations operating in the car trade, which can promote research and development in their innovation activities.

MATERIALS AND METHODOLOGY

Items reducing the profit before tax (indirect tax benefits):

1. Reduction received on patent royalties,
2. Design patent allowance,
3. Direct costs of post-research and experimental development allowance
4. Investment allowance for small and medium-sized enterprises,

Tax Allowance Items (direct tax benefits):

5. At least HUF 3 billion investments made in disadvantaged regions,
6. Tax allowances on research and experimental development costs of payroll,
7. Deferred tax allowance on research and experimental development costs of payroll,
8. Tax allowance on the software developer payroll (10%),
9. Deferred tax allowance on the software developer payroll (10%),
10. Tax allowance on the software developer payroll (15%),
11. Deferred tax allowance on the software developer payroll (15%),
12. Rebate to small and medium-sized enterprises,
13. Development tax incentives with government approval,
14. Tax allowance previous investment.

It is apparent from the list that it was possible to make use of mitigation in relation to corporate RDI activities in tax rebates under 14 different titles in 2008. In 2014 only 5 different titles was deducted from the tax base, and from the tax. Other allowances were dropped from the corporate tax law.

Each business parameter (variable) is utilized for research:

- The identity of taxpayers (according to the classification of company size, geographical location, company form)
- Profit indicators,
- Tax categories,
- Balance sheet data.

Table 1.
The distribution of joint venture companies according to their size in 2008

Size of companies	All		Car dealers	
	number	%	number	%
Micro	309,980	88.9	3,590	84.4
Small	25,729	7.4	542	12.7
Medium	4,807	1.4	85	2.0
Large	8,107	2.3	38	0.9
Total	348,623	100	4,255	100
Rate of car dealers	100%		1.2%	

Source: Own construction based on APEH data on income tax returns in 2008

In the database of corporate tax sheets 1-2% of business enterprises dealt with car distribution. Among the car dealer companies - compared to the distribution of all company data - a smaller share is represented by large businesses (0.9%), while the small and medium-sized enterprise sector has a major proportion (14.7% compared to 8.8%). The combined share of the MSME (micro, small, medium-sized enterprises) sector was also higher among car manufacturers, (Table1) large ones did not reach 1%.

RESULTS

Conditions of R&D activities as the basis of innovation-related tax incentives

Tax allowances reducing the profit before tax

- Only three companies used the first reduction option (discount on royalties) while 1% of the businesses took advantage of the second advantage (patent allowance). The conditions of these tax reductions could be satisfied very easily.
- According to the 3rd item the payments or tax base were reduced by the direct costs of R&D. Based on joint research with the research institutions the accounted costs were validated three times (up to HUF 50 million). Only 2% of these companies took advantage of the opportunity. This low value indicates that the enterprises did not conduct R&D activity in 2008.
- According to the 4th item the MSMEs could reduce their profit before tax by the amount of investment (HUF 30 million) in new property, plant, equipment, etc. Enterprises did not take advantage of this opportunity, despite the fact that the tested companies were 99% of the sub-sector enterprises MSMEs. Significant tax savings could have been achieved with this reduction, which would have helped businesses increase their own resources. Additional calculations carried out in this area have shown that the enterprises do not use this allowance due to a lack of resources and the small profit before taxation. In enterprises that carried out development, the profit before taxation was not high enough to deduct the amount of investment.

Allowances reducing the calculated tax

- The 5th item of allowance could be made use of in connection with a HUF 3 billion production investment. There was only one enterprise that used this allowance, presumably because of the high amount of investment. (From 2012, this allowance has been discontinued.)
- The 6th (R&D wage costs of tax allowance) and 7th (deferred tax allowance of R&D wage costs) allowances were not used by the enterprises. Nevertheless, these allowances are important. According to the possibility of deferring – if the calculated tax of current year did not allow the deduction – there was a 4 year time limit for deferment. (Both allowances have been discontinued from 2012.)
- The 8th, 9th, 10th and 11th allowances are all related to the labour costs paid to software developers. The allowance could maximum be 10% of the labour cost, while MSMEs could decrease their calculated tax base by another 15% above the 10% allowance. Only 1 % of the companies took advantage of the 10% allowance, while two companies used the deferred version of it. However, amongst the MSMEs, no one used the extra 15% allowance (10th allowance), because their tax base was not high enough, however the

deferred form of it was very popular, almost 70% of them applied for it. (All allowances related to software development were discontinued in 2012.)

- Related to the 12th allowance, SMEs were able to reduce their calculated tax by the amount of 40% of the interest paid in connection with credit for the development of tangible assets. This allowance was not used by enterprises, despite the fact that they had credit for development of tangible assets. The enterprises had not calculated tax.
- The 13th allowance is related to a great amount of investment (HUF 3 billion worth of investments), this is the reason why enterprises did not use this allowance.
- The 14th (previous investment allowance) was not used by any enterprise.

Introduction of enterprises using tax allowances

The data show that 28% of the car distributor enterprises did not use any tax allowances related to their R&D activities.

- Examining the use of allowances according to entrepreneurship category, we can say that 30% of micro-enterprises could not take advantage of the allowances. The minimal difference between the values of 28% and 30% indicates that those enterprises which could not use allowances were basically micro-enterprises. One reason for this is that the use of allowances had strict and long-term impact conditions. The complicated conditions of tax allowances significantly increase the administrative burden of the enterprises. This fact affected the group of companies (micro-enterprises, the vast majority of companies without legal personality) very adversely, because many of these small enterprises conduct their accounting functions without professional assistance and they have not enough information or knowledge about the allowances offered by the corporate tax law.
- Interesting results can be observed when we examine the car distributors according to their location. There were minimal differences (1-3%) between the regional distribution of the enterprises and among those who do not use tax allowances. (E.g. the share of car distributors operating in Central Hungary Region was 41%, and 44% of the enterprises which do not use the allowances were also in this region.
- The examined enterprises reduced their tax with seven different tax allowances although there were 14 different options available. In 2014, there are only three of the original seven types of allowances given in the Corporate Tax Law. Unfortunately, those allowances were withdrawn that were "popular" among the enterprises (tax allowance of R&D activities related labour costs and the software development labour cost). These allowances were most popular because their conditions were less strict and in a sense –regarding the accountability– left greater latitude to enterprises. The experience of tax audits in several cases showed that many enterprises used these allowances irregularly, so the reduction of the tax was illegal.
- Based on our examined data, the tax allowances regarding R&D activity, it may be stated that limited liability enterprises showed an outstanding value of 90%. Of the tax allowances used, only 4% were used by limited partnership enterprises and 6% by joint stock enterprises.
- The numerical values of tax allowances were summarized per enterprises related to different titles of R&D activities. According to various criteria (entity, regional location, company size, and presence of foreign ownership), we

calculated an average of the amount of allowances. We took into account only enterprises, which used tax allowances. The results are illustrated in Figure 2.

- According to the legal form of the enterprises, the highest average allowance appeared (HUF 212 million) in joint stock enterprises (Rt), followed by the limited liability companies (Kft) (HUF 28 million), while limited partnership companies (Bt) had the lowest value (HUF 4 million). Obviously, the bigger firms (with stronger capital) operate in the form of joint stock enterprises. Our results also show that these enterprises could utilize most of the corporate tax allowance.

- Regionally examining the average values of the tax allowances, the largest value was observed in the Central Hungarian Region (HUF 41 million); in case of other regions there were no significant differences.

- The average allowance value is directly proportional to the size (but not linear). The maximum value of the allowances was in large enterprises (HUF 932 million). In the medium-sized enterprise the average allowance value was HUF 233 million. In the micro enterprises the value was very low, HUF 3.5 million.

- The difference is nearly ten times bigger, depending on whether the enterprise has a foreign shareholder or not. In the enterprises where a part of the equity was in foreign hands, the average value of the innovation tax allowance was HUF 606 million.

In summary, it can be stated that the larger enterprises with foreign ownership that are operated in more developed regions were those which used significant allowances in innovation.

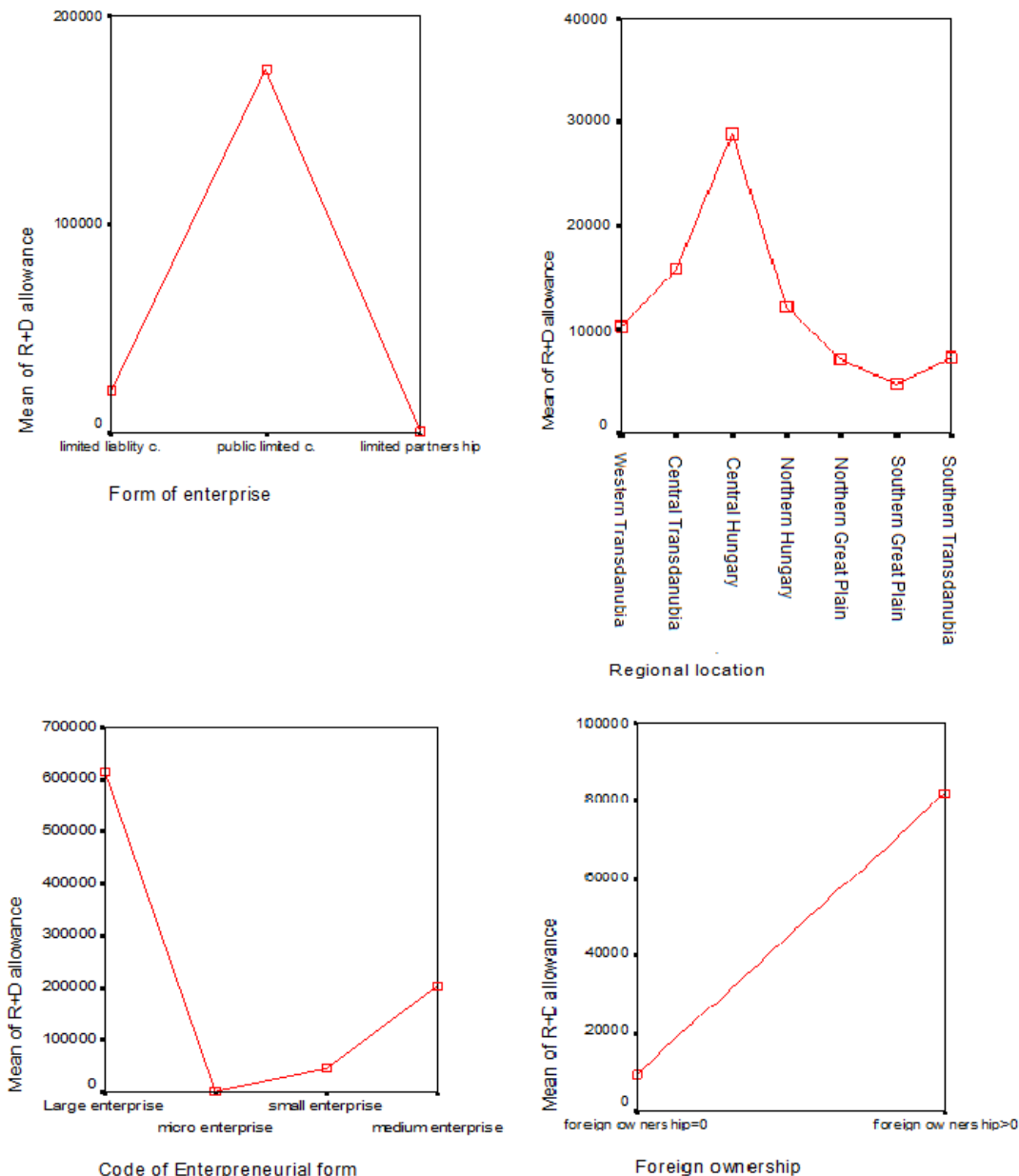


Figure 2. Average R&D activities related to tax incentives, according to the legal form, regional location, company size and foreign ownership among car dealer enterprises (in thousand HUF)

Source: Own construction based on data of APEH – Income tax return in 2008

We analyzed enterprises according to the number of allowances used. In our sample, only one company could utilize three types of allowances. The number of enterprises using only one allowance was 2,964, while 92 enterprises used two allowances for reducing their profit before tax or

reducing calculated tax. The data of Table 2 show that the enterprises which had higher profit before taxation, a larger taxation base, or higher calculated tax could use more tax allowances.

Table 2
Some economic data of car dealers depending on the R&D activities related to the number of tax allowance used among car dealer enterprises (in thousand HUF)

In thousand HUF	0		1		2	
	number of allowances					
	N	Average	N	Average	N	Average
Profit before tax	1198	2308	2964	268	92	6038
Tax base	1198	-584	2964	-2793	92	1870
Tax	1198	411	2964	662	92	3048
Rate of the foreign owners (%)	1198	8	2964	2	92	6
Long term liabilities	1198	1853	2964	4325	92	15112

Source: Own construction based on data of APEH – Income tax return in 2008

CONCLUSIONS, RECOMMENDATIONS

We agree with the idea that the innovation of a nation's economy that is based on R&D activities – particularly in business enterprises – can be influenced by means of government regulation, especially the potential of taxation.

The corporate tax system between 2008 and 2012 contained many direct and indirect elements for encouraging R&D activities in business enterprises. In a relatively great part of the tax reduction options, "feasible" criteria were formulated by the legislation, while in others the conditions were more strict and many of the companies could not reach compliance with them.

Based on the data of our research, in the investigated car dealer firms the use of the tax benefits were not significant, even in those cases where the conditions were easier. From the entrepreneurial side of the problem it meant that they did not have a sufficiently large tax level and profit before tax, from which the discount could have been deducted. Where it was possible, the firms deferred tax allowances.

Despite the regulations provided by the deduction of R&D costs in the form of tax allowances, the majority of businesses did not perform any R&D activities at all.

Since 2008, there have been several changes in the income tax regulation of corporations linked to the R&D activity and the related tax allowances. The number of tax allowances were reduced and some that were popular among businesses were abolished. New ones did not appear.

Our analyses showed that the allowance scheme operating in 2008 did not operate effectively. There were several problems which need improvement or changes in the future. Based on our experience and results, we suggest the further development of the system, as follows:

- its complex monitoring;
- the establishment of new principles (in addition to the R&D activities linked to innovation activities integrated into the system preferences)
- harmonization of the various elements,

- simplification of the conditions in order to be accessible for micro, small, and medium-sized enterprises.

It would be useful to use in Hungary some practices of tax allowances of OECD countries. (E.g.: Loss-making start-ups would receive the sum of the possible tax allowances in the form of support.)

Basically larger SME-s operating in the form of limited companies or joint stock companies – mainly those that have foreign ownership – could use the tax allowances. Due to a significant decrease in the demand for cars, in order to survive smaller firms need to introduce diversification towards other services. These options are inevitable for their development and additional funds are needed for them. For improving their operation, those tax regulating tools which are already applied in practice in the OECD countries would be useful.

A positive improvement in tax allowances would be needed, especially for young innovative enterprises. In the 2014 corporation tax legislation, two new items appeared in the R&D issues. For example, MSMEs may reduce their profit before tax with the costs of software products previously in use, or in other companies, the results before tax may be reduced by the direct costs of R&D activities.

It is important to establish a simpler and more transparent regulatory environment, while further reducing administrative burdens, and to introduce a regulatory reform of the system of quality elements and installation of continuous validation. It is very important to strive to eliminate the unpredictability of the regulatory system, or at least reduce it.

The differences between the regions should be taken into account in formulating preferences into consideration. In particular, it may be appropriate to improve the underdeveloped regions with high unemployment rate options. The current legislation does contain such elements, but the results of our research show that their role is not a sufficiently effective incentive. The region of Central Hungary was and is in a better position than other regions.

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