

# Competitiveness Yearbook 2016

Changes in the position of Hungary in the regional competition

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# 1. INTRODUCTION

This publication, the „Competitiveness Yearbook 2016” relies on the latest data and survey reports to present the position of Hungary, on the basis of 72 competitiveness indices and factors, in comparison to neighbouring competitor countries and Germany (one of the key migration target countries for the population of this region), and the average of the European Union; it illustrates and assesses the direction and extent of changes that have occurred in the last 8-10 years. On the other hand, this retrospective observation also gives a more accurate picture of where progress in the economy could be made, and where our lag increased against other countries, especially as a consequence of the crisis. This volume does not attempt to present all indices and factors that impact competitiveness; the range of indices can be expanded by additional ones, and our analysis is limited to the presentation of indices that we found to be most of the essence.

General economic development figures express the level of development of the economy and the quality of life, which can also be regarded as synthetic competitiveness indices. These are important elements of the longer term competitiveness potential of society. Additional indices look at the supply side of competitiveness by examining the business environment, education, infrastructure, research and development, and the innovation environment. A part of the data is based on hard, statistical information, while some other information is „soft” and based on subjective assessment. However, investor decisions are often based on such „soft” information.

A certain part of the indicators analysed in this volume are also featured in competitiveness reports known around the world, and several of those are also used as a source by this study. We primarily relied on two such reports: The IMD World Competitiveness Yearbook, and the WEF Global Competitiveness Report published under the Global Competitiveness Program of the second World Economic Forum. However, these reports give only a general answer to some important competitiveness related questions that arise in the Hungarian economy, and their approach (wide range of interviews with experts) contains largely subjective evaluations. However, they massively complement more objective statistical data, so that they provide an indispensable data source.

In this volume, we have compared the competitiveness indices of Hungary with the slightly more developed competitors (Czech Republic, Slovenia), and the ones that are on the same level (Poland, Slovakia, Romania). It is important to note that, with regard to a number of indicators, Romania lags behind other Central-East-European countries featured in this study, however, it belongs more to the group of these countries than the group of Croatia or Bulgaria that show a significant disadvantage, which is due to the performance shown by Romania in the last few years.

# 2. COMPETITIVENESS OF THE HUNGARIAN ECONOMY

## 2.1. SUMMARY

Competitiveness is a status marker of the economy that covers a much more complex concept than, for example, economic growth. While the latter can simply be expressed with the GDP index (i.e. the figure measuring the gross domestic product), competitiveness can be defined as a multi-dimensional indicator only. The two concepts are different from each other in this regard, but they are also inseparable: Namely, no economic growth can be achieved without competitiveness; and stable and sustainable economic growth can be one of the elements of competitiveness – with particular regard to attracting capital. No economy of a competitive nation state is feasible without competitive stakeholders. **Hungary suffers from very substantial competitive disadvantage today.** The solution of this problem is ever more pressing as the lack of a quick and effective intervention may lead to Hungary's chronic backlog in the competition for development.<sup>1</sup>

This volume does not wish to give political or economic policy advice, on especially recipes, for an upswing. It only attempts to **present the strengths and weaknesses of the Hungarian economy** through the comparison of approximately seventy economic and social variables, and to examine their changes over the last years. Results can be attained by both developing the strengths further and by resolving bottlenecks, while any change will obviously also have general political and economic policy requirements.

The three best known and most quoted competitiveness rankings and supporting indices are published by the **World Economic Forum (WEF)**, **IMD (International Institute for Management Development)**, and the **World Bank** each year. Hungary showed a somewhat uneven performance in these rankings in the last 10 years. In the **WEF ranking** we **slid down 25 positions over 10 years** (among 140 countries) and stood at position 63 in 2015; we **slipped 13 positions** (from 61 countries) **in the IMD ranking** between 2006 and 2015, and stood at position 48; while we managed to **make a 6-position progress in the World Bank ranking** (189 countries) to position 54. Looking at the competitor countries, the Czech Republic and Poland are well ahead of us in the WEF and IMD rankings, while we are in the same group with Slovakia, Slovenia and Romania in 2015. We have overtaken only Slovakia in the first, and Romania in the second ranking. In the World Bank ranking, we were the last among the countries

<sup>1</sup> Varga János: Versenyképességi helyzetjelentés Magyarországról in: XXI. Század – Tudományos Közlemények 2013/29

examined here in 2015, with Romania, Slovenia and the Czech Republic holding a small advantage over us, and Poland and Slovakia holding substantial advantages.

When comparing the 6 countries of the region, Hungary ranked first in 5 cases, second in 4 cases, third in 15 cases, fourth in 17 cases, fifth in 15 cases, and sixth in 12 cases on the basis of 85 indices included in this analysis of the latest available data (2013, 2014 or 2015); which results in an average ranking of 4.0 (weighted average). In comparison to the basis year included in this Yearbook (usually different for each indicator), we progressed in the regional ranking in 20% of the indices (in some of those we were already ranking among the first), our position did not change for 35% (we were originally last at several cases), and our ranking deteriorated at 44% of the indices against the regional average.

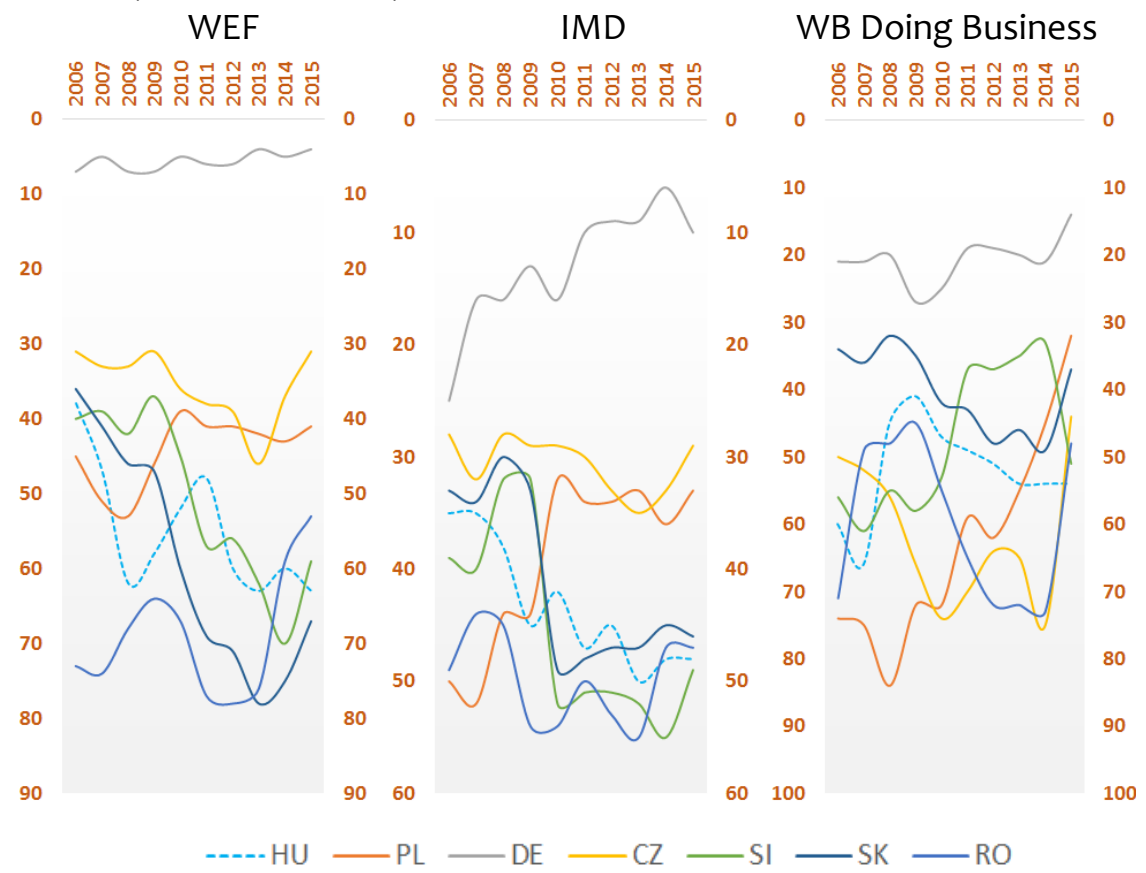
**From among European Union Member States (28)**, the comparison of competitiveness indices places us at the 20th or lower position for 36 indices, we rank 10-19th positions at 23 cases, and we are at one of the first 9 positions at 9 indices, which results in an **average ranking of 18.6**. The best position we hold in an European context is a 3rd ranking for the **density of the public road network**. We are in the first quartile of all EU28 countries for the density of the railroad network, the time and number steps required to establish a new business, the rate of high-tech in processing industrial exports, and the rate of dependency. However, we rank last for many indices: **The ageing of society is the biggest problem in Hungary**; business executives say that we have the **lowest level of foreign language skills**; the **operation of SMEs is the least efficient**; the **innovation capacity of businesses is the weakest**; **value chains are missing in Hungary** the most; while the **relative rate of mobile broadband subscriptions is also lowest in Hungary**; and we have the **highest VAT rate**. We are also amongst the last three in terms of per capita public spending on education; the quality of mathematical and scientific education; the efficiency of competitiveness regulations; and the quality of the health care infrastructure (according to business executives).

The **competitive position of Hungary has deteriorated against regional and European benchmarks** over the last 8-10 years, both in terms of the value of indices, and the ranks that the country has. The global and consequent European credit crisis and its impacts, and partly economic policy decisions and their consequences are in the background of this deterioration. The composite position of **Poland**, which was the least impacted by the crisis and has introduced the biggest number of reforms, **improved for its total rankings and the main competitiveness indices (81% of the indices examined show improvement)**. Next to Poland, it was Romania that could improve its competitiveness substantially (even though the basis was much lower); Slovakia and the Czech Republic saw minor drops in a regional context. Slovenia was affected by the credit crisis the worst, and they had to see a massive drop in competitiveness.

## 2.2. ECONOMIC-SOCIAL DEVELOPMENT

### 1. CHART Competitiveness rankings

2006-2015 (lower values are better)



SOURCE: IMD, WEF, World Bank

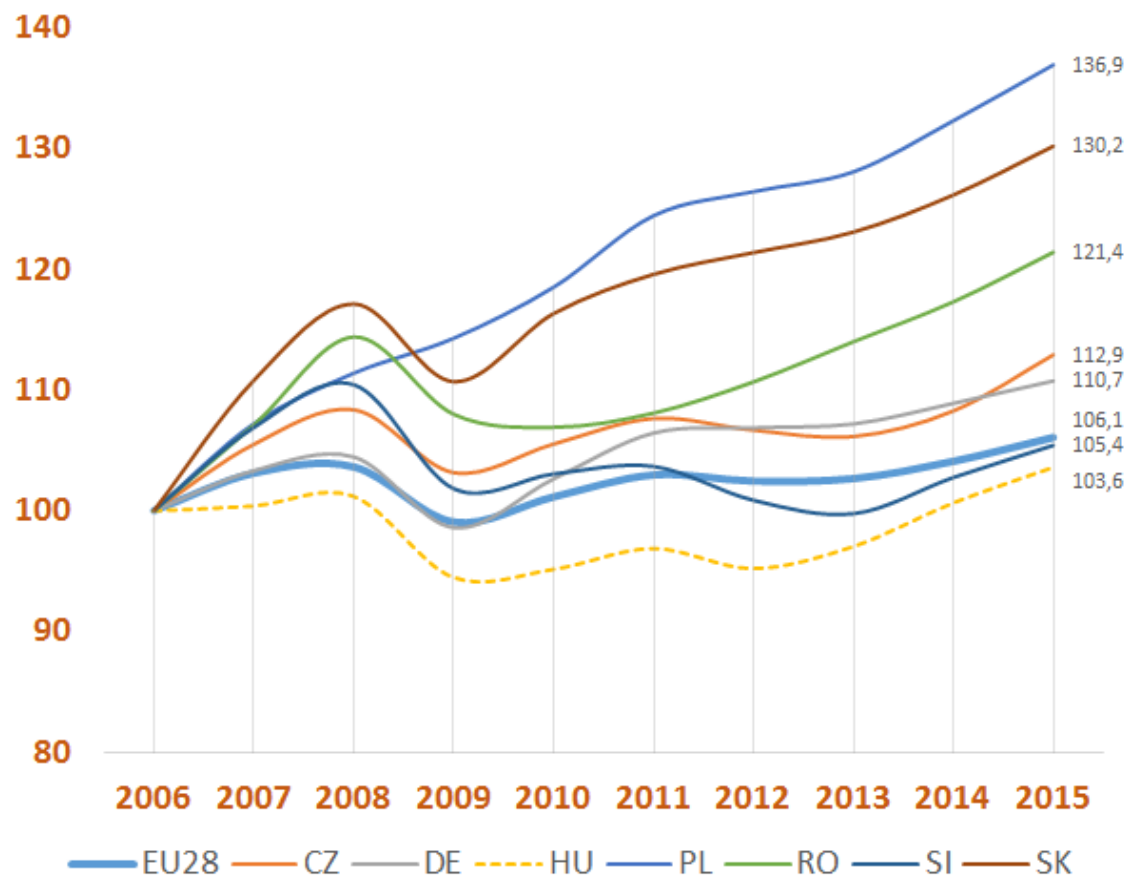
The three most quoted competitiveness rankings and their supporting sets of indices are published each year by the World Economic Forum (WEF), IMD (International Institute for Management Development), and the World Bank. The first two look at countries from a wider perspective (macro-economic, demographic, social, education etc.), while the World Bank’s „Doing Business” list looks more at the possibilities to establish and do business, the legislative environment of enterprises, relevant resolutions and the business environment in general.

Hungary has shown uneven performance in these rankings over the last 10 years. On the WEF list (140 countries) we dropped 25 positions over 10 years to rank 63 in 2015; on the IMD list (61 countries) we slipped 13 positions to rank 48 between 2006 and 2015; while we could inch up 6 positions on the World Bank list to position 54 (among 189 countries).

On the WEF and IMD lists the Czech Republic and Poland were well ahead of us in 2015, while we are in the same group with Slovakia, Slovenia and Romania. We are ahead of Slovakia on the first, and of Romania on the second list. We were the last among the countries examined here on the World Bank list in 2015.

## 2. CHART Changes in real GDP

2006-2015 (2006=100)



SOURCE: Eurostat; COMMENT: 2015: Forecast by the European Commission.

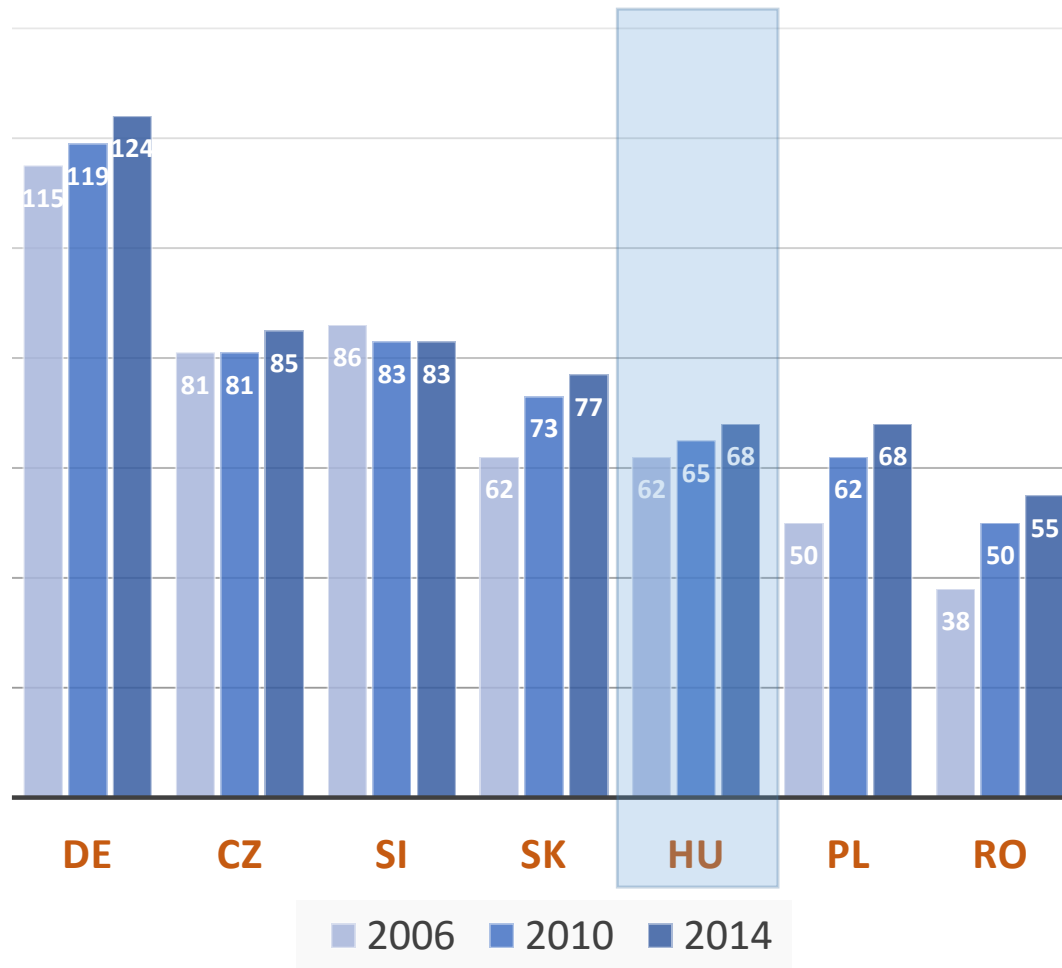
Ranking of Hungary in the EU (2015): **20.**/28.

Real GDP shows changes in the economic output of the country in the given year at comparative prices, thus allowing a comparison across countries.

The slowdown in economic growth or a downturn was characteristic for all countries (except for Poland) in 2009. Poland could avoid the downturn due to its substantial internal market and the consequent lower level of exposure to international markets as compared to other countries. Slovakia and Romania turned to an upward trajectory after 2009 and 2010 respectively; while another downturn happened in the Czech Republic, Slovenia and Hungary in 2012, which continued to erode the economy further also in 2013 in the first two countries. Hungary reached the real GDP level of before the crisis in 2015 – much later than the other countries analysed here, except for Slovenia. **We could grow by a little less than 3.6% against the figure of 2006**, thus showing the worst performance in the region; and we have a substantial lag against Poland, Slovakia or Romania, which started from a lower basis as we did.

### 3. CHART Per-capita GDP at purchase power parity

EU28=100



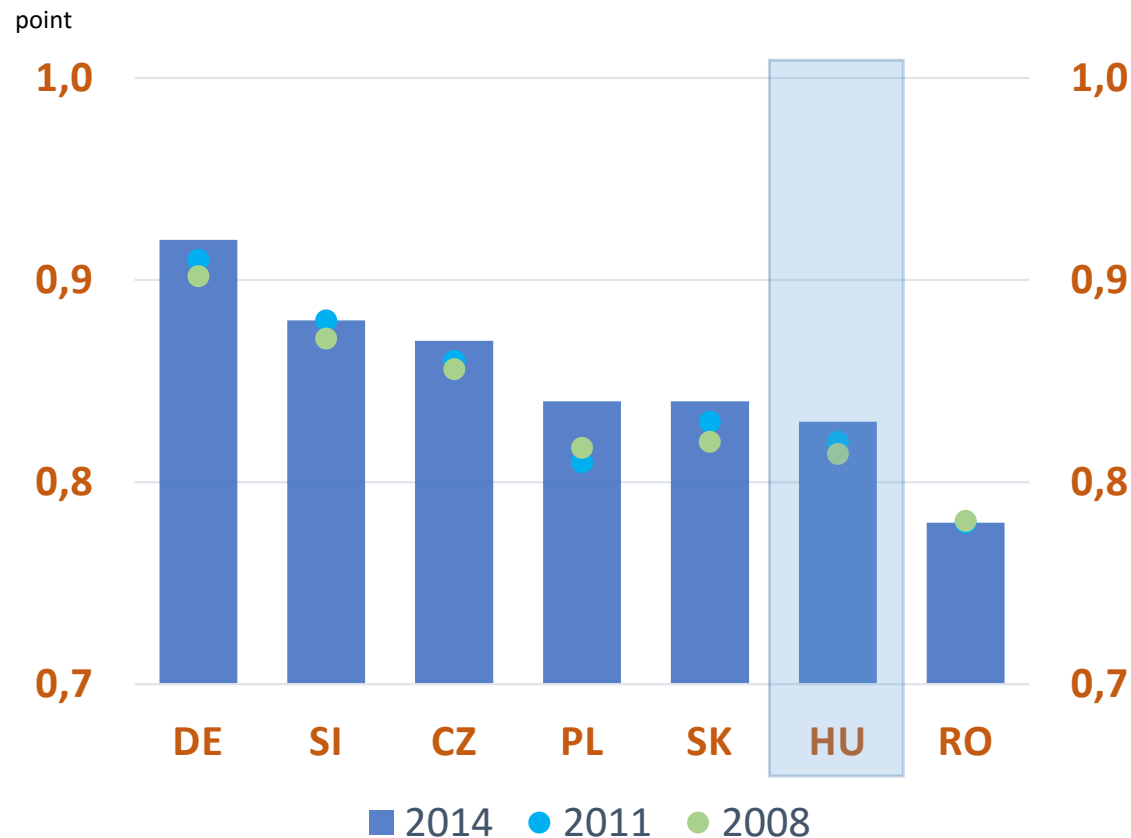
The most widespread index for economic development is the per-capita GDP, which shows, on one hand, the economy's output, and, on the other hand, the total impact of changes in the number of population.

**Calculated at purchase power parity, the per-capita GDP reached 62% of the EU28 average in Hungary in 2006, which increased to 65% of the then average by 2010, and then to 68% of the average of 2014.** With this, we could reduce our lag mildly (by 2 percentage points) against the Czech Republic, and substantially (by 9 percentage points) against Slovenia. Used as the reference value, Germany started from a much higher basis, but moved away slightly both from us and the EU average. Slovakia started from the same basis as we did, and they approached the EU average by 15 percentage points due to their performance between 2006 and 2010. This means that they are 9 percentage points ahead of us, while Poland could eliminate its backlog of 12 percentage points against Hungary between 2006 and 2014. Meanwhile Romania grew from 38% to 55% of the EU average.

SOURCE: Eurostat

Ranking of Hungary in the EU (2014): **18./28.**

#### 4. CHART Human development index (HDI)



The **human development index** is often seen as an alternative to the gross domestic product especially that it has a wider interpretation of human welfare than the concept of the GDP. This index is generated as the simple average of three indices: the „long, healthy life” target is quantified through life expectancy at birth, education is expressed through the rate of adult literacy and the proportion of people with different degrees in the population, while „living standards” are represented by the per-capita gross domestic product at purchase power parity.<sup>2</sup>

All in all, the HDI ranking of Hungary deteriorated by one notch (rank 43 among 182 countries in 2008, rank 44 among 188 countries in 2014), while we are also one position down in comparison to countries in the region. **The HDI improved for all countries of the region but Romania between 2008 and 2014, mostly in Poland that overtook both Hungary and Slovakia over 5 years.**

SOURCE: Human Development Report UN

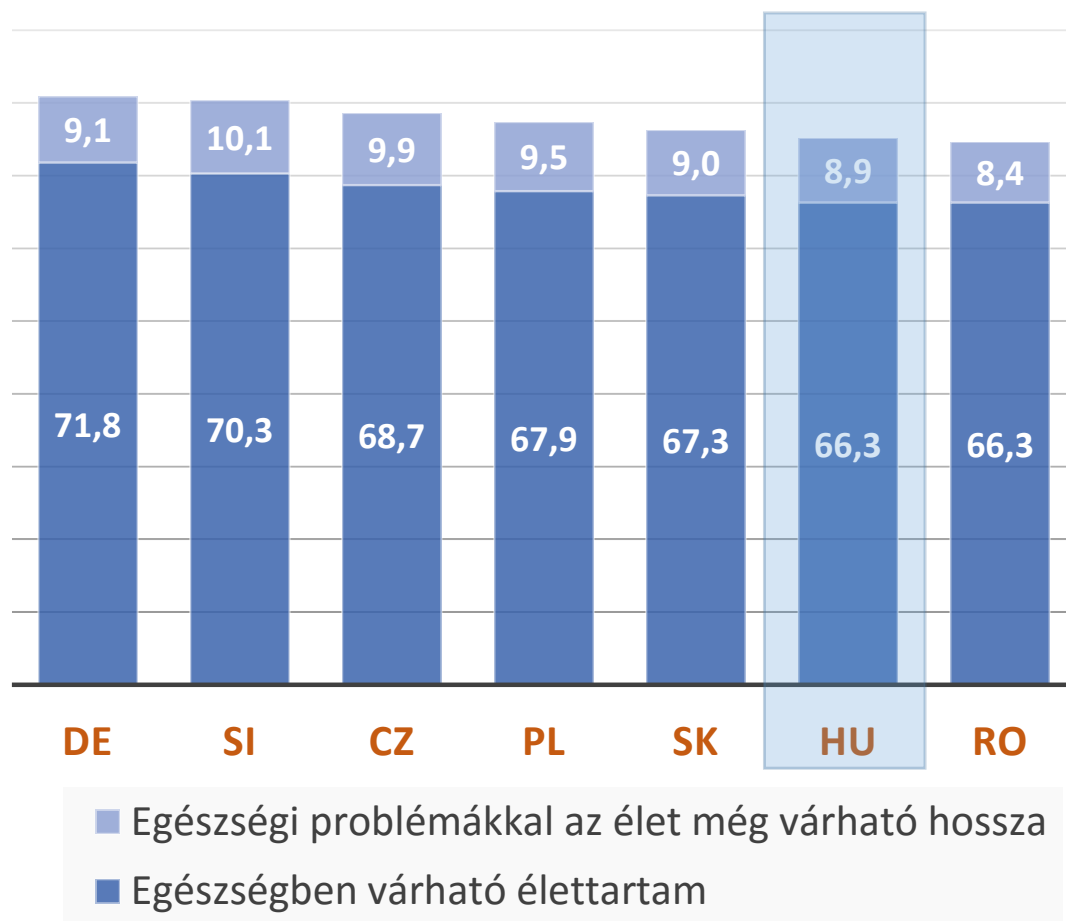
Ranking of Hungary in the EU (2014): **24./28.**

<sup>2</sup> "Human Development Report 2015: Work for Human Development"

## 2.3. DEMOGRAPHICS

### 5. CHART Life expectancy

2014 (years)



SOURCE: Human Development Report UN

Ranking of Hungary in the EU (2014): **24./28.**

**Life expectancy at birth** is an important indicator for the level of development of society.

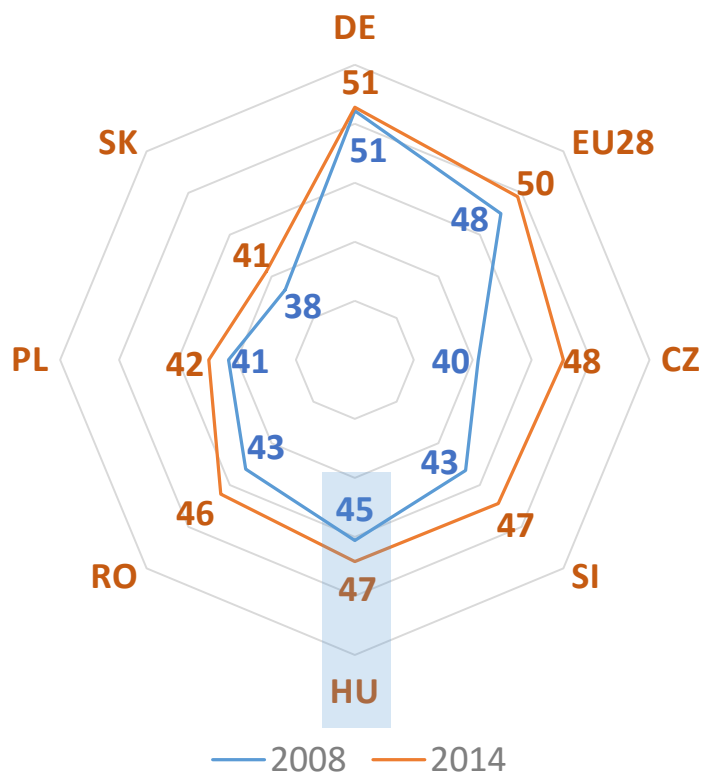
This increased by 1-1.5

**Life expectancy at birth** is an important indicator for the level of development of society. This increased by 1-1.5 years in the countries analysed here between 2008 and 2014. Life expectancy is 80.9 years in Germany, while Slovenia has the highest life expectancy in the region (80.4 years), followed by the Czech Republic (78.6 years), Poland (77.4 years), Slovakia (76.3 years), Hungary (75.2 years) and finally Romania (74.7 years).

However, the level of economic development and the number of years lived in good health do not necessarily correlate: Like in Romania, people in Hungary live 66.3 years in good health on average (2014), Slovaks, Poles, Czech and Slovenes live 1, 1.6, 2.4 and 4 years longer respectively. Therefore the role of healthy lifestyles and health care services becomes increasingly important also in Hungary. The deterioration of the economic situation, increased stress (fear from unemployment, chronically low income, increasing social disparities) have a stronger impact in Hungary than in the other analysed countries. Continuous cuts in the health care budget have also had a negative impact, while these are leveraged by increasing co-funding from the population, and this is primarily what still secures the functionality of the health care system at all.

## 6. CHART Rate of dependency

Rate of the total number of younger than 15 and older than 65 year olds against those between 15 and 64 years of age (%)



SOURCE: Euromonitor International

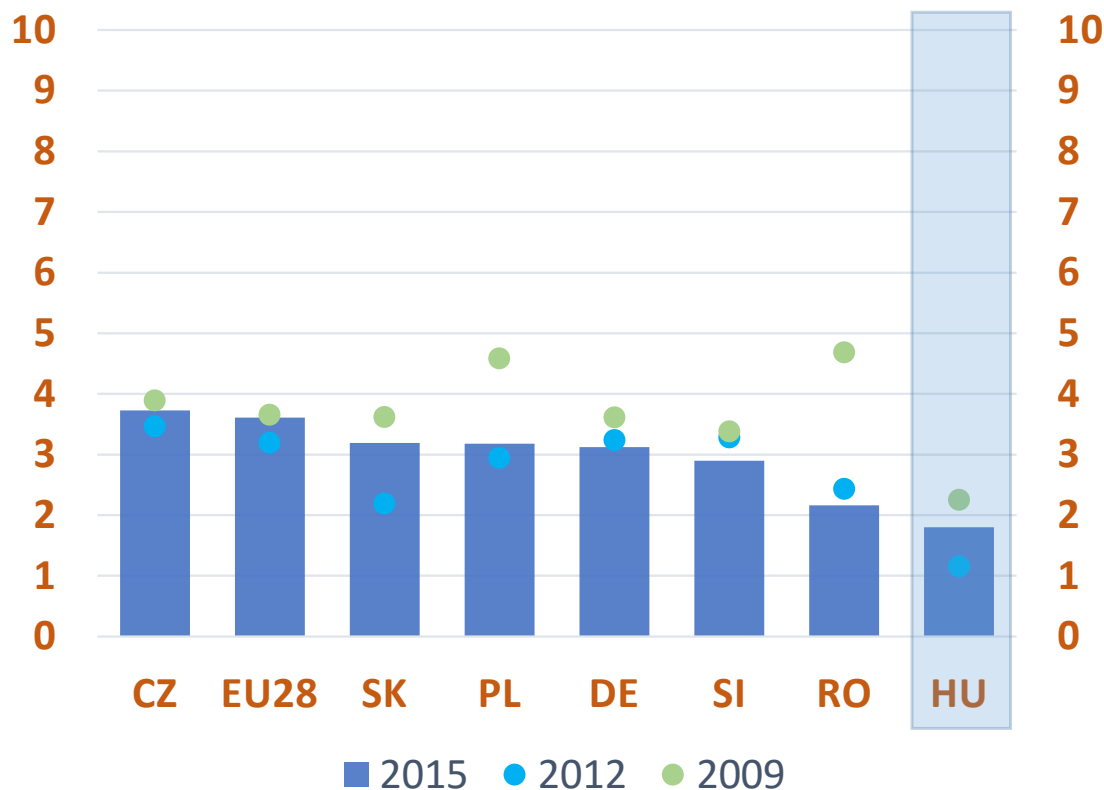
Ranking of Hungary in the EU (2014): 5./26.

The rate of sustenance, also known as the **dependency rate** shows the rate of children (0-14 y.o.a.) and elderly (aged 65+) against the number of population aged between 15 and 64. The rate of persons younger than 15 y.o.a. is less of a problem for decision makers in Europe; the real challenge for state households is the ageing of society. The process of ageing has an impact on this rate: As the size of working age population decreases, the number of elderly grows who need to be sustained. This means that the dependency rate is increasing.

The **dependency rate grew** in all countries analysed here except for Germany, as did also for the EU average **between 2008 and 2014**. West-European countries increase the EU average substantially. Half of the population of Europe is sustained in 2014. The situation is somewhat better in the Member States of the region: The rate of dependency is 48% in the Czech Republic, 47-47% in Hungary and Slovenia, 46% in Romania, 42% in Poland, and the best rate of 41% is found in Slovakia. The indicator deteriorated the most in the Czech Republic (by 8 percentage points) over six years, while the rate of increase was 2 percentage points for Hungary.

## 7. CHART Ageing society

0=impediment to economic development, 10=no impediment to economic development



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

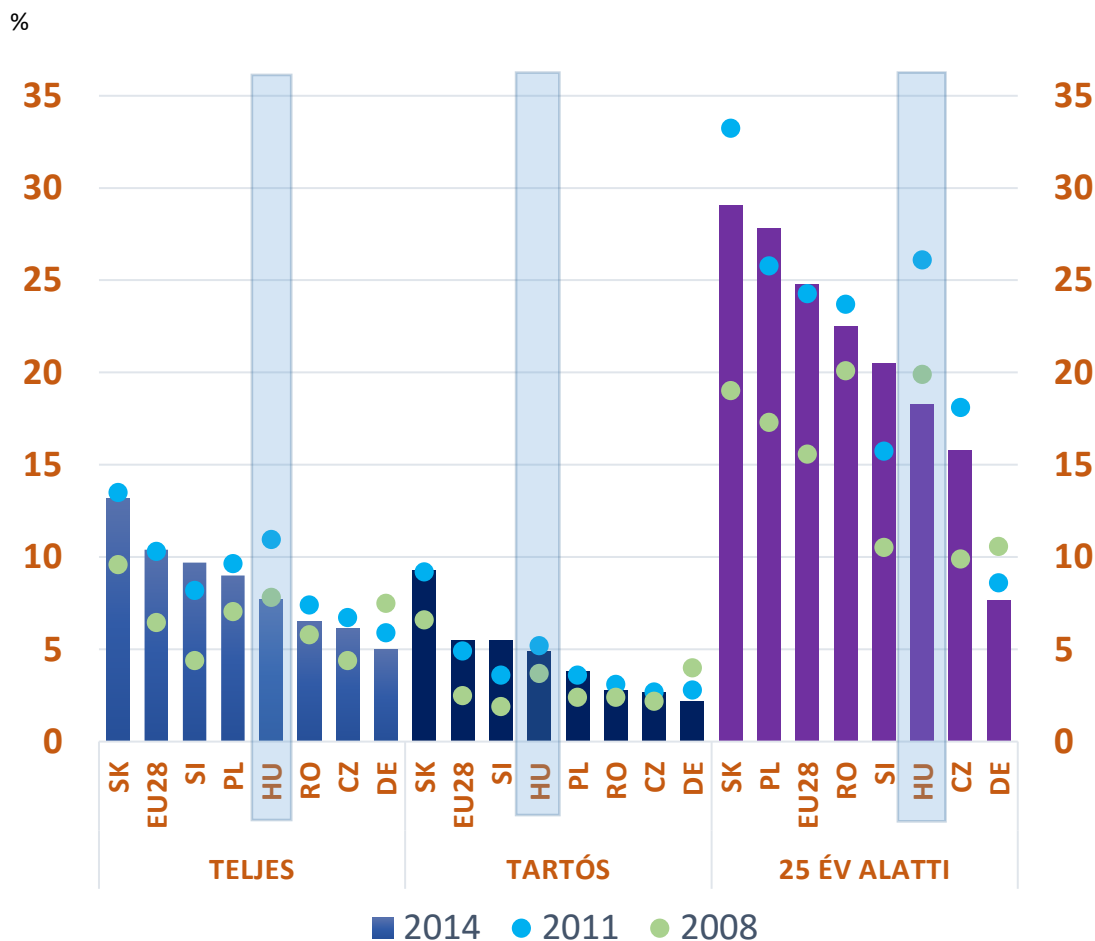
Ranking of Hungary in the EU (2015): 26./26.

The rate of the elderly will increase sharply, while the rate of working age population will decrease substantially in European Union Member States in the next decade. It is a tremendous achievement that people live longer today, however, the ageing of society is a serious burden on economies and welfare systems of Europe. This demographic change can be described as one of the biggest challenges that the EU is facing. Changes in the length of life of the population do and will have an impact on pensions, on long-term care and support, education and unemployment benefits.

All in all, the ageing of society has different impacts on the various countries. According to a survey performed by IMD with business executives in the region, **the ageing of society is the biggest impediment to the development of the economy in Hungary from among these countries in 2015.** However, Slovakia, Poland, Slovenia and Romania are also in a more disadvantaged position than the EU average. Czech position of all countries examined, and the average of the EU have deteriorated since 2009; but the most obvious deterioration happened in Romania, we assume that the reason might be the volume and speeding up of emigration of younger working age generations.

## 2.4. LABOUR MARKET

### 8. CHART Unemployment rate



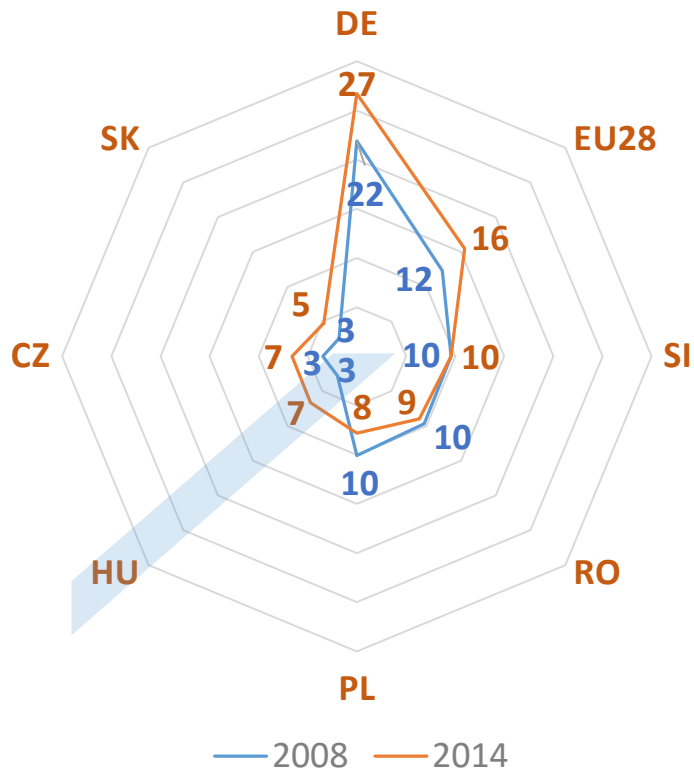
SOURCE: Eurostat, OECD Main Economic Indicators  
 Ranking of Hungary in the EU (2014): 10./26, 18./26, 8./26.

The rate of unemployment worsened in all countries in the region after the economic crisis (the rate of the number of unemployed and the working age population), and then it could level out to some extent (except for Slovenia that saw an increase). **In Hungary, the rate of unemployment increased from 7.8% in 2008 to 11% in 2011, and then dropped to 7.7% in 2014 mainly due to a development in the public work program, employment abroad and, to a lesser extent, the ability of the competitive market to absorb some workforce.** Net of the effects of the public work program, this rate might be around 10%, and it would be at 15% if we also deducted the impact of employment abroad (after 2010) on a comparative basis. The unemployment rate of the EU28 increased from 6.5% to 10.4% over six years.

The **long-term unemployment rate**, which moved in the same direction as the unemployment rate in countries examined, represents the proportion of people out of work for a longer term of minimum 12 months. This **grew from 3.7% to 4.9% between 2008 and 2014 (despite public work)**, which is still a better rate than what Slovakia or Slovenia have. Youth unemployment is a serious problem both economically and socially, and the economic crisis has worsened the situation that was never quite positive in the first place. The rate of unemployment for younger than 25 years of age was the highest in Slovakia and Poland with 29% and 28% respectively in 2014, while it was 18% in Hungary.

### 9. CHART Part-time employment

Proportion of all employment (%)



SOURCE: OECD Main Economic Indicators

Ranking of Hungary in the EU (2014): 25./28.

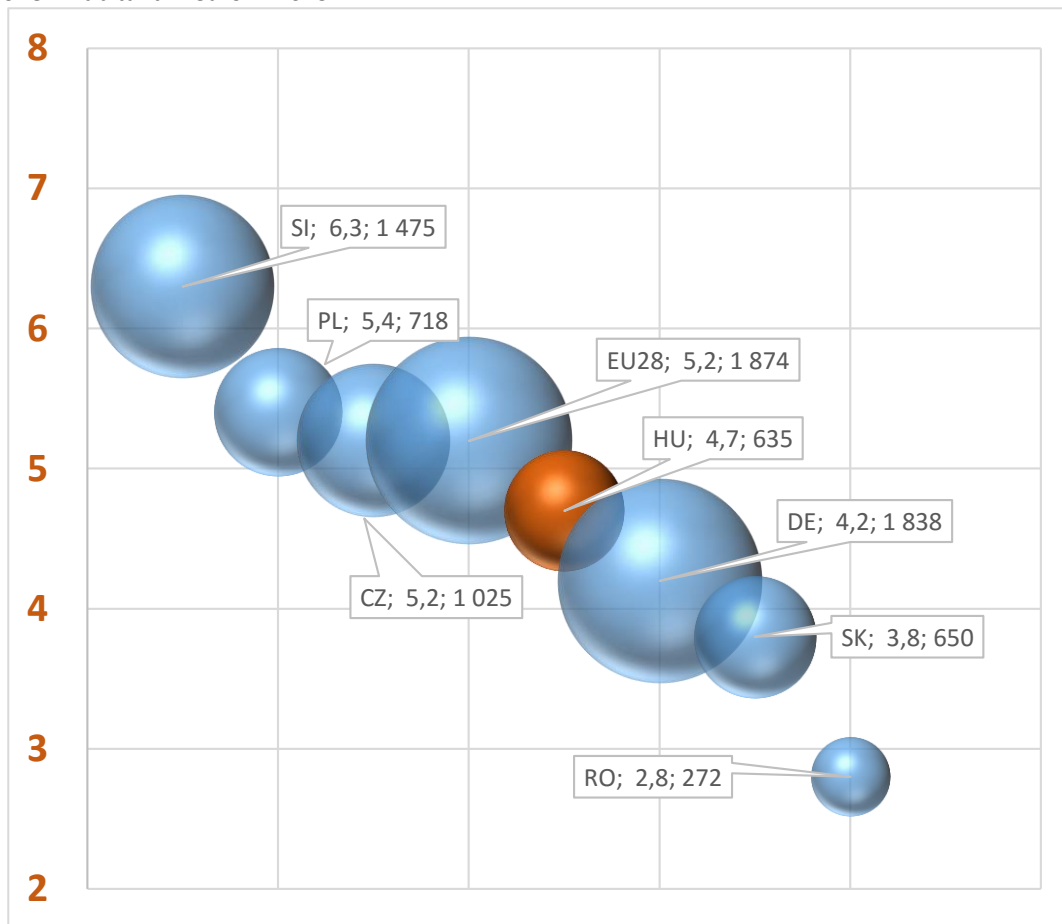
There are two theoretical approaches to spreading the concept of **part-time employment**: One aims at flexible working terms that meet the employees' needs; while the other tries to secure support to preserve and create jobs. This is often almost the only possibility for women and young people to find a job, while others prefer this form of employment because it leaves them more time for their families or hobbies. This is more characteristic in case of countries with higher levels of salaries (e.g. the Netherlands, Sweden).

Part-time employment saw an expansive growth in the European Union before the economic crisis, but this growth slowed down after the crisis, and it even dropped in some countries (Poland, Romania) **12% of employees worked part-time in the European Union in 2008, which increased to 16% by 2014. The growth was from 3% to 7% for Hungary and the Czech Republic, and from 3% to 5% in Slovakia.** There was no change in Slovenia (10%). One of the main targets of workforce migration, Germany saw an increase of 22% to 27% between 2008 and 2014.

## 2.5. EDUCATION AND TRAINING

### 10. CHART Public spending in education

2013 (proportion of the GDP), the size of bubbles represents the value of public spending on education per one inhabitant in euro in 2013.



SOURCE: Eurostat

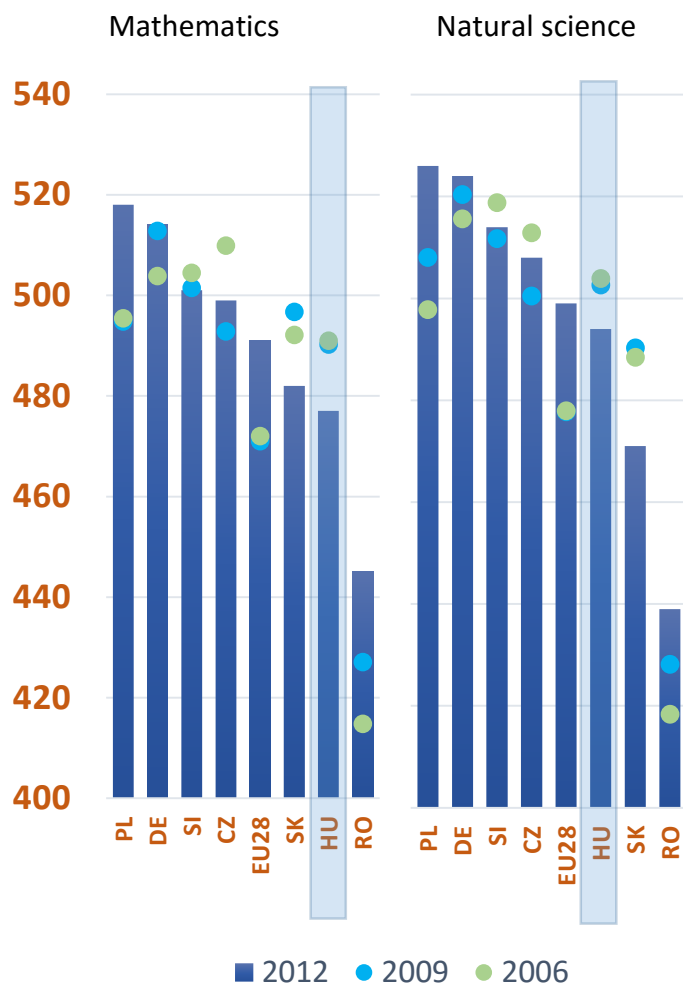
Ranking of Hungary in the EU (2013): **21./28**, and **27./28**.

Both the material and the personal conditions of the Hungarian educational system are disadvantageous in many regards. This also leads to the consequence that Hungary has a quite poor standing in terms of the performance of students in international comparison. **Not only the education of general knowledge is weak, but the vocational educational system is also inefficient.** Neither the structure of higher education, nor the its quality meet the current and future requirements of the economy. The shortcomings of this inflexible education provided in the frames of the school system are only partly balanced by education available outside the school system, which allows for more flexibility. More and more people get education throughout their lifetime, but Hungary still ranks last.

**Public spending in education was at 4.7% of the GDP in Hungary in 2013, which is lower than the EU28 average** or the rates in Slovenia, Poland and the Czech Republic, however, it is higher than the rates of Slovakia or Romania (and it is also higher than in German). **Per-capita public spending in education was only higher than in Romania in 2013** (although it was much higher than there). The wage increase of teachers took the per-capita spending rate somewhat closer o the EU average in 2014-15.

### 11. CHART Mathematical skills and science knowledge of 15 year olds

scores



SOURCE: PISA OECD

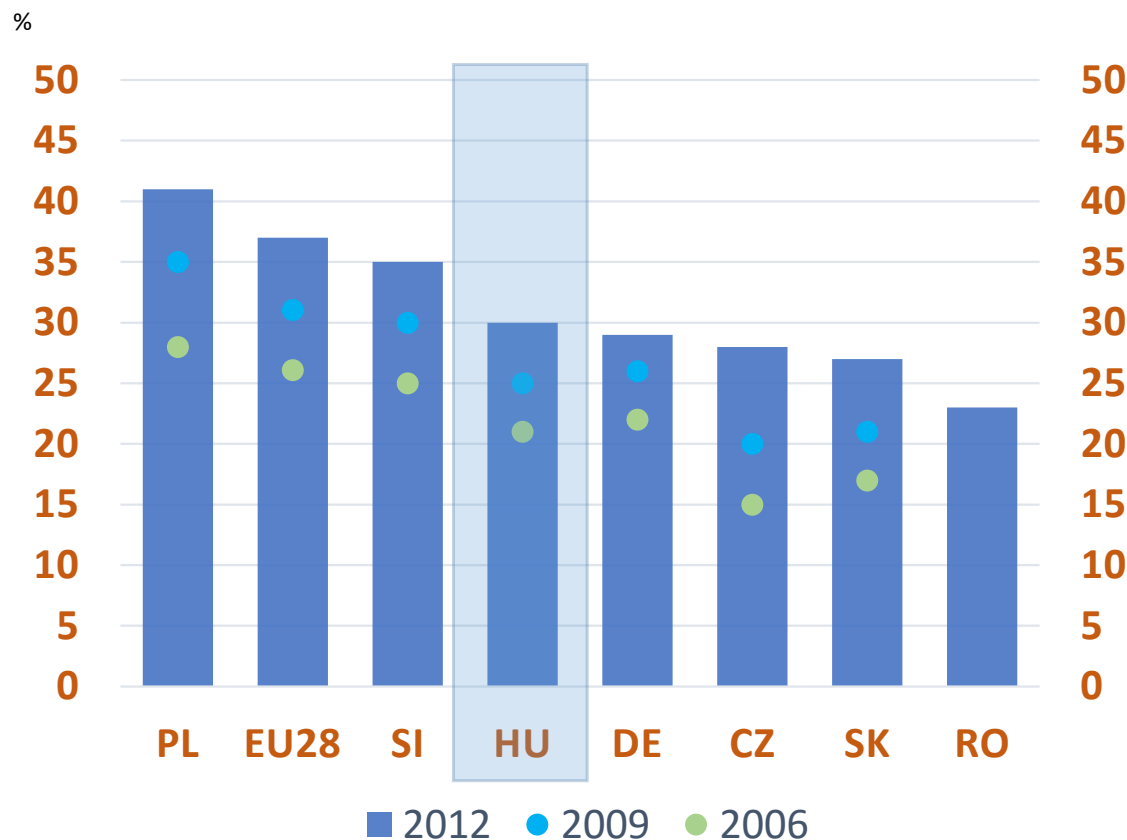
Ranking of Hungary in the EU (2012): **24./28**, and **19./28**.

Initiated by OECD, PISA tests measure applicable knowledge and examines to what extent 15-year old pupils can use their knowledge in life situations, and how that is influenced by the background of schools and pupils. PISA test findings answer the question to what extent pupils coming out of the educational systems of various countries respond to challenges of everyday life and the modern labour market.

According to the latest **PISA test of 2012**, the **mathematical skills and knowledge of 15-year old Hungarian pupils exceed those of Romanian pupils only**, if we look at the region (although the difference is substantial). While the average of the EU28 improved, the **mathematical skills of Hungarian pupils deteriorated slightly between 2006 and 2009**, and **substantially between 2009 and 2012**.

The knowledge of Hungarian youth in natural sciences ranks somewhat better on the PISA list than mathematical skills, but we are still behind the EU28 average. It is no reason for optimism that the natural science score dropped by 10 points between 2006 and 2012, a deterioration that was exceeded by Slovakia only.

12. CHART Rate of academic graduates among 25-34 years of age



In the countries of the European Union, three of ten young people aged 25-34 have a higher education degree; however, this rate is five out of ten in e.g. Japan, Israel, Canada and Korea. A bigger or smaller growth of the rate of people with higher education increased in all countries of the region (we only have data for 2012 for Romania). **The 30 percent rate measured in Hungary in 2012 is a median result for the region (21 in 2006)**, but it is higher than the rates in the Czech Republic, Slovakia or Romania. Poland is the country where the catching up has been the fastest, with the rate of professionals already exceeds the average of the EU due to a rapid expansion of higher education.

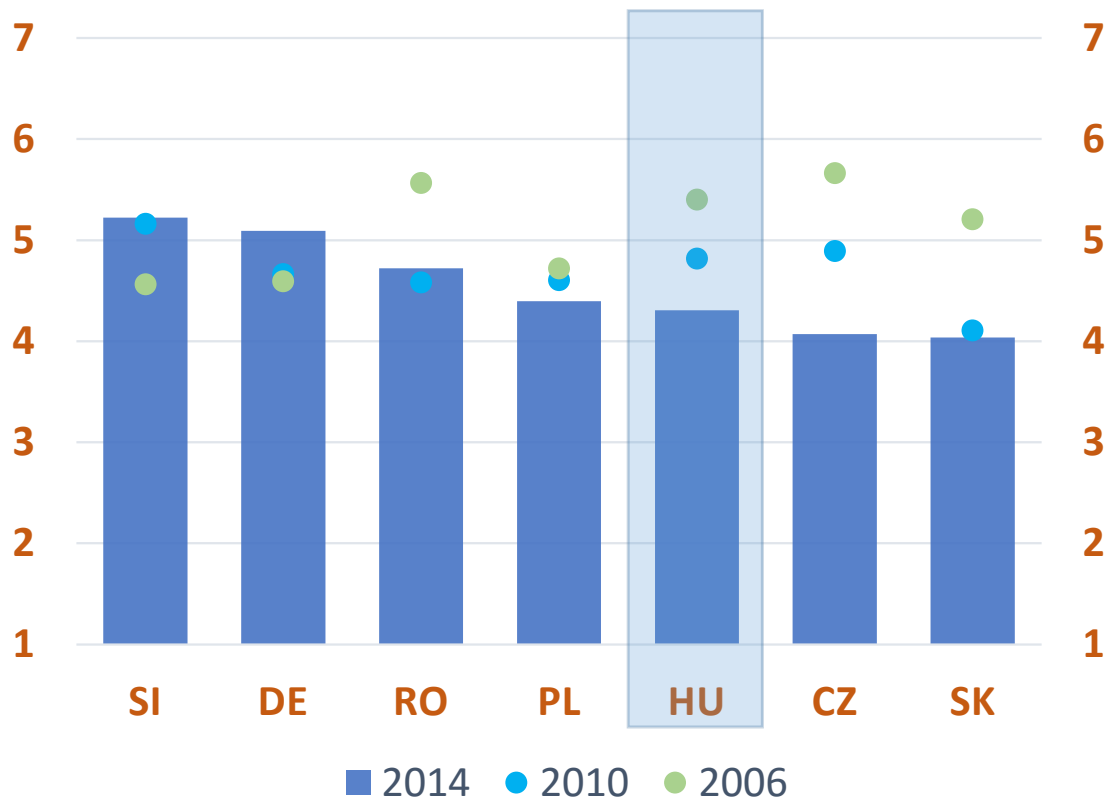
There has been a dynamic change in higher education in Hungary in the last one and a half decades. The number of students in higher education has quadrupled since 1990. The expansion of higher education was accompanied by a parallel deterioration of the quality of education; the value of diplomas deteriorated, so that the requirement towards educational policy is to increase the quality of education rather than to increase the number of participants. **This is not supported by the continuous draining of resources from higher education, or the partial introduction of higher education provided against a tuition fee, which has resulted in a drop in the number of students after 2012.**

SOURCE: OECD Education at a Glance

Ranking of Hungary in the EU (2012): **17./26.**

### 13. CHART Quality of mathematical and scientific education

1=amongst the worst in the world, 7=excellent, one of the best in the world



SOURCE: WEF, Executive Opinion Survey

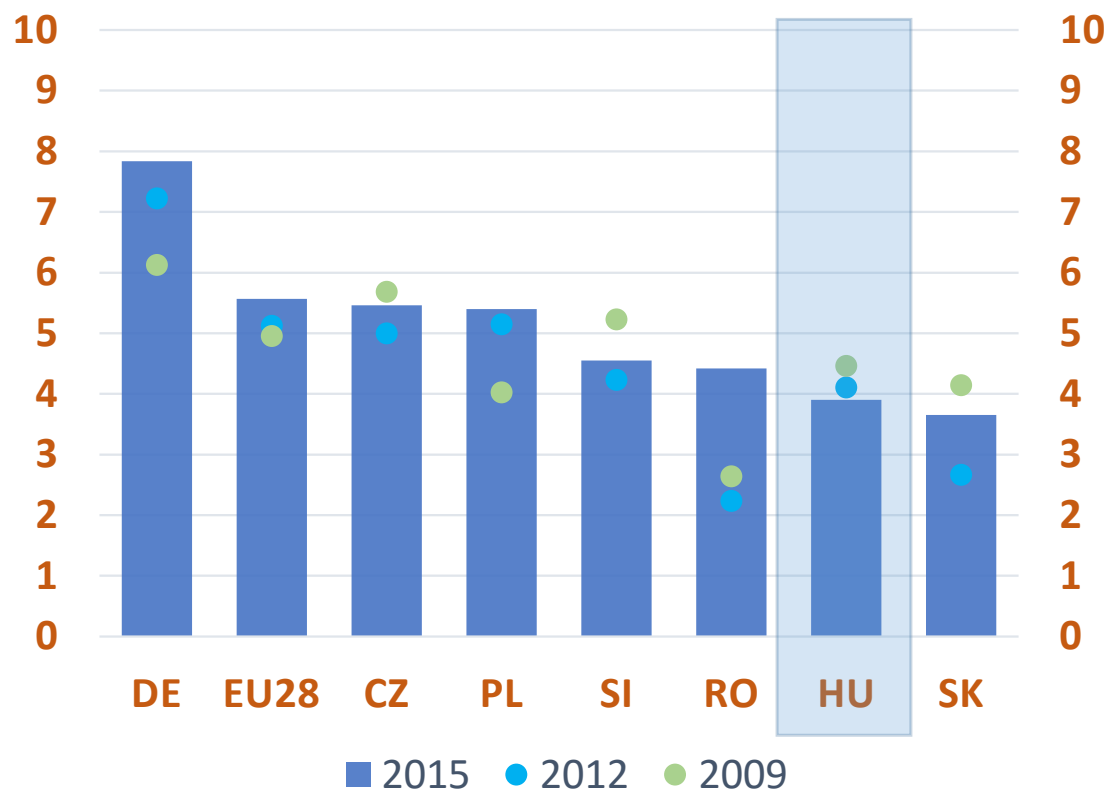
Ranking of Hungary in the EU (2014): 26./28.

The fundamental objective when developing the mathematical thinking of pupils is that they are able to select the models, thinking approaches, methods and descriptions that best fit natural and social phenomena in the best possible way. Mathematical education develops the modelling skills of pupils in a multi-faceted way. However, the development of skills to determine the scope of validity and practical applicability of models is equally important. Teaching and learning of reproductive and problem solving and creative thinking are of equal importance, while the ability to automatically perform basic activities (e.g. measurements, basic designs) and functions (e.g. arithmetical, algebra functions, transformations) should also not be neglected. Teaching mathematics provides the fundamentals for future scientific education.

According to the WEF survey, the **quality of mathematical and scientific education** deteriorated in all countries of the region (including Hungary) to varying degrees between 2006 and 2014. **Hungary slid from very good to average in the period examined.** It is still ahead of the Czech Republic and Romania, but it lags behind Slovenia (this was the only country in the region that saw an improvement), Poland and Romania. This is also in line with the findings of PISA tests.

## 14. CHART University education and the needs of the business sector

0=not adequate, 10=completely adequate



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

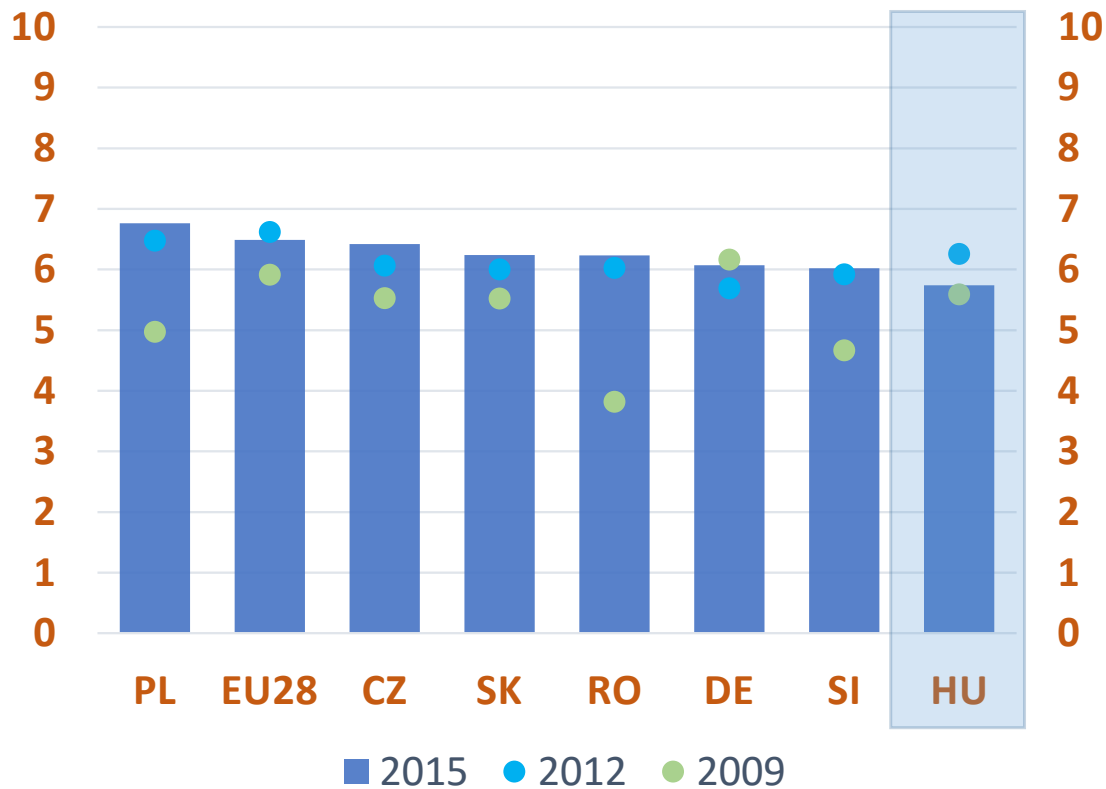
Ranking of Hungary in the EU (2015): 21./26.

Hungary has been preferred investment target of multinational companies since the early nineties. In addition to the country's good geographical location and relatively low labour costs, one of the fundamental attracting factors was the availability of qualified, easily trained workforce, which was good for labour intensive activities. This was the reason why approximately 60% of foreign working capital invested into the electronics industries of Central and Eastern Europe flowed into Hungary. Investors appreciated in particular the increased capacity of higher education and the fact that the output of higher education doubled over a few years, and the benefits offered by the Hungarian labour market could be exploited not only in assembling industries but also, occasionally, at higher stages of the value chain.

According to IMD's survey, **business executives interviewed judged Hungarian higher education to be less adaptive to the needs of the business sector as compared to the EU28 countries and those of the region, with Slovakia as the only one worse off.** The situation also worsened against 2009. The Czech Republic, Slovakia and Slovenia, like Hungary, showed mild deterioration between 2009 and 2015, while there was significant improvement in Poland and Romania. **The very purpose of reforms in higher education in 2010 was to make sure that higher education in Hungary is more in line with the needs of businesses.**

### 15. CHART Availability of skilled engineers on the labour market

0=are not available at all; 10=are available



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

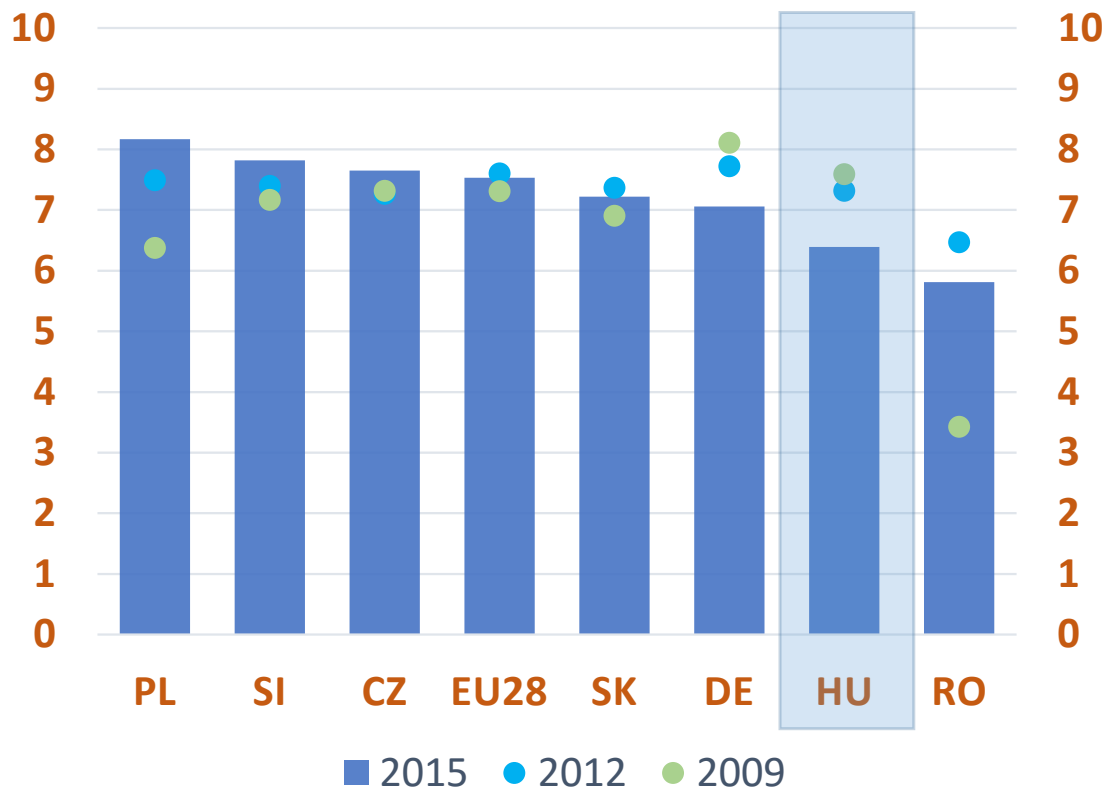
Ranking of Hungary in the EU (2015): 22./26.

University graduates with a technical degree are quickly absorbed by the Hungarian labour market. The biggest need is there for mechanical, electric and mechatronic engineers because these professions are most connected to the automotive industry. Also, IT experts can find work relatively quickly as the IT sector is also developing continuously with several international software companies relocating their development bases to Hungary, and with export oriented Hungarian software companies showing rapid development. The SSC market also relies greatly on technical professionals.

The survey of IMD with business executives shows that companies find it easier than the average to source engineers in the countries of this region. Even though there is no substantial difference across the countries examined, **Hungary still ranks last on this list**. We could temporarily improve our position between 2009 and 2012, and then we slid down to almost the level of 2009 by 2015. According to the PISA test results, it is not surprising that there is a lack of interest for technical careers: if someone is weak in sciences or mathematics, they will hardly choose to become engineers. Meanwhile, competing countries in the region could all improve their positions, Poland and Romania could do it substantially.

## 16. CHART ICT skills

0=completely missing; 10=fully available



Societies in Europe and overseas could recognise the importance of using info-communication tools on a societal level. Aims are more or less similar, however, there are massive differences in the implementation both in terms of the outgoing situation, and the resources that can be mobilised. Hungary is in the middle of the field in terms of technical infrastructure (hardware, software, Internet access), however, it is indispensable for avoiding any drop that all planned infrastructure developments are fully implemented, that good practices of frontrunners be continually studied, and that our own conditions and possibilities be appropriately developed further.

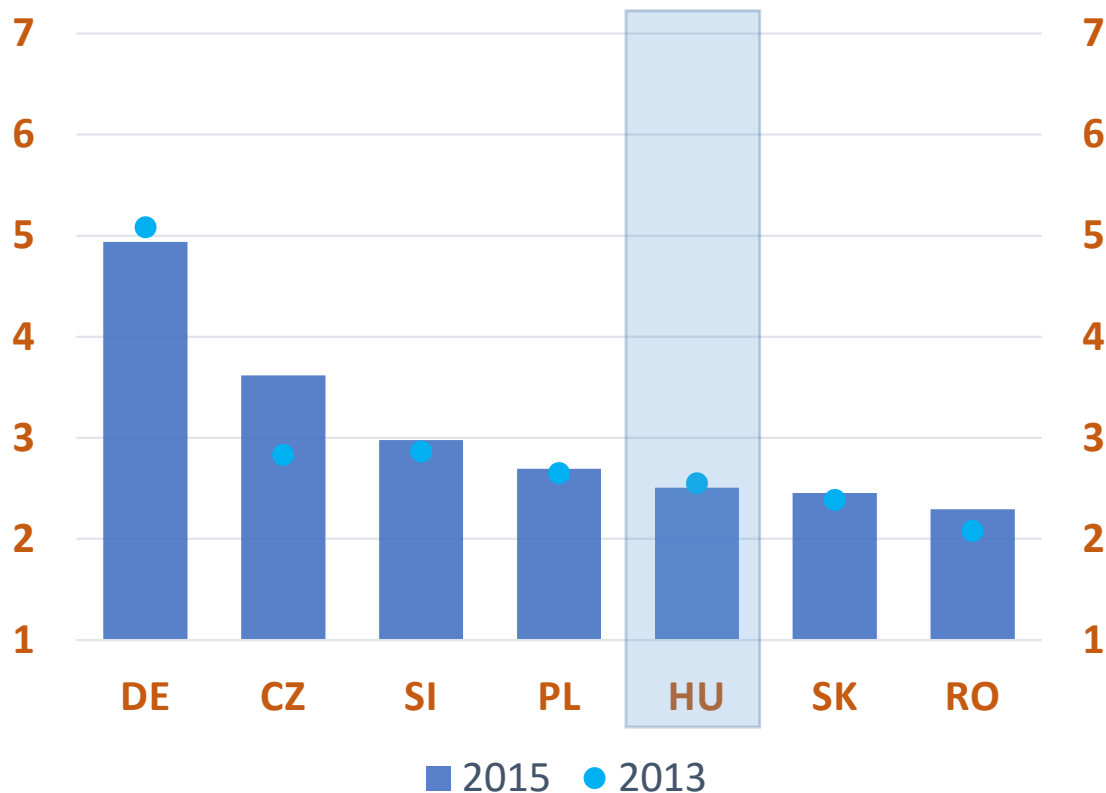
**According to the opinion of business executives, ICT skills of Hungarians were behind the EU average in 2015, and also from the average of all examined countries in the region except for Romania.** All countries in the region but Hungary (and Germany in this comparison) could improve their index; the biggest improvement was achieved by Romania, which still remains the last on the list, and Poland.

SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): 23./26.

### 17. CHART Ability to retain talent

1=cannot prevent talented people from going abroad; 7=substantial, the best people stay using possibilities in the countries



SOURCE: The Global Competitiveness Report WEF

Ranking of Hungary in the EU (2015): 24./28.

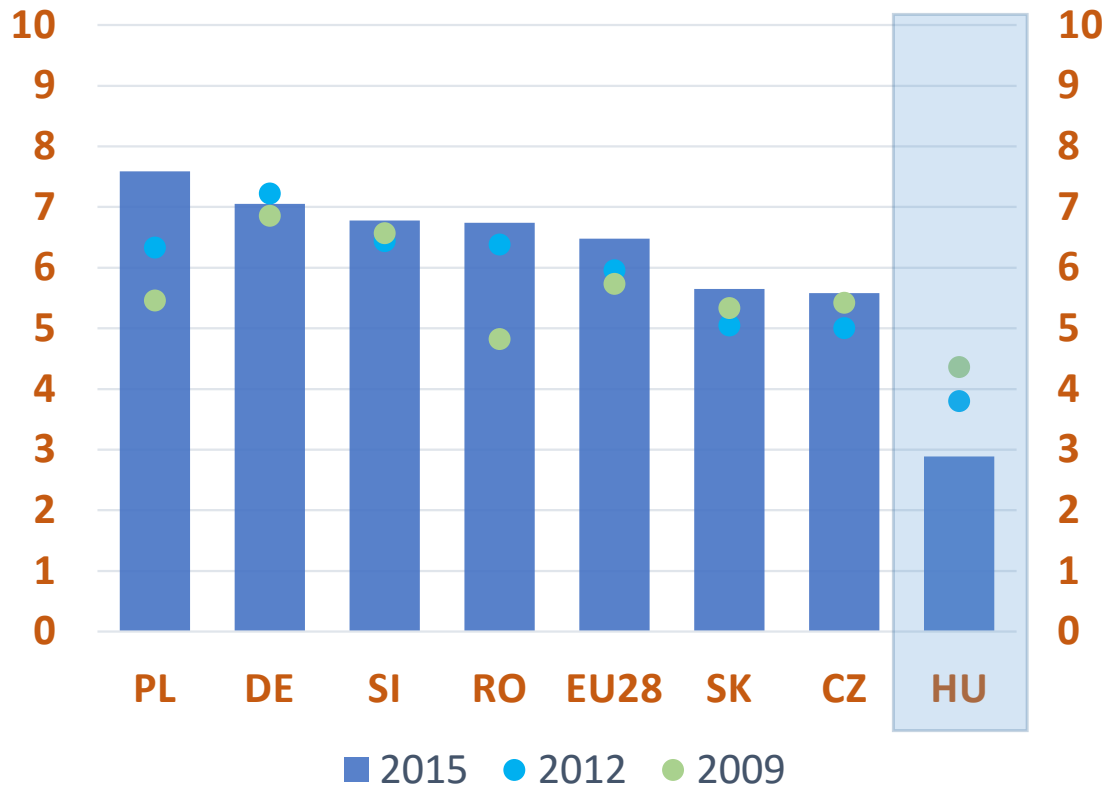
In dynamically changing, information and knowledge driven economies **talent, in addition to human capital, has gained importance** and become a strategic factor on the competitive market.<sup>3</sup> There is a growing attention towards the identification, selection, development and retention of talent, and towards remedying shortcomings in this field. As an effect of the global economic crisis, there is a simultaneous oversupply and a shortage of talent on the labour market. The uneven distribution of talent no longer affects developed but also developing countries, which is then largely impacted by uneven levels of technological development.

WEF has been measuring the ability of countries to retain talent since 2013, which is one of the important elements of competitiveness in the future. It is an extremely big challenge for the countries of the region, including Hungary, to retain our talents. We were on almost the same level with Poland and Slovakia in 2015, while Slovenia and the Czech Republic are more effective in preventing talent from migrating to abroad, however, even they are on a lower level than the average. Small countries are in a difficult situation in this regard: they can offer only a few well-paid positions, the technical and technological environment is less attractive than in more developed countries where the scientific („creative”) medium is wider as well.

<sup>3</sup> Rácz Irma: Üzleti siker a tehetség tükrében

### 18. CHART Language skills as seen by businesses

0=not appropriate, 10=appropriate



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): 26./26.

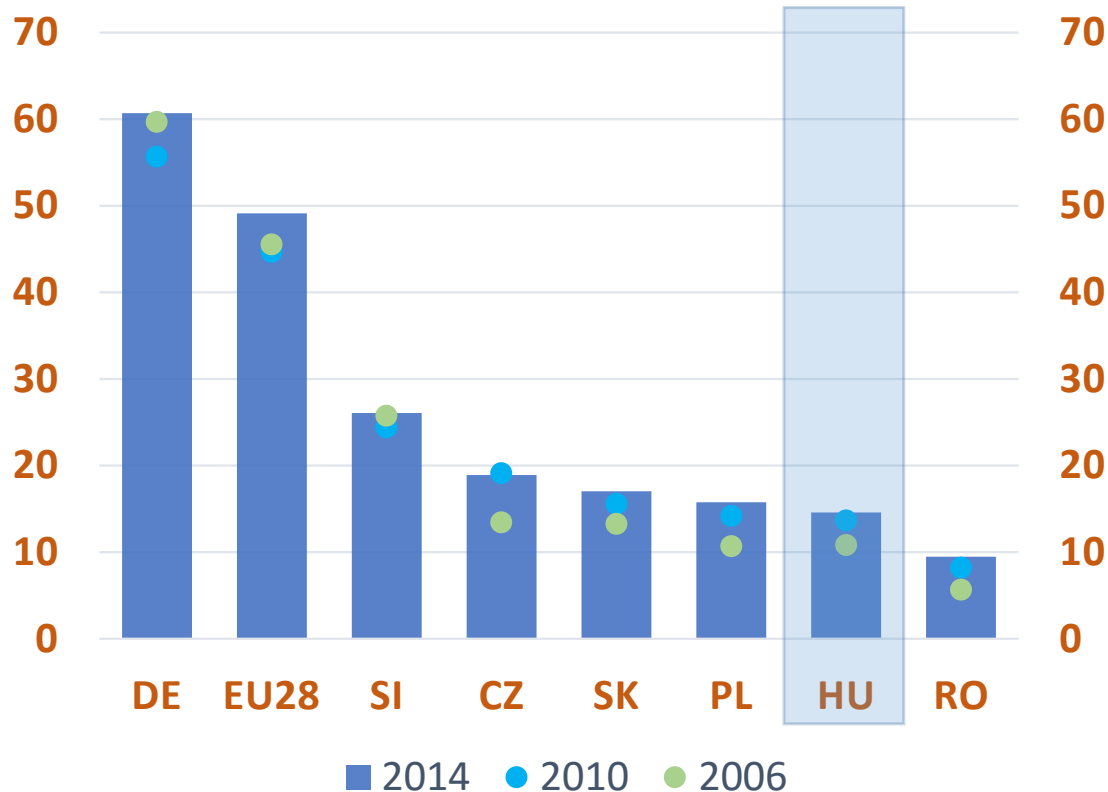
It is a well-known fact that the rate of people with good foreign language skills is low, which is seen by businesses as an increasingly serious problem year after year. Although foreign language education is mandatory, and academic degrees are dependent on language skills, these skills are not satisfactory for the needs of businesses. However, language skills are an important factor in competitiveness, it is a condition for businesses to expand their international relations, e.g. to obtain sales or purchase markets abroad, or to get information on competitors.

Surveys in Hungary show that – according to self-reported data – **73% of the population doesn't speak any foreign languages, not even on a basic level.** The picture is slightly more positive with the younger generations: **a only 33% of people between 16 and 20 years of age don't speak any foreign language.** About 3% of the population can negotiate, and 11% can hold a conversation in a foreign language. There is a very big difference in the language skills of college and university graduates: 28 of the first, and 12% of the latter don't speak any foreign languages.

**According to the opinion of business executives, the situation even deteriorated between 2009 and 2015,** so that Hungary still ranks last amongst the countries of the region, far behind Poland, Slovenia or Romania. One reason can partly be migration, because it is mostly people who speak the language of the country (or English) well who go to work abroad.

### 19. CHART Annual average net salary of households – two average wage earning adults with two children

Thousand euros



SOURCE: Eurostat

Ranking of Hungary in the EU (2014): **25./28.**

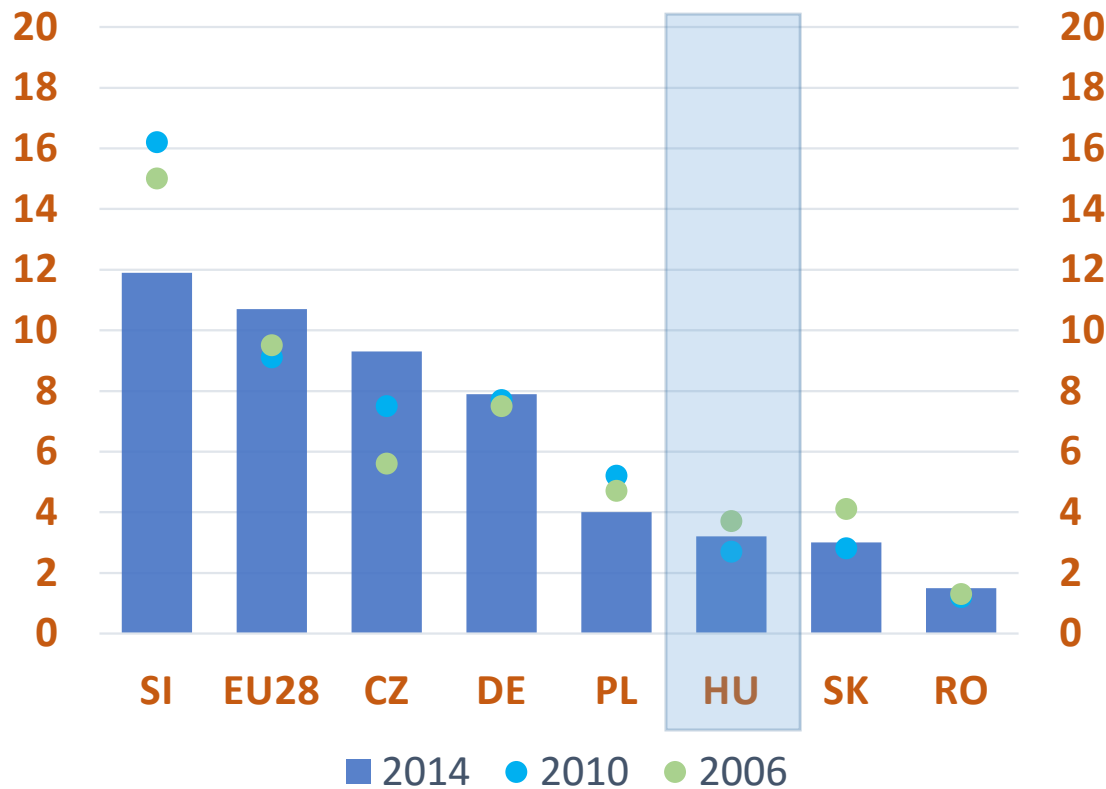
Purchase power is a factor that influences the competitiveness of a country from several aspects, and it is based on the changes in incomes and wages that make up the bulk of incomes.

One of the most characteristic indices is the net average income wages of a **household composed of two adults** (both earning at the level of the national average) **and two children, which was 14.6 thousand euros in 2014**. This puts Hungary in the second worse position after Romania on the ranking of countries of the region. **The average of EU28 countries is 49.1 thousand euros. Poland is 8%, Slovakia 17%, the Czech Republic 30%, Slovenia 79% ahead of us** in case of this type of households (however, the comparison of other household types shows a similar picture). Germany stands 24% above the EU average. Comparison at purchase power parity (PPS) also shows similar relations, although there our disadvantage against the EU28 average is about 10 percentage points smaller.

The proportion of Hungarian average wages **to the EU28 average increased from 24% to 30% over eight years**. Meanwhile Poland, which started from the same baseline as Hungary, grew to 32%, Slovakia from 29% to 35%, the Czech Republic from 30% to 39%, and Slovenia dropped from 57% to 53%.

## 20. CHART The rate of life-long learning

Participants in education aged 25 to 64 (%)



SOURCE: Eurostat

Ranking of Hungary in the EU (2014): **23./28.**

One third of the workforce in Europe is of low education, and there are fewer and fewer workplaces that can be filled with workforce of lower education. Workforce requirements of the globalising world are changing rapidly, and employability necessitates continuous learning. Most countries pay special attention to the employment of groups of society that have lower than average education, such the elderly or migrants, and also to providing the training necessary for this.

The development of human resources was particularly important during the crisis. Investments into training and education – if they are possible – will certainly yield a return during the period of an upturn, but the structure is important: training should target areas that will see a market demand over a perspective of 5.15 years. Knowledge becomes obsolete in 10-15 years.

While **the rate of people participating in continuous training** was at an average of 11% in the EU28 countries in 2014, it surpassed 9% in the Czech Republic as a result of substantial growth, however, **it hardly even reached 3% in Hungary**. The rate of those participating in training or education even deteriorated over eight years. Although Slovenia is first on the list, they suffered a substantial drop between 2006 and 2014. It is easy to see the consequences of phasing out tax allowances after company training courses.

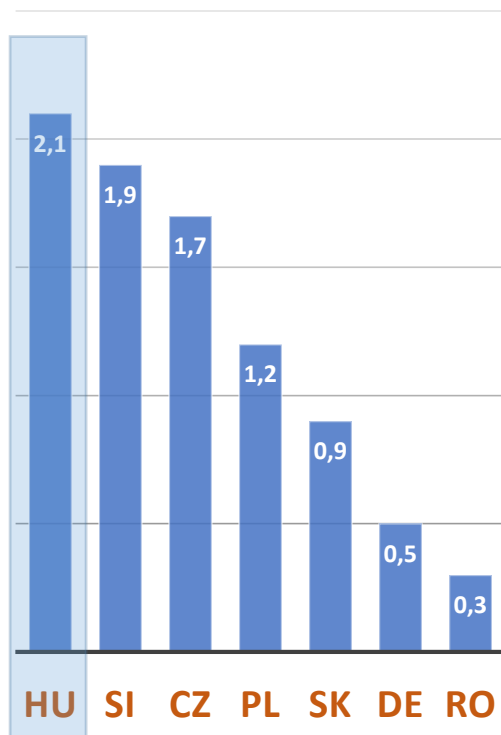
## 2.6. INFRASTRUCTURE

### 21. CHART Public road network

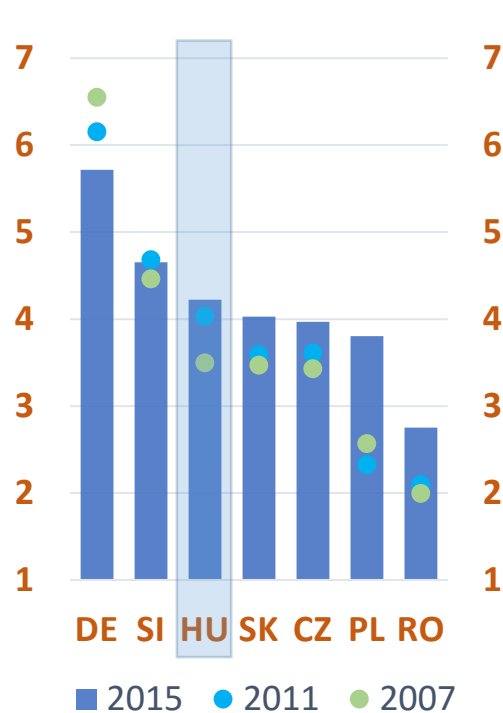
#### Density

2014

Length of roads per square kilometre (km) 1=undeveloped; 7=high quality



#### Quality



SOURCE: World Roads Statistics, International Road Federation

The Global Competitiveness Report WEF

Ranking of Hungary in the EU (2014-15): 3./26, and 21./28.

The density of public road networks increased slightly in these countries after the turn of millennium. Change is not substantial in any of the cases, attributable to the fact that the public road network had been established earlier already.

**The density of public roads is by far the highest in Hungary within the region**, however, the modernisation and maintenance of this network requires large sums of money. It is true that the **bulk of the road network is technically obsolete**, often in a state of neglect, the renovation and development backlog is large. It is primarily the quick expansion of international freight traffic that has rendered the construction of rings around cities a pressing issue in network development. The apparent long-term incompleteness of the ring around Budapest is a good symbol for these problems.

WEF comparison shows that the road network in competitor countries is better in Slovenia only, and it also could improve substantially between 2007 and 2015. At the same time, as multinational companies settling into the region after 1990 selected locations with existing good public road connections (especially near motorways), actions targeting the quality of the road network can also be assessed in the context of motorways. The condition of lower ranking roads is critical (or sometimes even derelict), which is a good explanation for why there are so few investors in the more backward areas of the country while the rate of unemployment is high.

## 22. CHART Railroad network

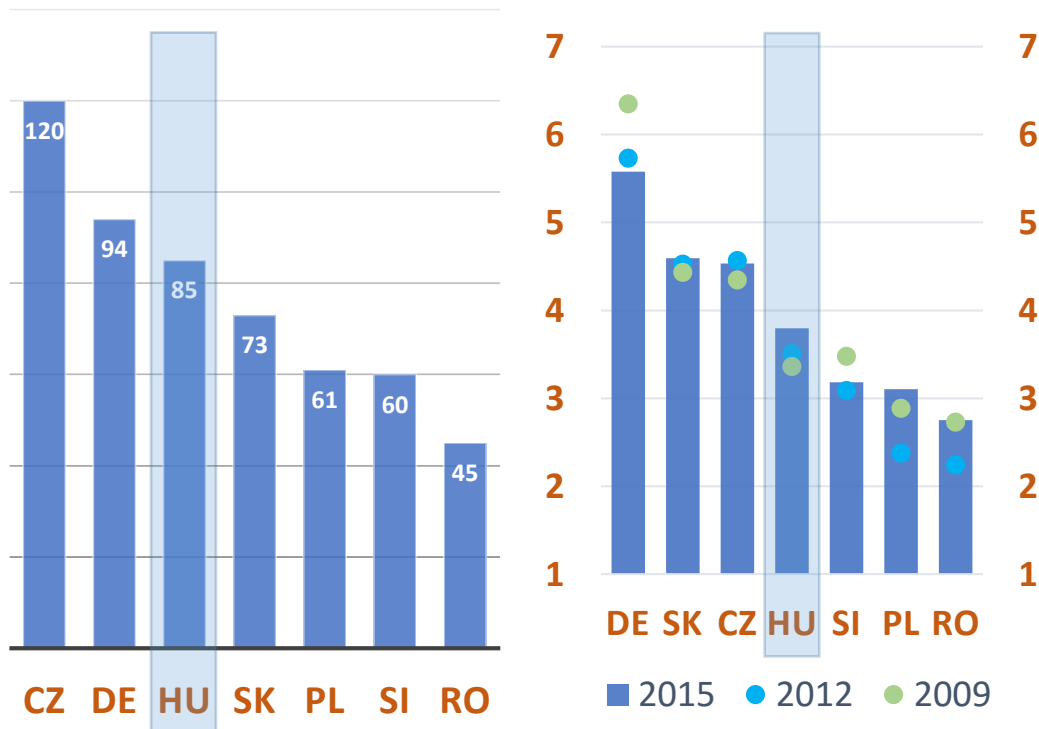
### Density

2014

Length of rails per square kilometre (m)

### Quality

1=undeveloped; 7=high quality



SOURCE: International Railways Statistics, The Global Competitiveness Report WEF

Ranking of Hungary in the EU (2014-15): **5./24**, and **20./26**.

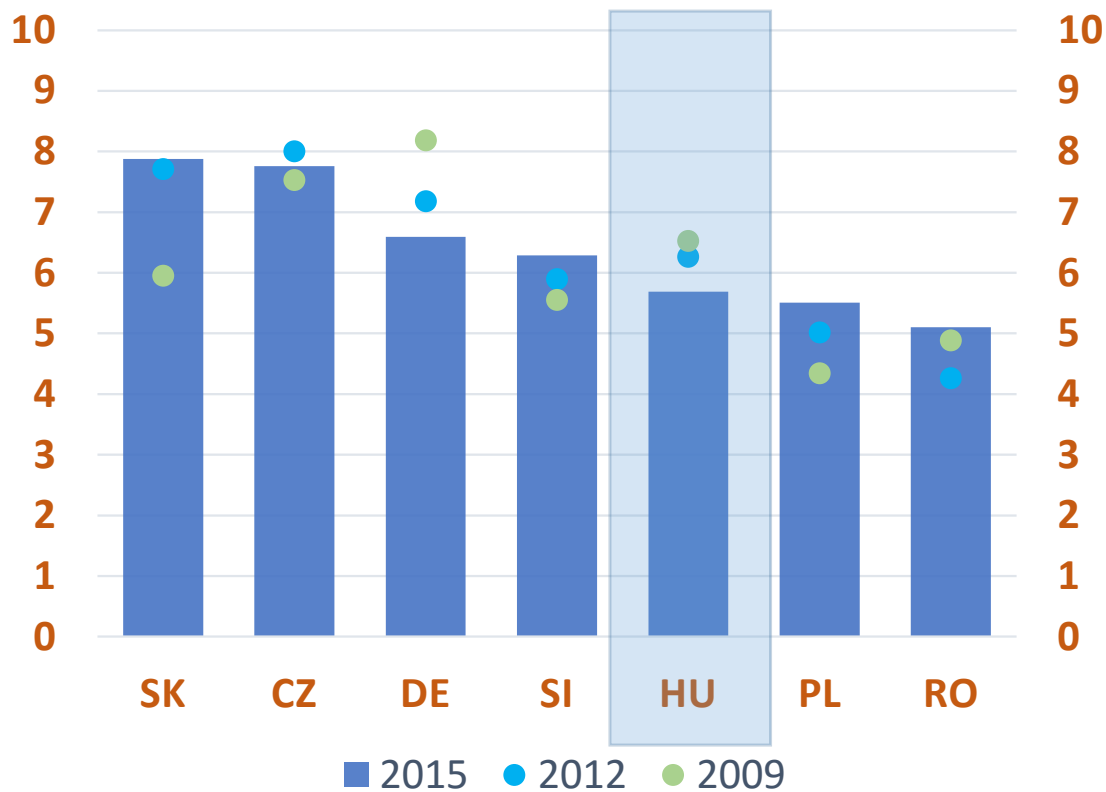
The Hungarian rail network is very expansive, its density exceeds the EU average by far. It is almost the double of the rail density in Romania (but this certainly has geographical reasons, too), while it lags behind the networks in the Czech Republic of Germany.

Problems arise at other features of rail transport and not at the density, which are a massive burden on the state budget. **The density of the network is no longer an advantage in itself** because railways are a less dominant part of transport in general. Sometimes high density is more of a disadvantage: There is hardly any traffic on many lines, while maintenance is expensive, and the closing of uneconomical lines is strongly opposed by society and harms lobby interests.

WEF's comparison shows that, amongst countries of the region, the quality of the rail network is better in the Czech Republic and Slovakia than in Hungary, but Hungary still showed the biggest improvement between 2007 and 2015. The statements for the public road network also apply here: multinational companies (if they use railways at all) prefer high-traffic international corridors (TEN-T), which have shown a great degree of development due to EU subsidies over the past few years. This does not apply, however, to side-lines and the majority of main lines.

### 23. CHART Quality of energy supply

0=undeveloped; 10=high quality



Insecurities in the energy supply can basically disrupt the functioning of the economy and undermine its efficiency. Strikes, natural disasters, political instability, factory accidents, acts of terrorism and a number of other factors can cause situations when energy supply can be disrupted or limited for shorter or longer time periods.

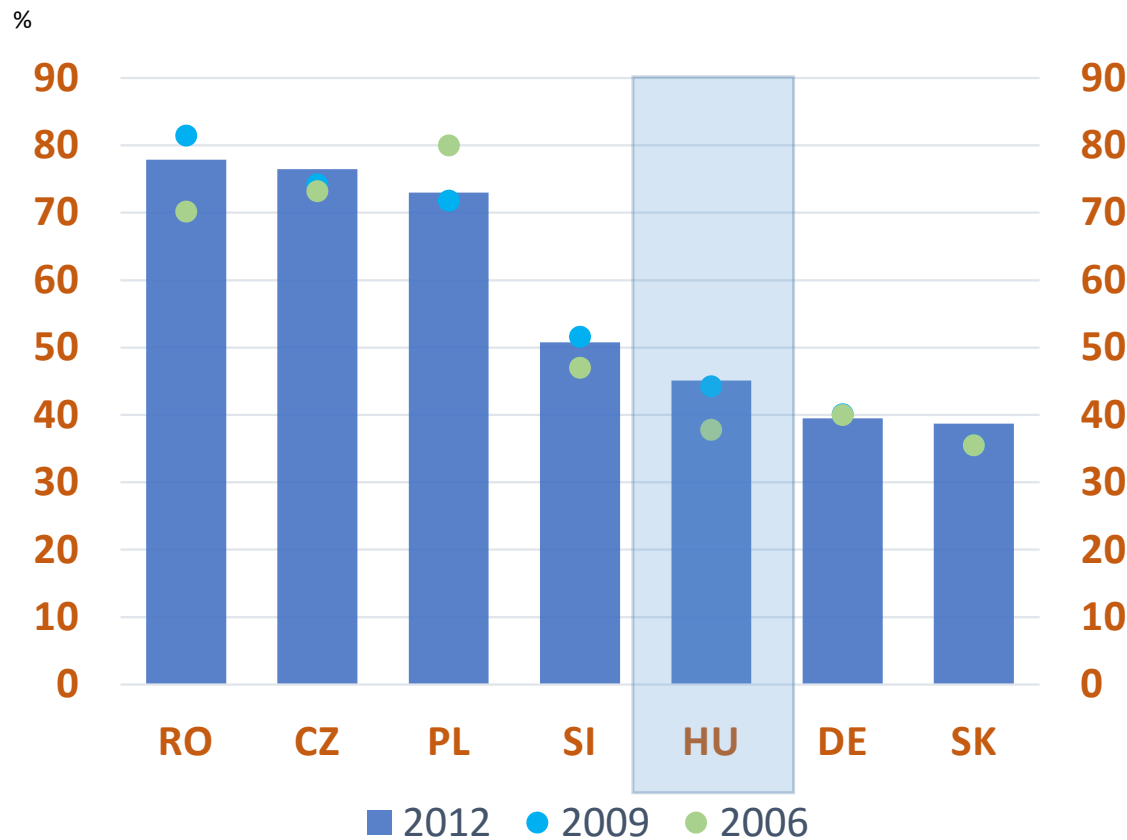
Despite the large number of insecurity factors, Hungary shows a generally high level of stability, with only the Czech Republic and Slovakia being better off, which are outstanding also on a global scale.

Opinions about the quality of energy supply improved in the countries examined, except for Hungary and Germany, between 2009 and 2015, and the improvement was by far the most intensive in Slovakia. Cross-border grids have served network security, which have grown substantially since 1990, so that impacts of an electricity shortage can be neutralised quickly. However, strong exposure to imports (sometimes up to 30% of electricity used comes from abroad) also represents a high degree of risk (but it also keeps domestic prices low).

SOURCE: IMD World Competitiveness Online; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): 22./28.

24. CHART Rate of domestic energy production to demand



Securing long term energy supply also concerns fundamental theoretical problems such as the issue of renewable (green) energy, attitudes of society to nuclear power plants, environment protection etc. These are then exacerbated by the political implications of energy dependency on Russia, however, we could also refer to the societal problems resulting from the closing of mines.

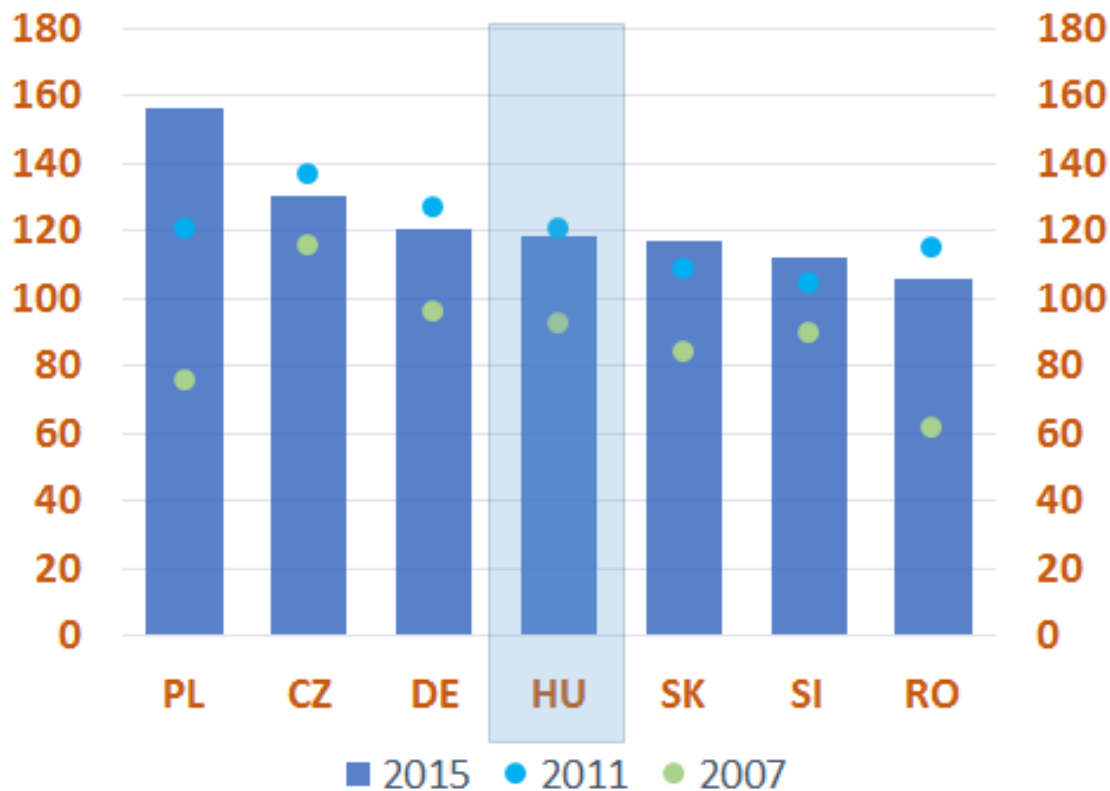
The constrained nature of domestic resources puts special focus on Hungary's tasks. The rate of domestic energy production against the existing demand increased from 38% to 45% between 2006 and 2012. Within the region, this puts us ahead of Slovakia (and also Germany), however, we lag behind other countries in the region, mainly Romania, the Czech Republic, where domestic production covers app. 80% of domestic production, and this rate has even increased since 2006. The rate might have changed in the negative direction due to increased imports since 2013.

SOURCE: Energy Balances, OECD/International Energy Agency

Ranking of Hungary in the EU (2012): 15./28.

### 25. CHART Number of mobile phone subscriptions

per one hundred inhabitants



SOURCE: The Global Competitiveness Report WEF

Ranking of Hungary in the EU (2015): **16./28.**

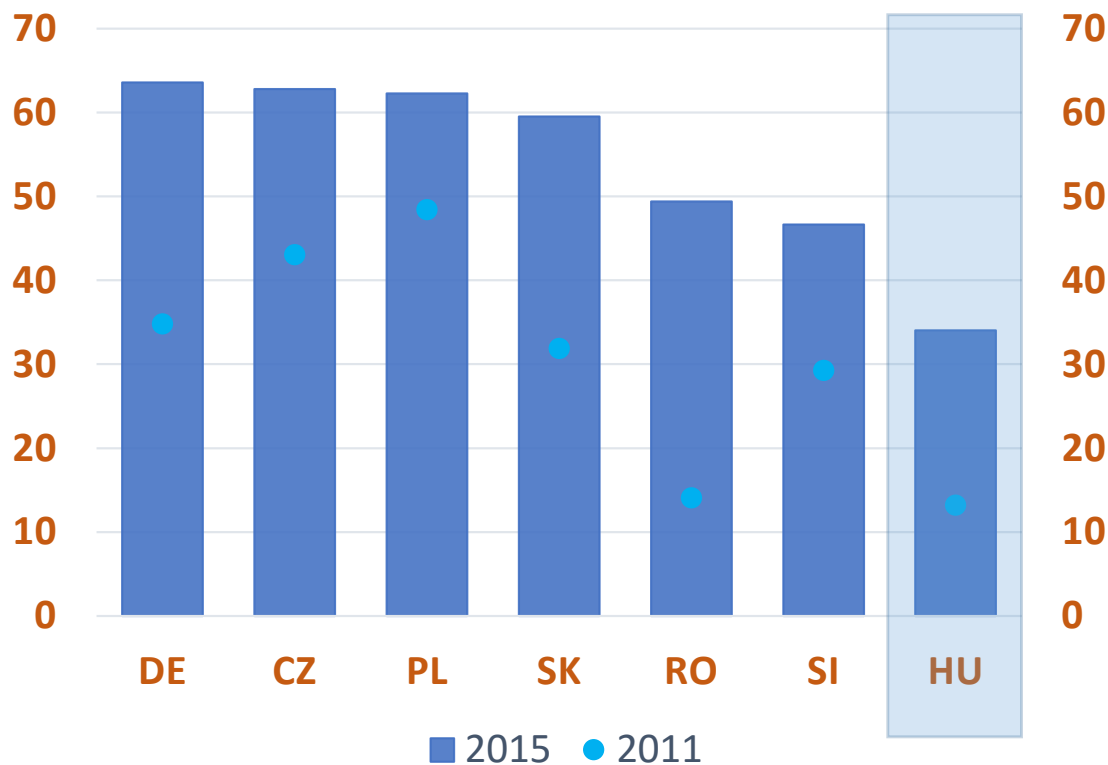
The ICT sector is of key importance also for the development of other industry sectors, so that it is in a relatively lucky position also under the circumstances of a crisis. Developing and emerging countries that were less concerned by the crisis create large development potentials. The former stable ratio of global wireless networks has reversed: More data than voice communication is being exchanged on mobile networks. The reasons why people use mobile broadband are no longer limited to reading emails. Continuous visits to social media also intensively increase data traffic.

This change of trends will certainly have an impact on all participants of the market. Mobile phone service providers will have to shift more and more to maximising profit from broadband services, while there is only a „certain base” fee received from voice communication services.

**The number of mobile phone subscriptions per one hundred inhabitants increased dynamically in all countries** between 2007 and 2015, by 28% in Hungary, which puts the country into the middle of the field. The ratio more than doubled in Poland over 9 years, so that they moved from the bottom to the top of the list.

### 26. CHART Number of mobile broadband subscriptions

per one hundred inhabitants



SOURCE: International Telecommunication Union, ITU World Telecommunication/ICT Indicators Database 2015

Ranking of Hungary in the EU (2015): 28./28.

The framework regulations of the EU and its open access policy has supported the competitive markets, thus increasing supply and reducing consumer prices, while some countries of the European Union moved into the global top echelon of countries with broadband access.<sup>4</sup> However, broadband system are widespread mostly in Member States where there is a competition in infrastructure.

The main specific advantage of broadband internet connection is not its speed but the availability of a constant, unlimited connection, and the lump sum fees payable. Another important advantage is the possibility to use telephone and internet connections in parallel.

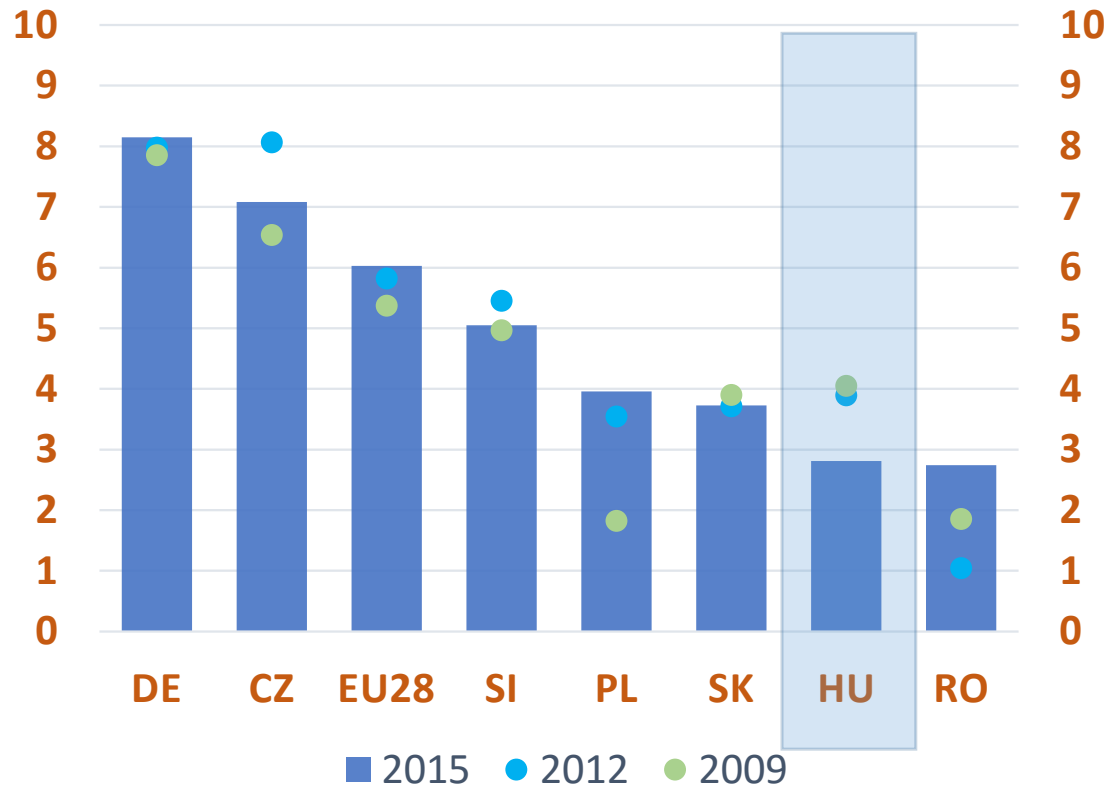
The number of broadband connections per one hundred inhabitants was lowest in Hungary compared to the region, both in 2011 and in 2015, despite the fact that we achieved the second biggest growth after Romania between 2011 and 2015. Consumers are often unable to buy the relatively expensive packages due to the small purchase power they have, and in many cases they are not interested in using these packages.

<sup>4</sup> COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Universal

service in e-communications: report on the outcome of the public consultation and the third periodic review of the scope in accordance with Article 15 of Directive 2002/22/EC

## 27. CHART Health care infrastructure

0=very weak; 10=excellent



SOURCE: IMD World Competitiveness Online; Note: EU28 except Cyprus and Malta.

Ranking of Hungary in the EU (2015): **24./26.**

The level of development of health is not only one of the conditions for a good quality of life, it is also related to competitiveness as a market potential. IT supporting the globalisation of services may even bring about explosive development in remote health care services (training, diagnostics, care for the elderly) and the framework for that is secured by health care infrastructure. On the other hand, new expectations (e.g. day surgery) also promote the more cost effective use of infrastructure.

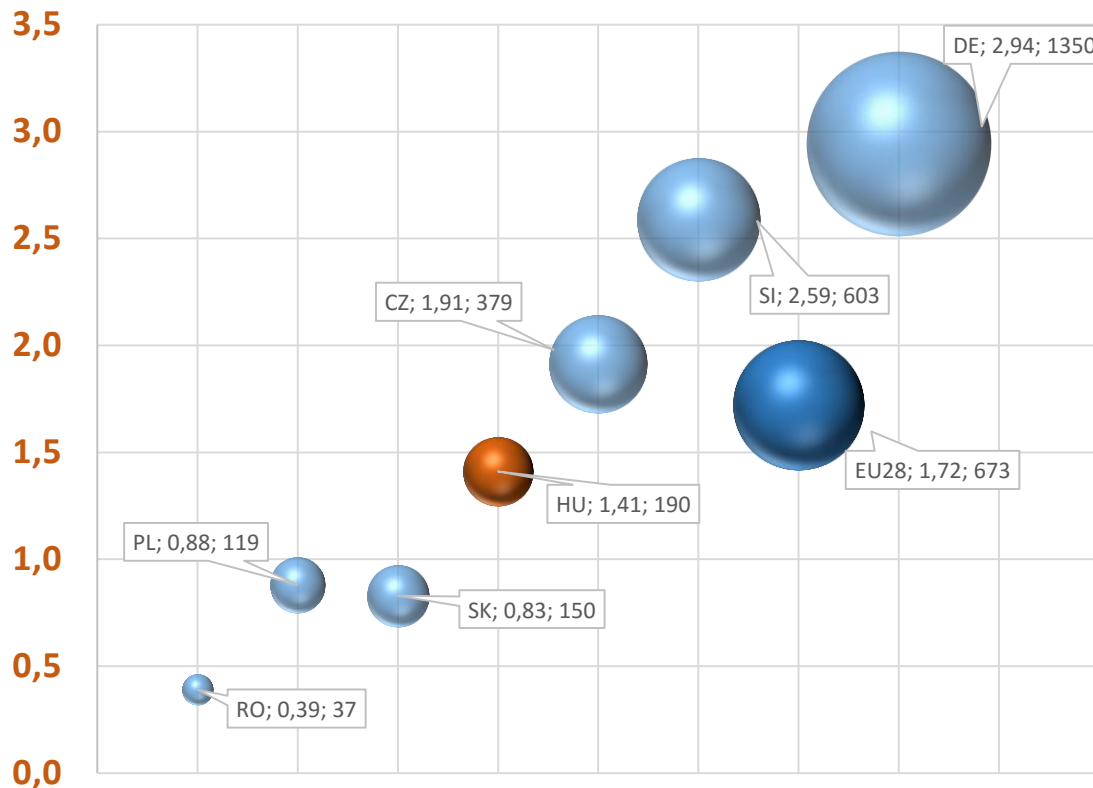
**The opinion about the health care infrastructure deteriorated further in Hungary between 2009 and 2015, while it had already been seen as poor.** As a result, we are on the same level as Romania, which showed improvement over that same period. The quality of health care infrastructure lags far behind the German, Czech or EU average, and it is also under the quality indices of Slovenia, he much improved Polish or Slovak indices. All this despite the fact that there has been an unprecedented influx of EU resources into infrastructure improvement between 2010 and 2015. However, these went into new buildings (renovation) rather than into equipment.

## 2.7. RESEARCH, DEVELOPMENT, INNOVATION

### 28. CHART R+D expenditure as portion of GDP

2013 (%)

Size of bubble: Per-capita R+D expenditure 2013 (dollar)



SOURCE: OECD Main Science and Technology Indicators

Ranking of Hungary in the EU (2013): **15./28**, and **18./28**.

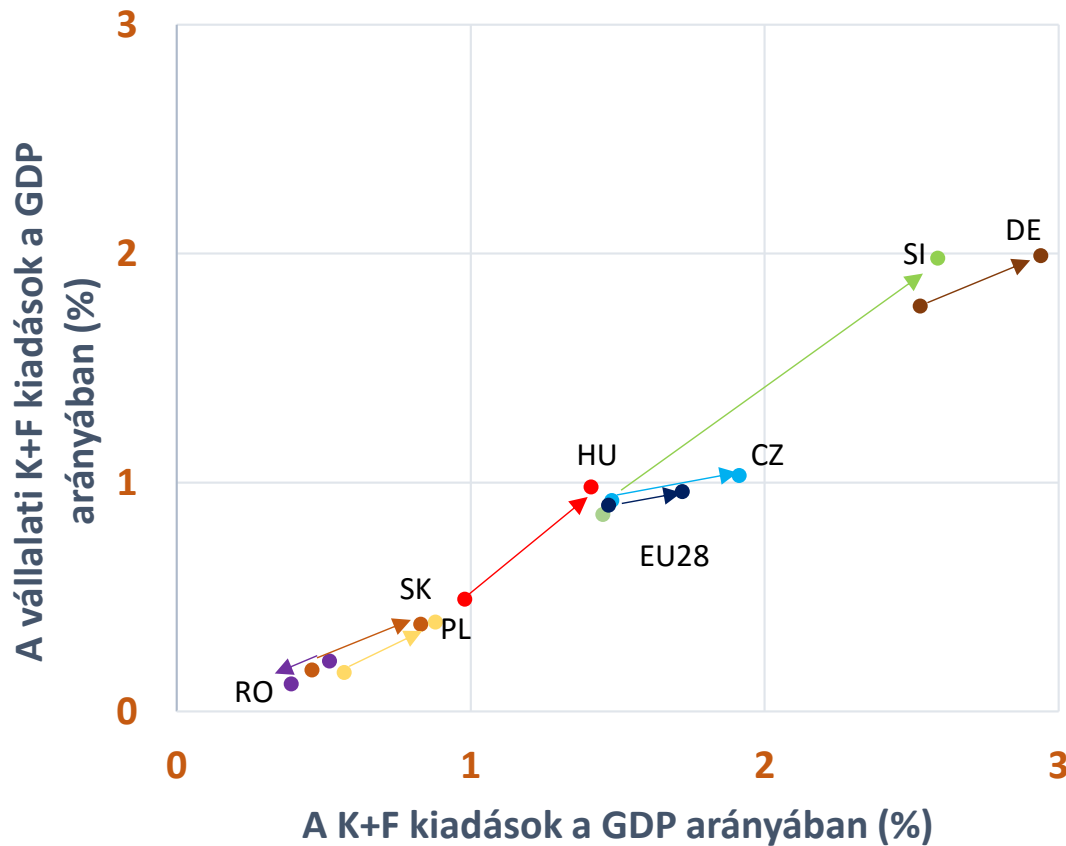
economic and social policies, and corporate planning as well. This is not positive for innovation, which requires long-term investment decisions. However, developed market economies and businesses also know that their competitiveness cannot be sustained unless with innovation and effective R+D.

Typically, developed countries spend 2-3% of their GDP on research and development. Slovenia is the only country in the region where the index exceeds 2%, and this is also the only country where the rate increased significantly between 2007 and 2013 (by 1.1 percentage points) against the GDP. **Research and development spending amounted to 1.4% of the GDP in 2013, which is no substantial growth against the 1% measured in 2007.** Two of the competitors in the region have a better, and three have a worse position, and the rate of growth was similar to Hungary in all of them but Slovenia and Romania. The rate of R+D spending is under 0.5% of the GDP in Romania, it is around 0.8% in Poland and Slovakia, while the Czech Republic stands at 1.9%. EU R+D tender sources caused a temporary increase in the index with a peak in 2014-15, but the efficiency is questionable.

The period after the financial and economic crisis is characterised by a shorter term perspective of

### 29. CHART R+D spending of businesses as portion of the GDP

2007, 2013 (%)



SOURCE: OECD Main Science and Technology Indicators

Ranking of Hungary in the EU (2013): 13./28.

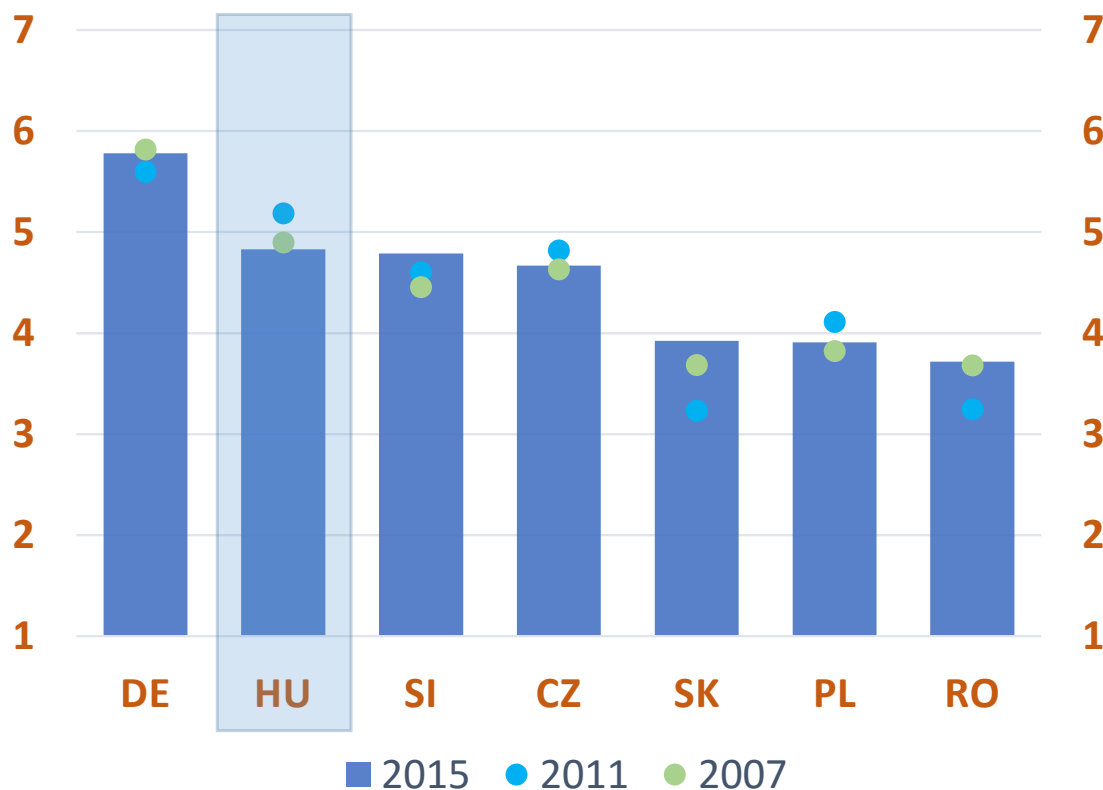
Corporate R+D spending in the developed countries substantially exceed public R+D spending. Composed of heterogeneous economies, one of the main challenges the EU is facing is how corporate R+D spending can be increased to stand the competition with North-American and Far-Eastern regions.

Spending by large corporations integrated into global market processes represent more than 60% of corporate R+D. Research in the pharmaceutical and automotive industries stand out, but it is large businesses, mainly international, that have own R+D budgets also in other sectors. **The problem is that the weight of domestic knowledge is far from big in terms of adding value at international companies,** except for the pharmaceutical industry. However, there is a core group of a few dozen smaller businesses in IT and engineering services that are strongly export oriented and build on Hungarian knowledge.

Corporate R+D spending corresponds to more than 70% of all R+D spending in Hungary, and this rate is slowly increasing. **The rate of corporate R+D spending increased to 1% of the GDP by 2013,** from 0.5% in 2007. Meanwhile, growth in this field was registered in other Member States in the region, except for Romania that saw a drop. We believe that Hungarian R+D measurements strongly underestimate real R+D spending.

### 30. CHART Level of development of R+D institutions

1=very undeveloped; 7=internationally outstanding



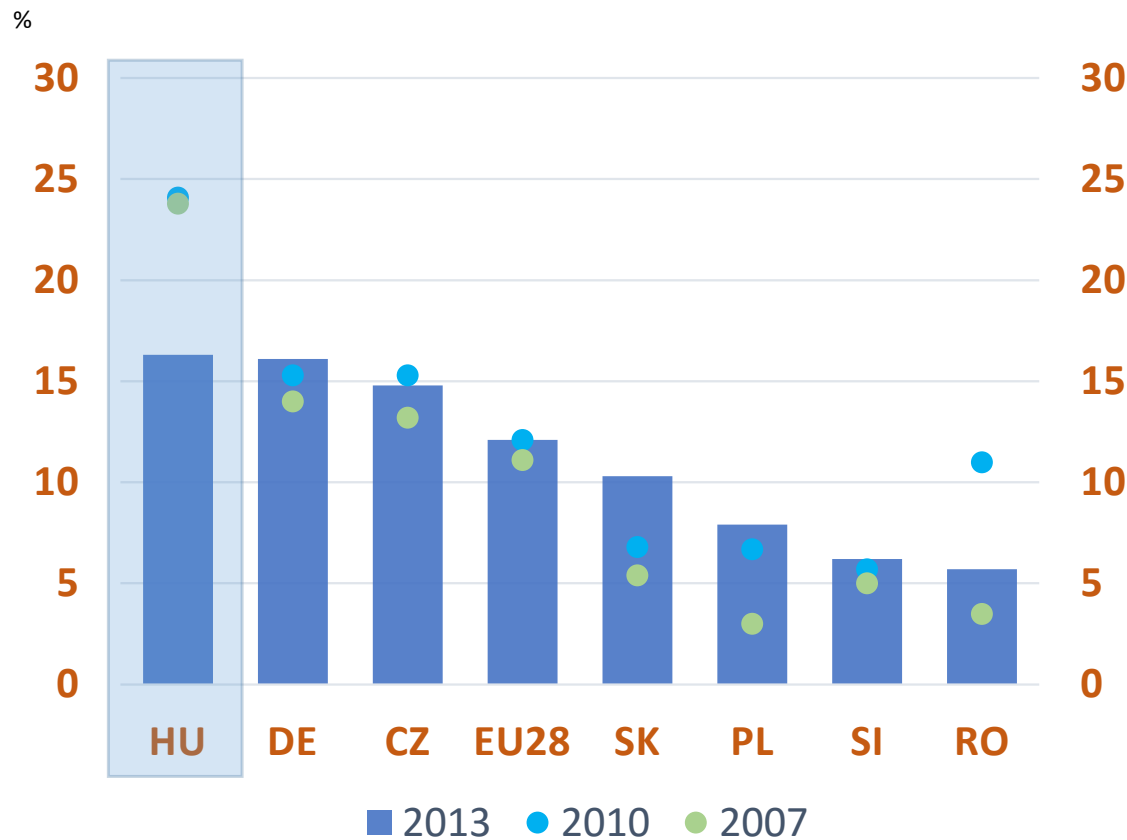
Research institutions and R+D institutions are an important element of the research and development. The economy will not develop but shrivel without an efficient institutional system of research, development and innovation. In addition to increasing the efficiency of the institutional system, it is also necessary to concentrate development sources along a strategy, which can result in the creation of centres of excellence that are globally competitive.

Expert opinions let us conclude that **the position of Hungary is good on a regional scale** (we rank first), although there has been a slight deterioration in the last eight years. The indices in Romania, Poland and the Czech Republic have not changed between 2007 and 2015, while there has been some improvement in Slovakia and Slovenia.

SOURCE: The Global Competitiveness Report WEF

Ranking of Hungary in the EU (2015): 14./28.

### 31. CHART Rate of high-tech in processing industrial exports



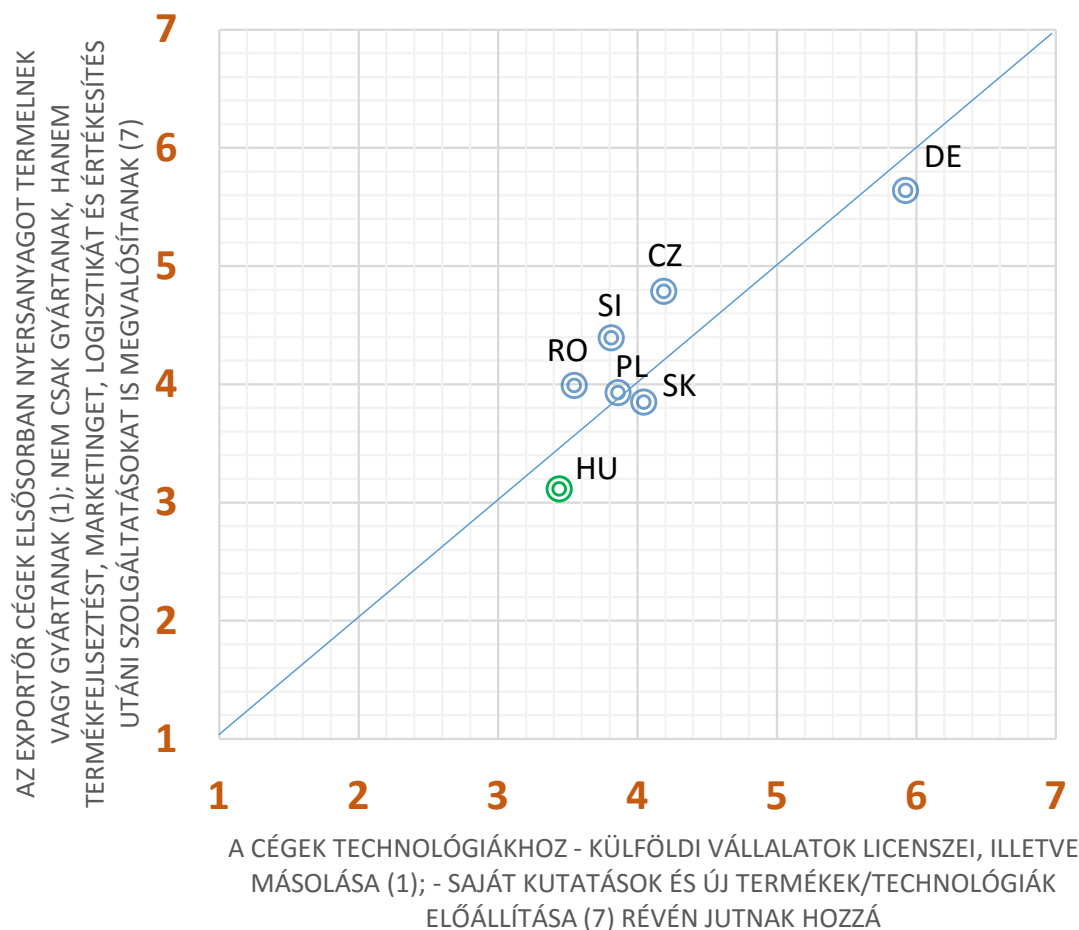
A substantial part of Hungarian processing industries can successfully stand global competition. This is also confirmed by the high proportion of high-tech exports that started to boom after the second half of the nineteen-nineties. The share of these products exceeded, for example, the value achieved in Japan or the United States in 2010. However, high-tech export primarily means assembly work done for foreign companies, mainly from imported constituent parts. The import content of total exports from Hungary amounts to about 60%, which is by far the highest in the OECD member countries. (By comparison: Exports from Japan contain app. 10% of imports).

Although we could preserve our leading position against regional competitors also in 2013, the **share of high-tech exports in all exports** dropped from the previous 23-24% to 16%. At the same time, this same rate increased in all of the countries examined.

SOURCE: World Development Indicators Database

Ranking of Hungary in the EU (2013): 5./28.

### 32. CHART Value chains and innovation capacities of businesses 2015



The import content of exports is also lower in more developed countries because exporting companies are also engaged in activities that represent the highest value and added value in the value chain such as research, development, logistics etc. Labour intensive activities (like assembly or business services) are relocated to countries where wage costs are lower.

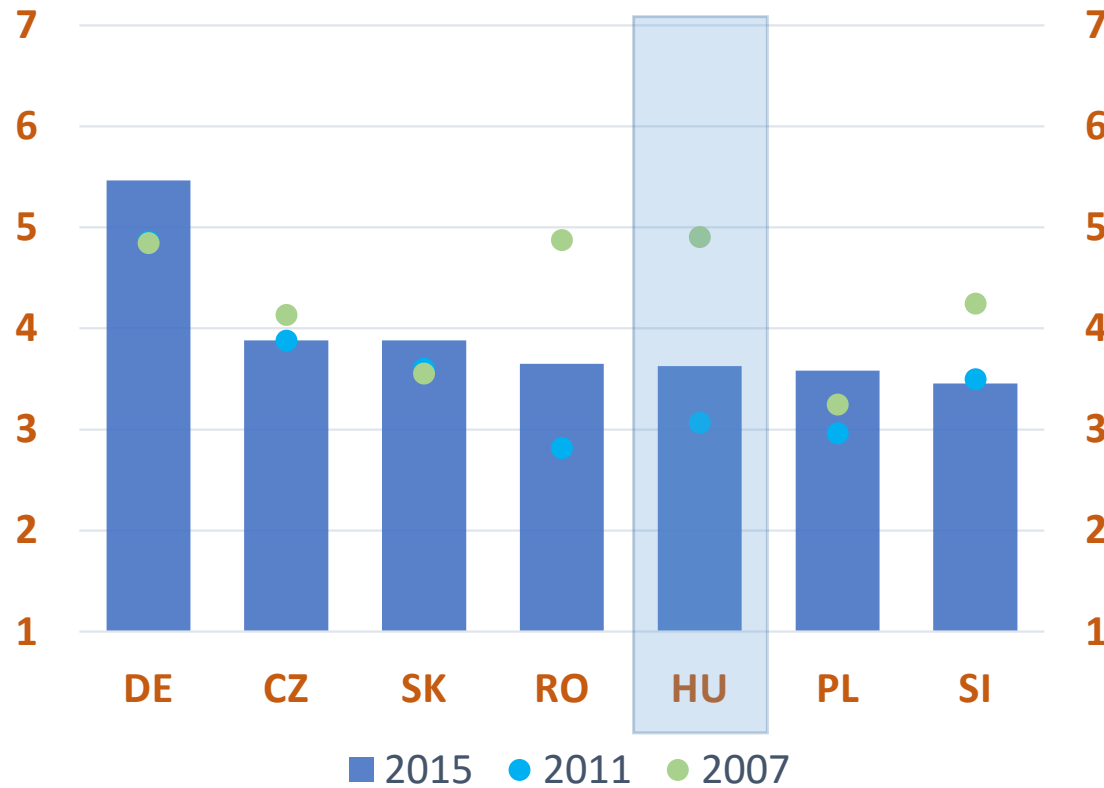
According to the opinion of business executives, the Czech Republic is the leader in the region both in terms of **value chains** and **innovation capacity**, their position is better than Hungary's, albeit far behind that of Germany. **Hungary is the last in the group of regional countries with regard to both indices.**

**SOURCE:** The Global Competitiveness Report WEF

Ranking of Hungary in the EU (2015): **28./28**, and **28./28**.

### 33. CHART Development of clusters

1=very undeveloped; 7=very developed



SOURCE: The Global Competitiveness Report WEF

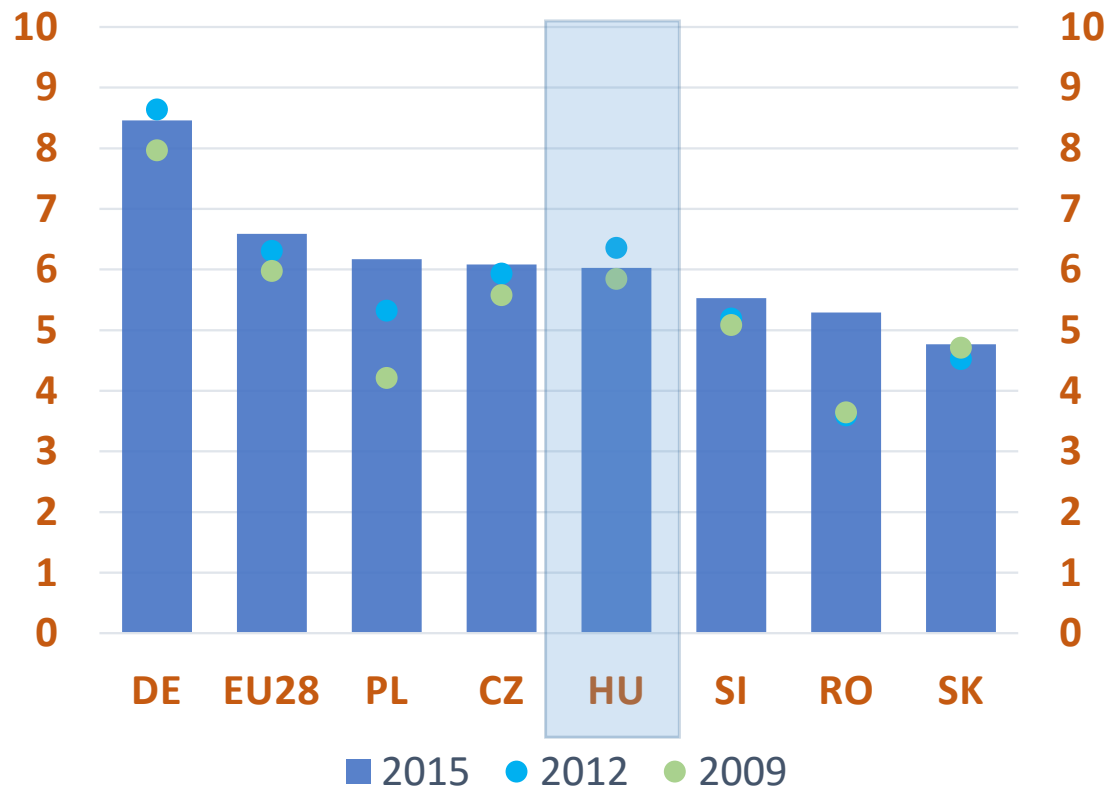
Ranking of Hungary in the EU (2015): 21./28.

Foreign working capital makes a significant contribution to the dynamism of the Hungarian economy. However, foreign companies often produce or provide services in virtual enclaves. Regionally concentrated clusters, typical for developed countries, have evolved in the automotive industry of West- and Central Hungary and in the field of pharmaceuticals, medical products and health services, which build on certain local characteristics and services. Although this is already not too much, clustering in Hungary has even deteriorated as a consequence of the economic crisis, although it is also true that we are still in the middle of the field of regional countries.

The emergence of clusters allow the availability of various research and development (and other, e.g. legal, financial, marketing, IT etc.) services and training locally, with only little searching. Research shows that such clusters are essential for more dynamic development. However, the main requirement for the development of clusters is a stronger regional approach, while none of the countries of this region are strong in that area. Also, the indicator of Hungary and Romania has worsened substantially over the last eight years from the former indicator that was on par with Germany. This area shows very clearly the disadvantages of the „shoot all that moves” strategy, as many clusters get little support for operation and development.

### 34. CHART Intellectual property protection

0=very weak; 10=on par with the most rigorous jurisdiction globally



Limitations to the enforcement of intellectual property rights are a clear impediment to innovation. **Weakness of protecting intellectual property is generally typical in the Central and East-European region.** According to the IMD survey, **the situation in Hungary is somewhat better than average**, although it still lags behind the situation in developed countries.

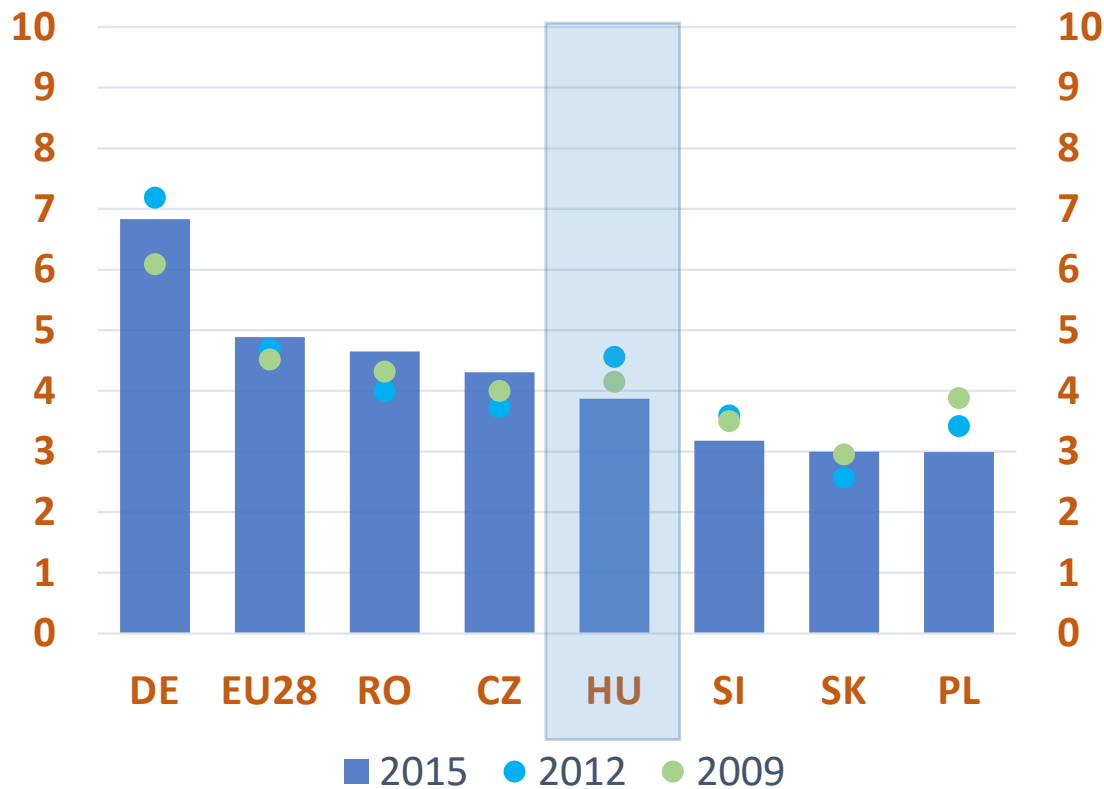
According to IMD data, the countries of the region could reduce their backlog against the EU average to varying degrees since 2009, the positive performance of Poland and Romania is particularly obvious. The protection of intellectual property in Hungary is seen more or less as it was in the year of the economic crisis; there is some improvement, but it is negligible just like in Slovakia.

SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): 19./26.

### 35. CHART Knowledge transfer between businesses and universities

0=doesn't work; 10=works excellently



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

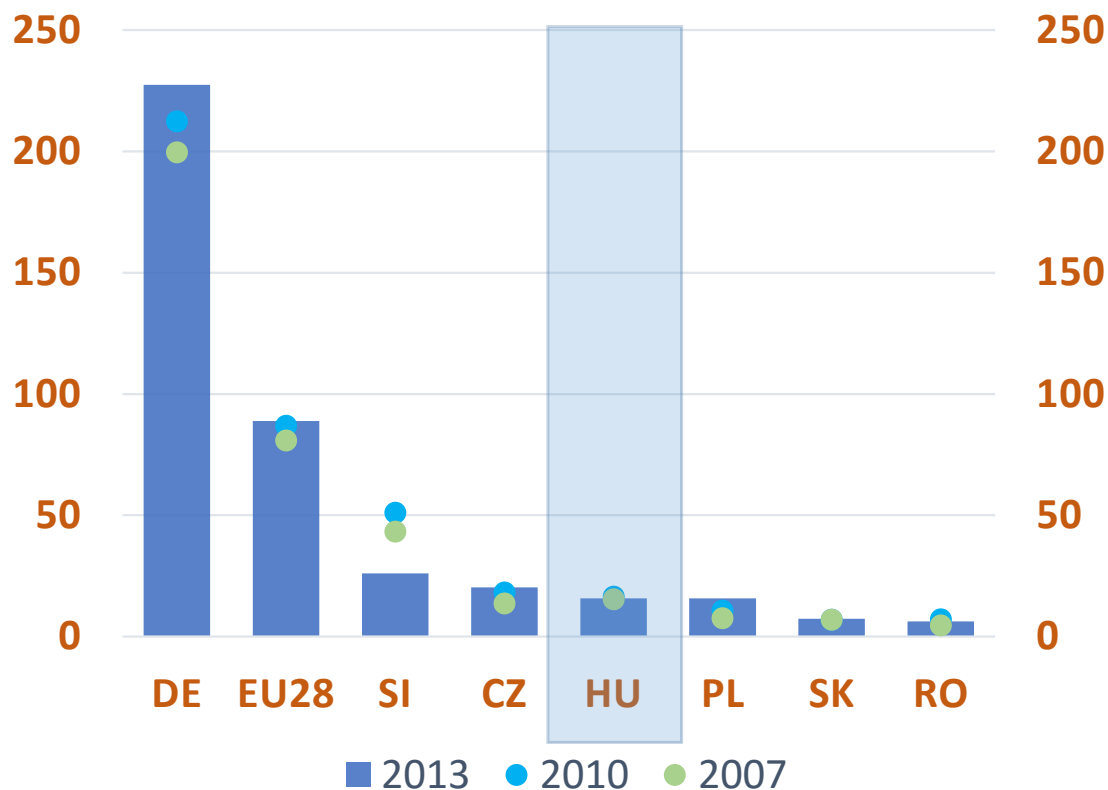
Ranking of Hungary in the EU (2015): 20./26.

The views of business executives confirm official statistics: The **availability of good research places in Hungary has become substantially more difficult in the app. 10 years since the political changes**, also in comparison to direct competitor countries in the region. This constrains the possibilities for capital flow towards innovation.

Corporate relations with universities have improved slightly in the majority of the countries examined here (Germany, Romania, Czech Republic) since the year of the economic crisis (2009), and the same applies to the EU average, too. However, they deteriorated slightly in some countries (including Hungary). Having said that, relations between businesses and universities were somewhat more intensive in Hungary, Romania and the Czech Republic than in other countries of East- and Central Europe in 2015. Smaller or bigger research departments of a few multinational companies have settled in the neighbourhood of leading technical universities in Hungary, Poland and the Czech Republic. This is a clear indicator that there is competitive knowledge in the region that is important for businesses. If it pays for multinational companies to use this knowledge, then all of this can also become, on longer term, the engine for development of local (Hungarian owned) businesses in the vicinity of universities. The phasing out the use of innovation contributions by companies does not support this process.

### 36. CHART Number of patent applications

per 100 thousand inhabitants



SOURCE: WIPO Statistics Database

Ranking of Hungary in the EU (2013): 18./28.

Patent applications constitute an important measurement indicator for the efficiency of research and development activities.

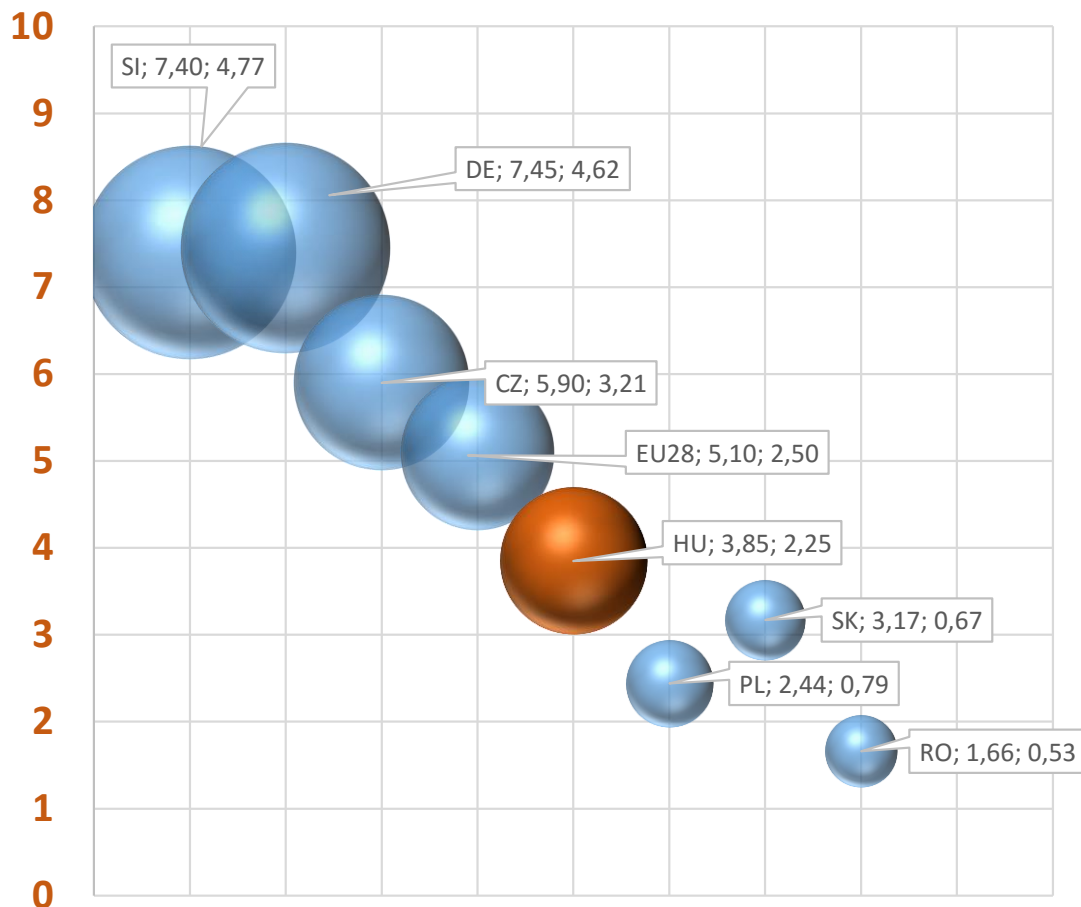
The number of patent applications per 100 thousand inhabitants shows an odd picture in an international comparison. The existence of the so called European paradox is confirmed by the substantial advantage of the United States and Japan in comparison to European countries. Hungary, amongst others, is also characterised by rare patents and a strong focus on publications, and the economic exploitation of scientific results is less typical.

**The backlog in Hungarian patenting** may be related to the general low intensity of corporate innovation, but it may also be attributable to the fact that companies often hide their inventions, and also that patenting is a costly and complicated process. It is also common that completed inventions are not patented in Hungary but in a country where financial advantages are more tangible. This is particularly common in case of inventions which manifest as the further development of already existing objects (e.g. software).

### 37. CHART Number of researchers (FTE)

2013 (per 1000 persons)

Size of bubble: Number of researchers (FTE) working in the business sector (per 1000 persons)



SOURCE: OECD Main Science and Technology Indicators.

Ranking of Hungary in the EU (2013): **18./28**, and **14./28**.

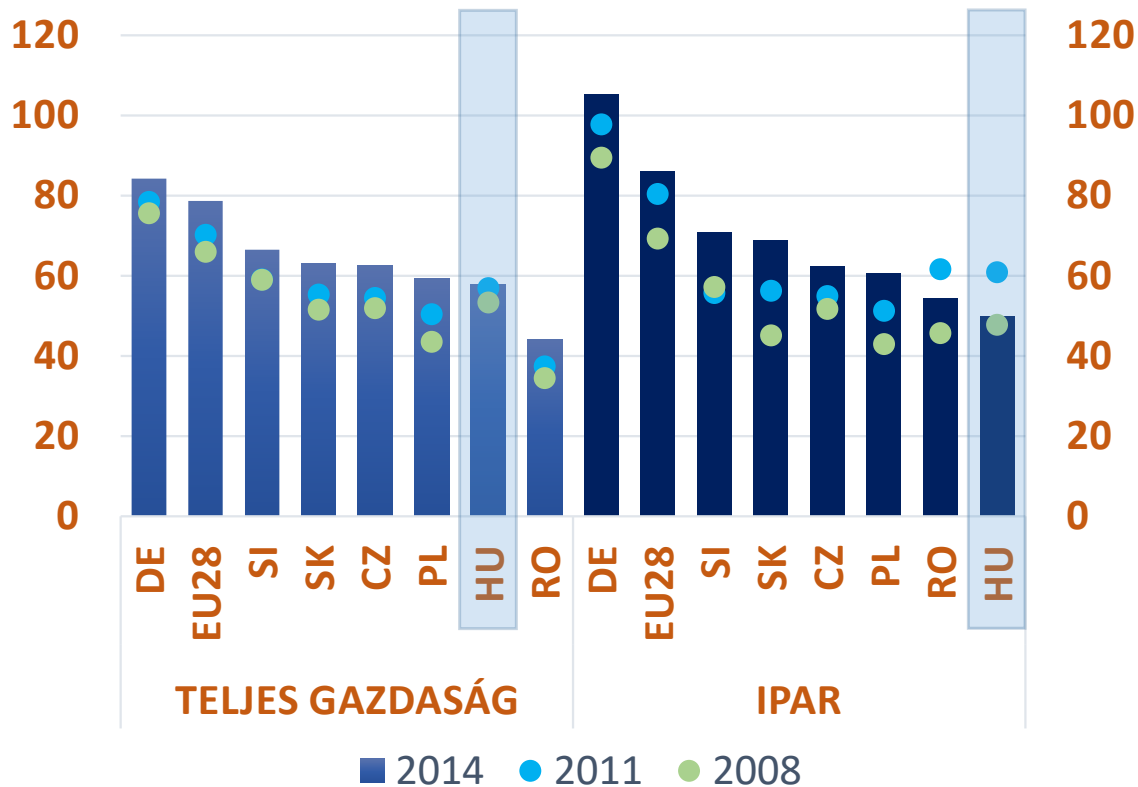
The human factor is decisive in any success of research, development and innovation. **The number of people employed in research and development per a thousand inhabitants is much lower in Hungary (and other countries in the region) than, for example, in the Czech Republic that has a similar size of population.** The level of employment is much higher in Slovenia as in Hungary, while other countries of the region lag substantially behind. Looking at the relative number of researchers working in the business sector, Slovenia surpasses even the indicator of Germany, while the Czech Republic surpasses the EU average. Hungary is below the EU average but well above Slovakia, Romania, and Poland.

On average, half of all researchers work in the business sector in Europe. Researchers in the business sector are in majority in Hungary, Slovenia and Germany; one third of them are in the business sector in Poland and Romania, and one-fifth of them in Slovakia.

## 2.8. PRODUCTIVITY

### 38. CHART Gross added value per one employee

PPP, thousand USD



SOURCE: The World Bank

Ranking of Hungary in the EU (2014): **24./28**, and **25./28**.

**Work productivity** is an important indicator for competitiveness, which reflects output per hour worked (added value), and is usually estimated in statistical practice as the GDP per one employee. While previously, per-capita GDP has been used to measure the level of development and the standard of living, the rate of GDP per one employee is suitable to analyse the efficient use of available workforce.<sup>5</sup>

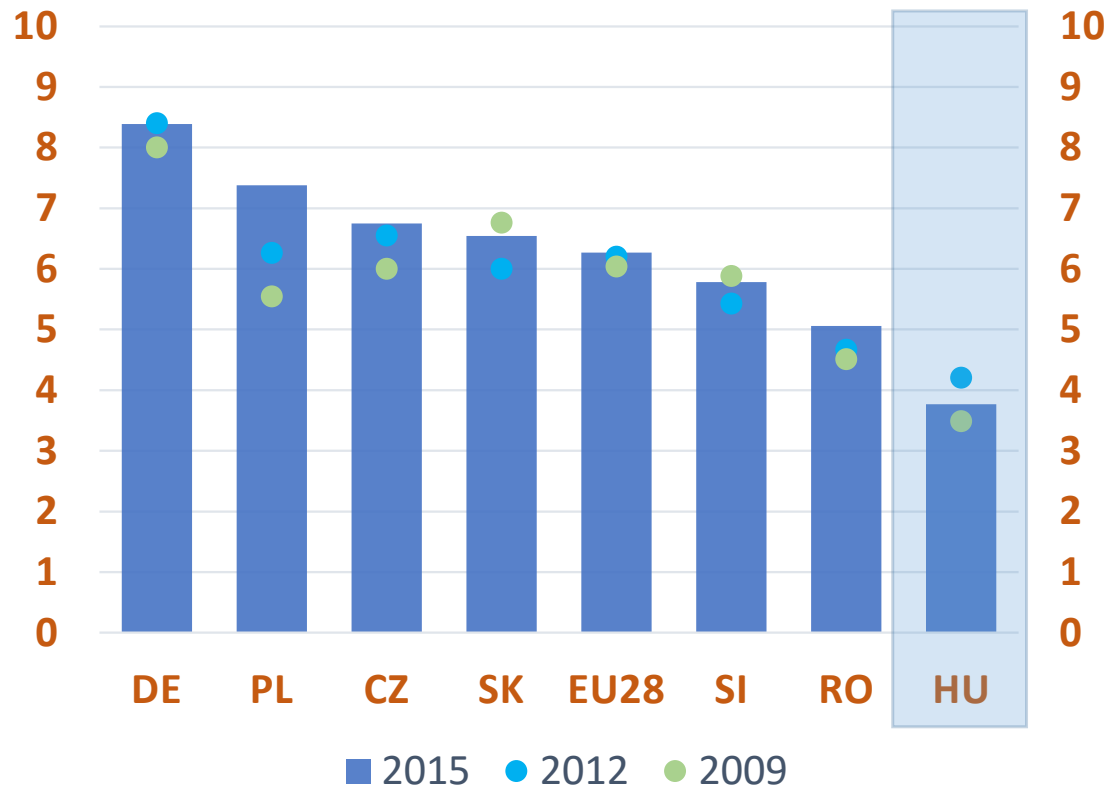
The slowdown of productivity was a clear sign of the economic crisis, still this indicator grew on parity basis in all countries examined for the entire economy between 2008 and 2014, while the rate of growth was the lowest in Hungary. Out of the six countries of the region, only Slovenia was ahead of us in 2008, **already Romania had a better ranking in 2014.**

As regards the **productivity of the industry**, Hungary was in the middle of the regional field in 2008, but it slipped down to the last rank by 2014 due to a reduction in the gross added value per employee, so that the country is now substantially behind the EU average. Industry suffered a drop not only in Hungary but in Romania as well, while the indicator increased in other regional countries.

<sup>5</sup> Deákné Gál Anikó: A regionális versenyképesség tényezői, különös tekintettel a Nyugat-Dunántúltra.

### 39. CHART Operation of SMEs in international comparison

0=not at all efficient; 10=very efficient



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): 26./26.

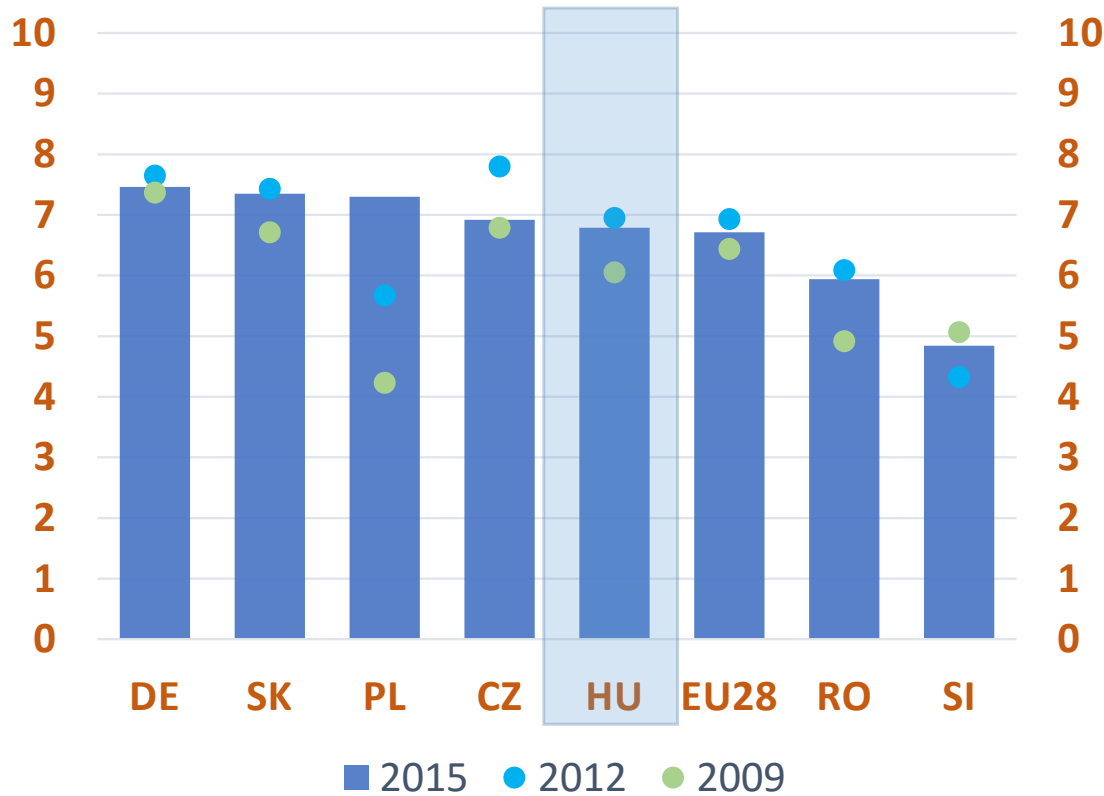
The business environment tends to restrain the competitiveness of businesses across entire Europe, but it is even stronger in Hungary than the EU average with an increasing intensity in several regards. According to a survey by the European Union made with SMEs, **the high level of labour costs, the limited nature of the market, and the administrative burdens on businesses are substantial burdens on the progress of small and medium sized enterprises in Hungary.**

It is particularly curious that labour costs are the biggest problem for the Hungarian SME sector despite the fact that these costs are much lower than in older EU Member States. This means that **Hungarian SMEs have a labour intensive and not very competitive product palette.** The frequent mentioning of market access impediments is another signal of this same problem, with the lack of demand in the background. Hungarian SMEs typically produce for and sell their services on the domestic market, and the survey shows that this is increasingly difficult for them.

**The efficiency of the operation of Hungarian SMEs is worse than average in international comparison, according to the opinion of business executives, and Hungary is the only country in this position in 2015,** and it even deteriorated slightly between 2009 and 2015. At the same time, the operation of Polish, Czech and Slovak SMEs is even more efficient than the EU average.

### 40. CHART Operation of large businesses in international comparison

0=not at all efficient; 10=very efficient



The chart on the left presents the change in the operational efficiency of large businesses between 2009 and 2015 as seen by business executives. The **operational efficiency of large companies improved in all countries in the region, including Hungary,** with the exception Slovenia, and to varying degrees. This places Hungary right above the EU28 average.

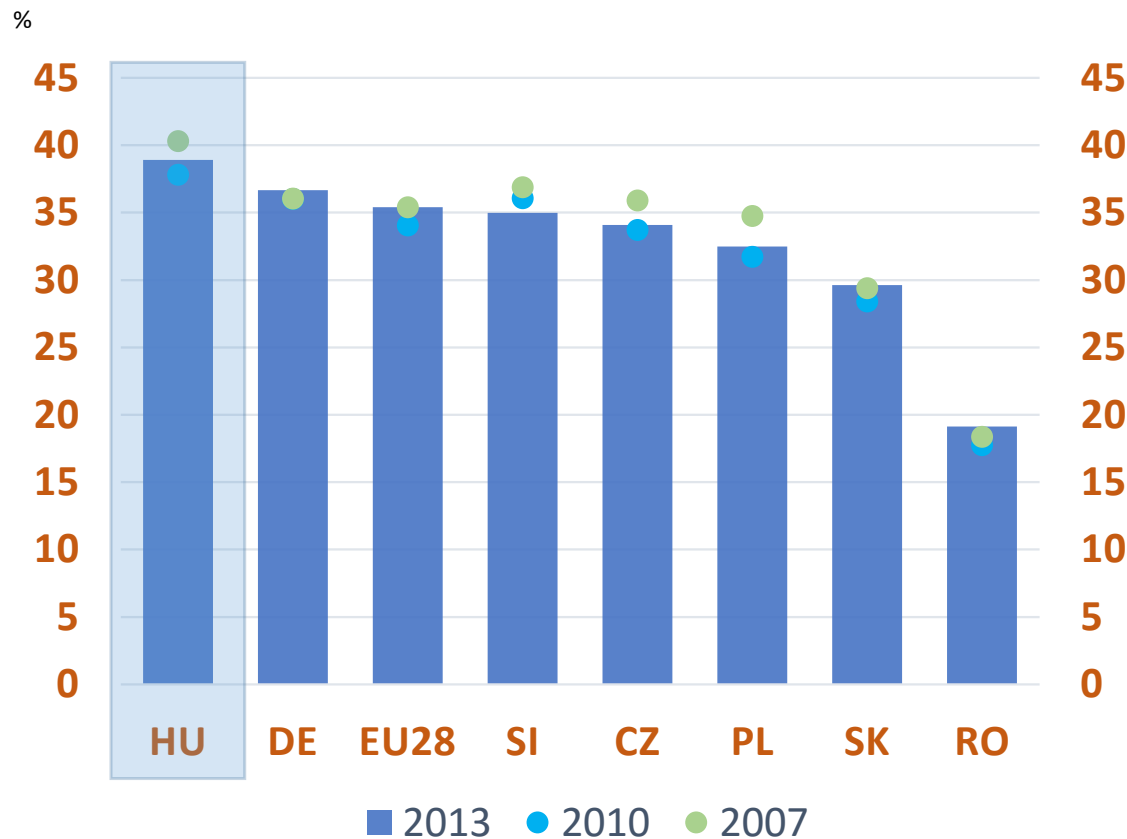
Looking at the countries in this comparison, the operational efficiency of large companies is better (or equal) than that of small and medium sized enterprises in all countries but Slovenia, and the gap is substantial in Hungary only. Productivity is high primarily in businesses working for export (e.g. car manufacturing, electronic devices) that function with a high rate of foreign working capital, high technological level, modern corporate structures; and where there is a concentration of skilled and well trainable workforce. However, the price of that is that **the difference between the efficiency of large companies and SMEs was the biggest in Hungary in international comparison in 2009 and 2015, and it has been increasing.**

SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): **15./26.**

## 2.9. TAXATION

41. CHART Total tax revenue to the GDP



SOURCE: OECD

Ranking of Hungary in the EU (2013): 18./26.

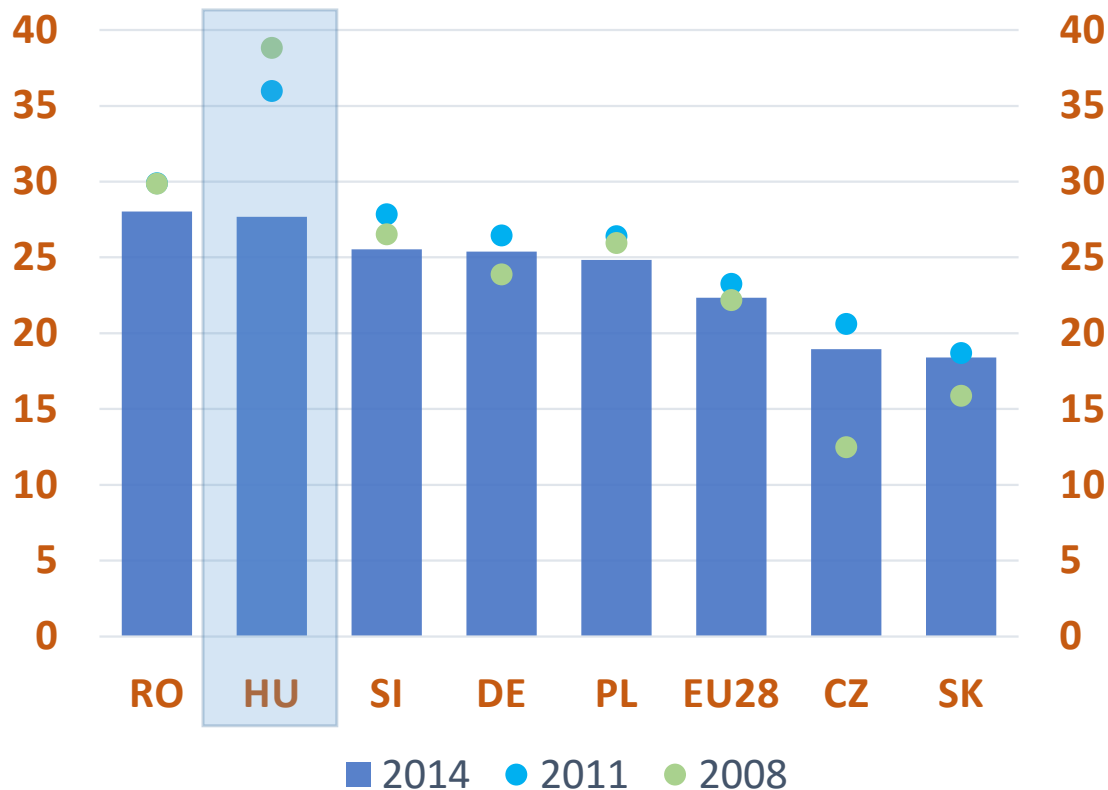
The tax regime in Hungary has been subject to criticism from several aspects: Taxation is either very questionable, or the rate or structure of it non-preferential in case of certain tax types. The tax and social cost burden on labour is particularly big. This is partly the cause of the low level of employment, the high rate of black labour, and the decline in competitiveness.

The tax regime has been changing continually in Hungary over the last years. The personal income tax rate has been dropping, the flat family tax rate has been introduced, while the amount of payable contributions has increased, and tax credits have been discontinued. The overall revenue reducing effect of these measures is balanced by an increase in taxes on consumption.

**The 38.9% tax burden in Hungary was higher than the EU average, and it also surpassed the rates of competitors in Central and East-Europe in 2013.** It was lower, however, than the rate in 2007 (40.3%), and higher than in 2010 (37.8%). The differences in taxation did not change across regional Member States between 2007 and 2013.

## 42. CHART Rate of effective personal income tax

In proportion to per-capita GDP income equivalent (%)



There was a strong tax competition across the countries of the region before the crisis in 2008. However, while the fight to attract investors remains a priority, most countries had to take steps in order to curb budget deficits over the last few years.<sup>6</sup>

One group of countries, including Hungary, tried to find a solution by reducing income taxes and increasing consumption taxes. The most extreme solutions were implemented by Hungary in this group, but Romania also went down a similar path.

**In Hungary** the change from two personal income tax rates to one resulted in the **highest reduction of the effective personal income tax burden** in the region, while there was no change in the EU average. A smaller cut was implemented in Romania, Slovenia and Poland, while the rate increased in the Czech Republic and Slovakia. The combination of these resulted in a reduced spread across the region.

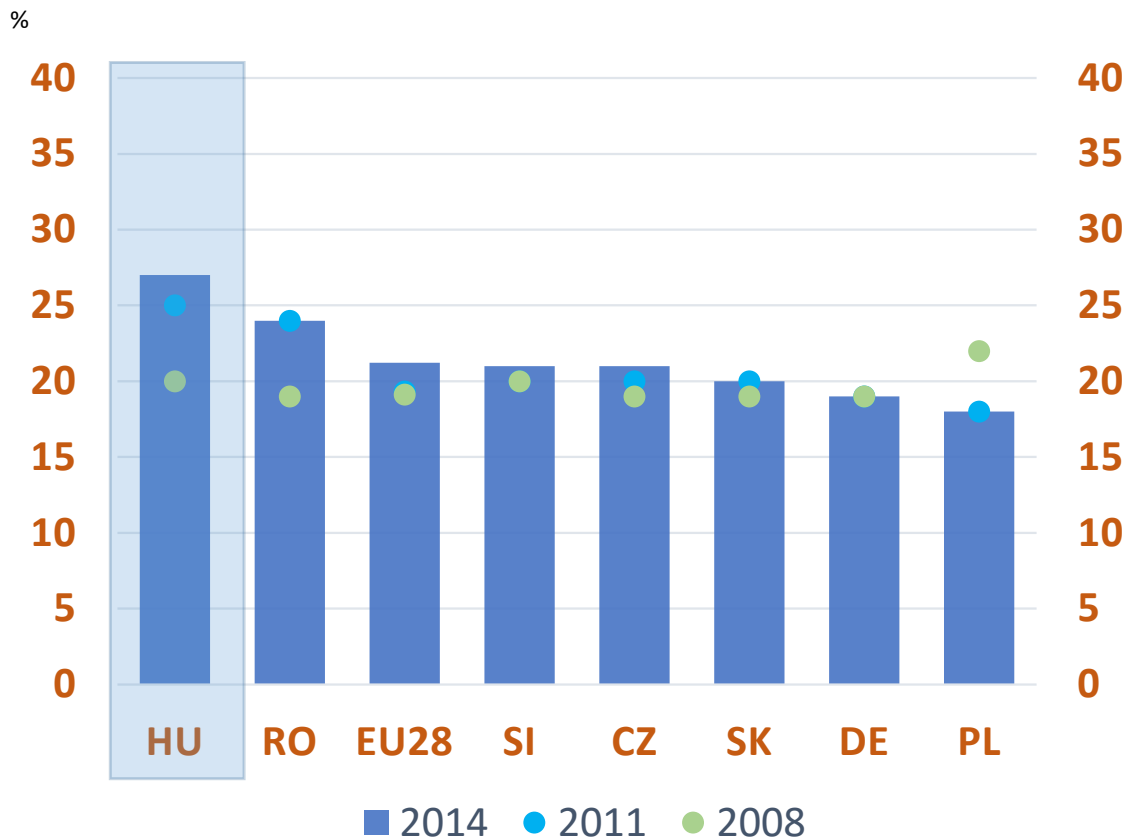
Despite the changes, the **rate of PIT burden is still the second highest in Hungary after Romania if the proportion of per-capita GDP equivalent income** is regarded (this is no longer certain after the PIT rate reduction in 2016).

SOURCE: PricewaterhouseCoopers, "Resource Tax Manager" in IMD

Ranking of Hungary in the EU (2014): **23./26.**

<sup>6</sup> Piac és Profit: Hol állunk a régiós adóversenyben? 2013. május

### 43. CHART Rate of value added tax



Consumption taxes (VAT and excise tax) are important sources of state revenues in any modern economy, in addition to corporate and income taxes.

With the exception of Poland, the VAT rate was 19%-20% in all countries of the region including Hungary in 2008. Effective from 1 July 2009, the then 20% VAT rate was split into two rates: one part was increased to 25%, and some products were granted a preferred VAT rate of 18%. The 25% VAT rate was increased to 27% from 1 January 2012, and this makes Hungary the country with the highest general VAT rate in the world.

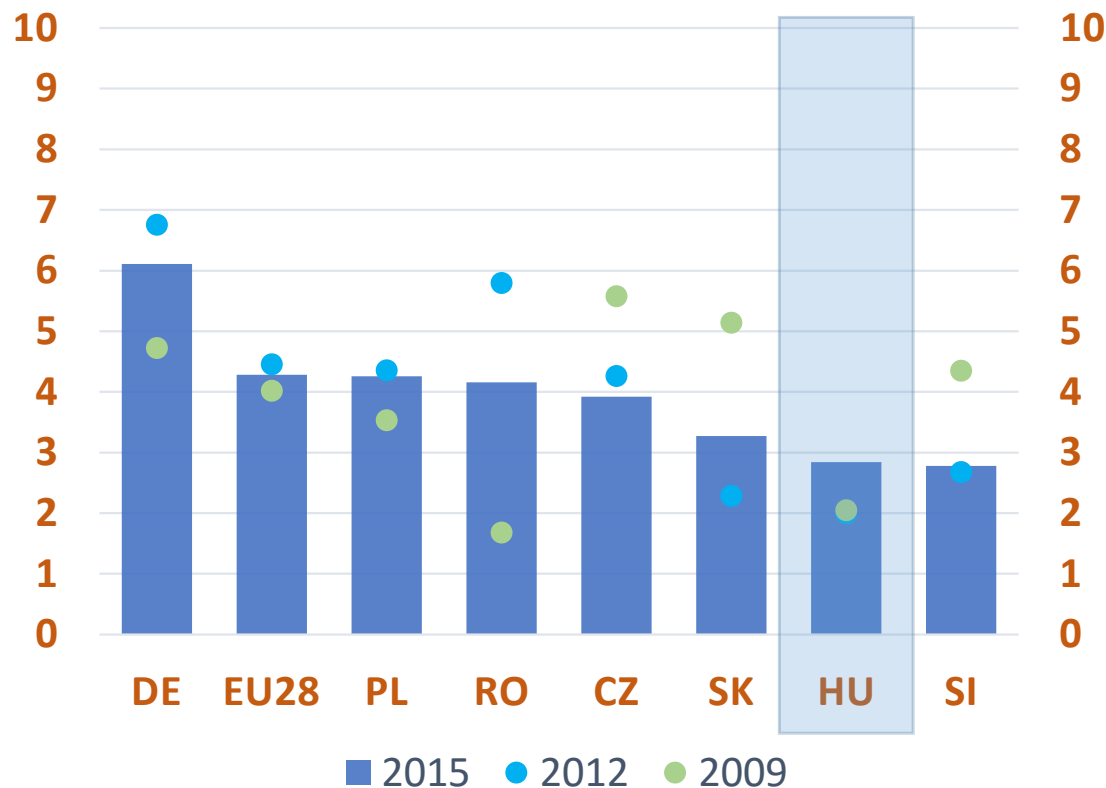
In 2014, the ranking according to VAT rates shows Romania second to Hungary with 24% (increased by 5 percentage points against 2008), and then Slovenia (21%) and the Czech Republic (21%) are immediately below the EU average (21.2%), then Slovakia (20%), and the Poland, which used to be the last and is now the first (18%).

SOURCE: OECD

Ranking of Hungary in the EU (2014): **26./26.**

### 44. CHART Tax evasion

0=constrains business activities; 10=doesn't constrain business activities



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): **22./26.**

The effects of tax evasion can be felt in every country, and its economic impact is usually seen very rigorously, as a constraint to business. Private individuals and companies that diligently pay taxes suffer a double competitive disadvantage against the ones that don't.

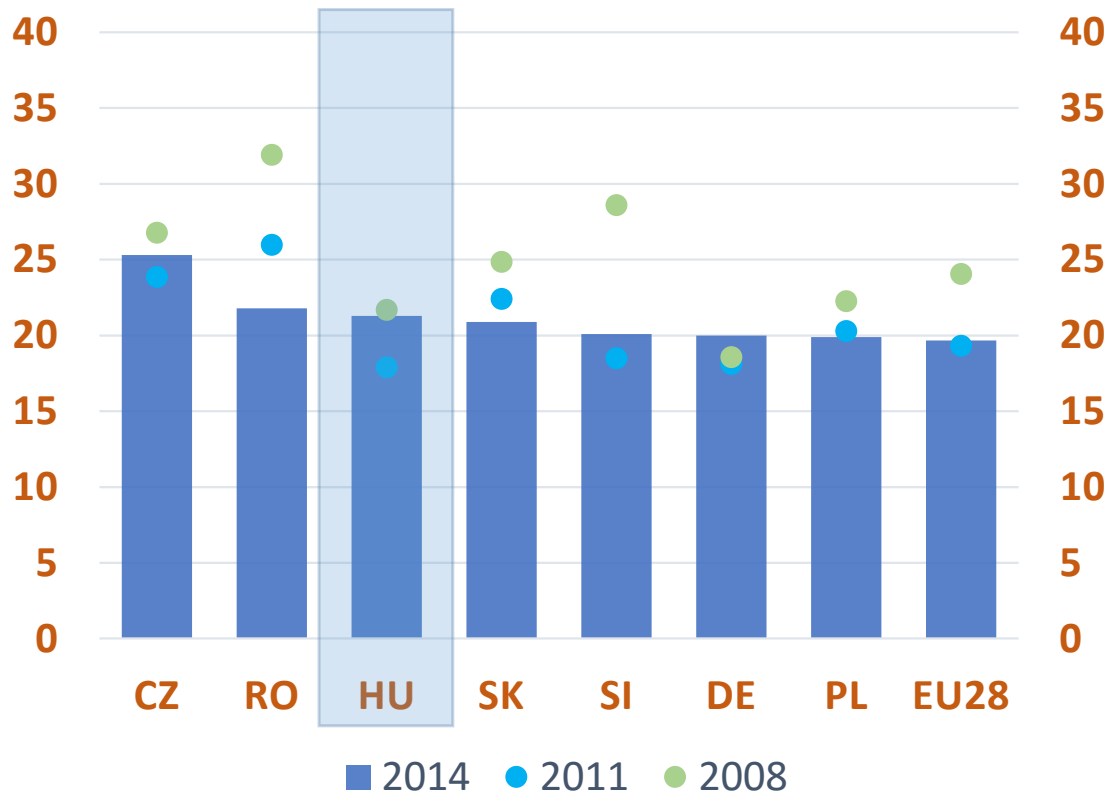
**Business executives think that Slovenia and Hungary are in the weakest position as far as tax evasion is concerned, although the situation is better in 2015 than six years before.** There are fewer subjects that evade taxes in Romania, the Czech Republic and Poland; we assume that this is due to the much lower tax burden. The opinion about tax evasion as a barrier to business has improved substantially in Romania since 2009, and it has improved slightly in Poland. Czech and Slovak business executives think that this problem is a much bigger impediment in their countries now than it was in 2009.

Domestic and international experience increase the importance of areas and tools where progress needs to be made to curb tax evasion. This is an extremely complicated process. The task includes, on the one hand, the encouragement of declaring incomes in the widest range possible, for example, through gradual reduction of income taxes, on the other hand through cutting back, or making more costly, the possibilities to „write off as cost” that reduces the tax base.

## 2.10. INVESTMENTS, FOREIGN CAPITAL

### 45. CHART Investment rate

Gross accumulation of fixed assets / GDP (%)



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

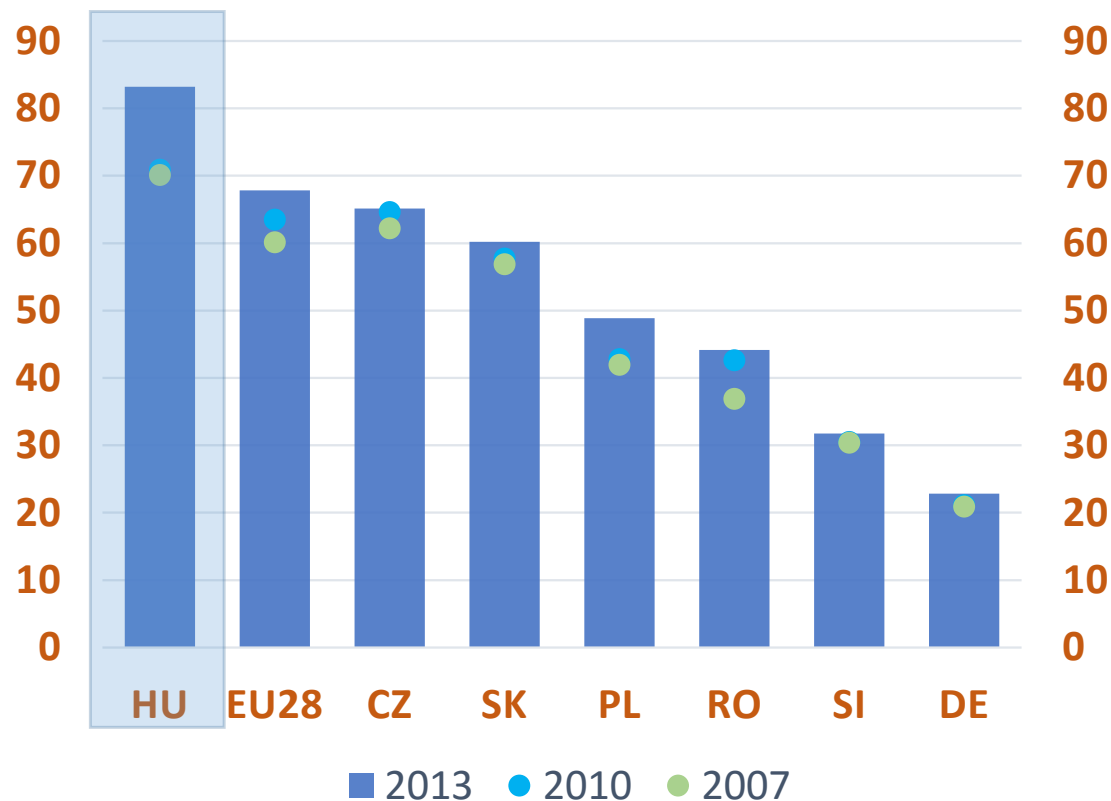
Ranking of Hungary in the EU (2014): 9./26.

Then investment rate to the GDP illustrates investments. This index is also good to be used to trend the economy: In case of private participants of the economy in a crisis (and also after it) making an investment is a signal of confidence. According to growth theories investments should reach a certain critical level (Rostow considers this to be the 18-20% investment rate) to kick-start economic growth as an important institution of modernity. Investments allow capital to expand, which can, in turn, increase the level of potential GDP as means of production in the next period.

A reduction in the rate of investments is a natural phenomenon during the time of a crisis, as the drop in demand made certain capacities obsolete, and the reduction in the supply of credits constrained the launch of investments on the funding side. The rate of investments in Hungary reached the level of before the crisis after a temporary recession by 2014. Although to a varying degree, the rate dropped at all other competitors in the region (mainly in Slovenia and Romania) between 2008 and 2014, but the EU average also shrunk by more than 4 percentage points. We ranked third on the regional list behind the Czech Republic and Romania with a 21.3% investment rate in 2014.

#### 46. CHART FDI influx at year-end (inward stock)

To the GDP (%)



SOURCE: UNCTADSTAT

Ranking of Hungary in the EU (2013): 6./28.

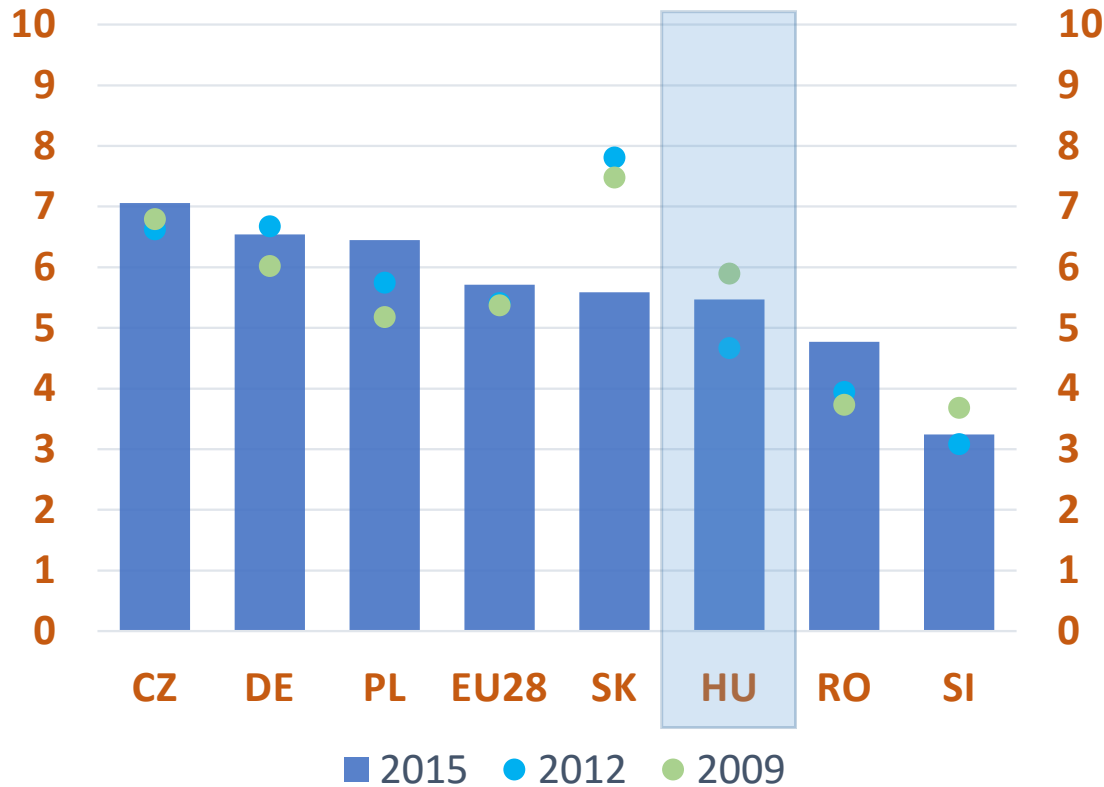
The growth of foreign capital investments, typical for former years, slowed down substantially as an accompanying feature of the global crisis after 2008. This reduction in growth is mainly the consequence of a reduction of the volume of working capital flowing into developing countries by about one-third (two-thirds of global FDI stock concentrates there).

**The stock of foreign direct investments in Hungary was 80.6 billion euros at the end of 2013** (67.8 billion euros of that were shares, other stock and re-invested income, while 12.8 billion euros were other capital), which is the highest rate to the GDP (83%) and the second highest in Central Europe in terms of per-capita rate. 77.2% of all capital investments in Hungary originate from the EU including a 24.7% share of Germany.

There was no substantial change in the Hungarian FDI rate between 2007 and 2010, followed by an increase by 12 percentage points by 2013. The rate of FDI to the GDP increased also in other countries of the region and the EU, however, its relative volume was lower than the growth achieved in Hungary. The situation has deteriorated in Hungary since 2013.

### 47. CHART Foreign working capital investment promotion

0=investment incentives (if at all available) have no impact on foreign investors; 10=investment incentives strongly attract foreign capital investments



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): 15./26.

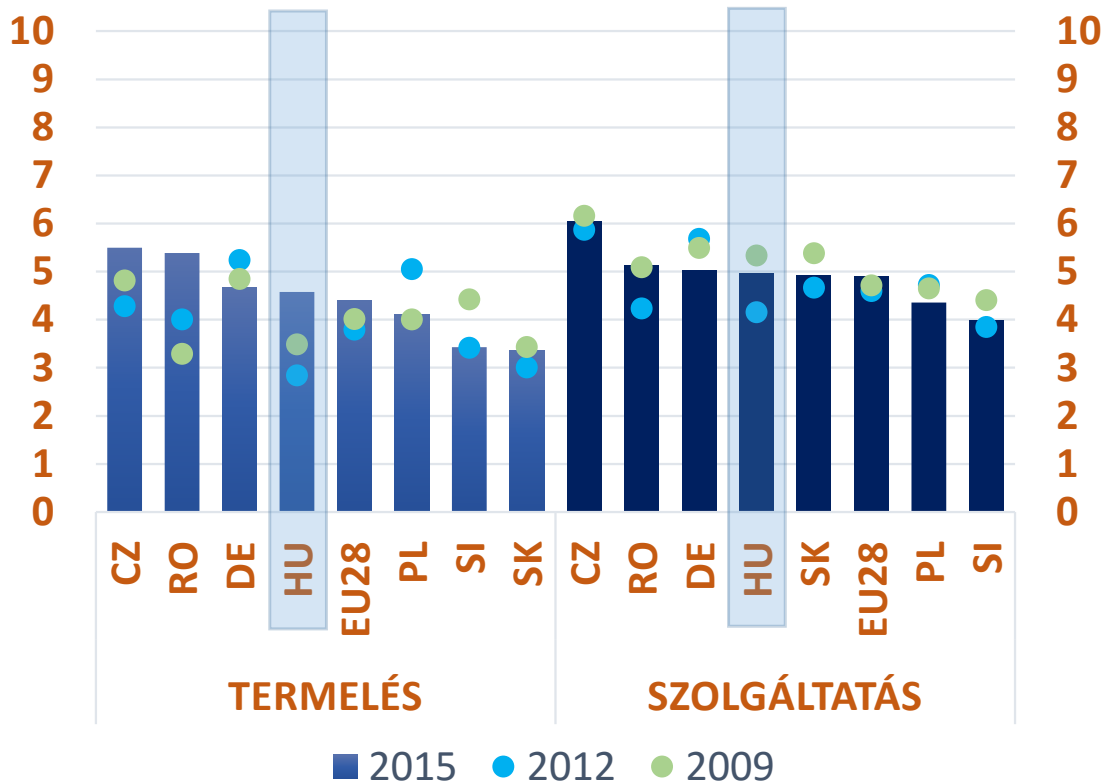
The economic crisis was an impediment on the global flow of foreign capital already in 2008, and then even more in 2009-2010, which also hit the region very hard.

**Hungary's situation was better in this regard than the region in 2015 than it had been in 2012, but still worse than in 2009** when the crisis had hit. The Czech Republic, Poland and Slovakia are ahead of us, but Romania and Slovenia are behind us. There has been a drastic deterioration of investment incentives in Slovakia since 2009, some deterioration of the same in Slovenia, while other competitors in the region improved investment incentives somewhat.

What we find is that in addition to traditional tools used to attract investments (lower tax rates, preferential prices for land purchases etc.), more and more countries use other, less widespread measures such as the state subsidisation of property rents, various administrative simplifications (e.g. in the field of company registration). However, it would be a mistake to overestimate these against the investment and business environment that is key for foreign investments. Protectionist measures clearly hinder the free flow of capital in a number of countries.

48. CHART Risk of relocation of production and services to other countries

0=very high; 10=insignificant



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

The risk of relocation of production to a different country has reduced in all countries but Slovenia since the economic crisis in 2009, according to business executives asked. Currently the risk of business relocation is lower in Hungary than in Poland, Slovenia or Slovakia, and Hungarian business executives had an even better opinion of the situation than the EU average.

Most large engineering manufacturers and automotive businesses have implemented massive investments in Hungary in the recent period, which means that relocation cannot be done in an economical way. Also, the largest investors have received substantial individual benefits and subsidies. However, a predictable and preferential legal and tax environment may be necessary for new investments.

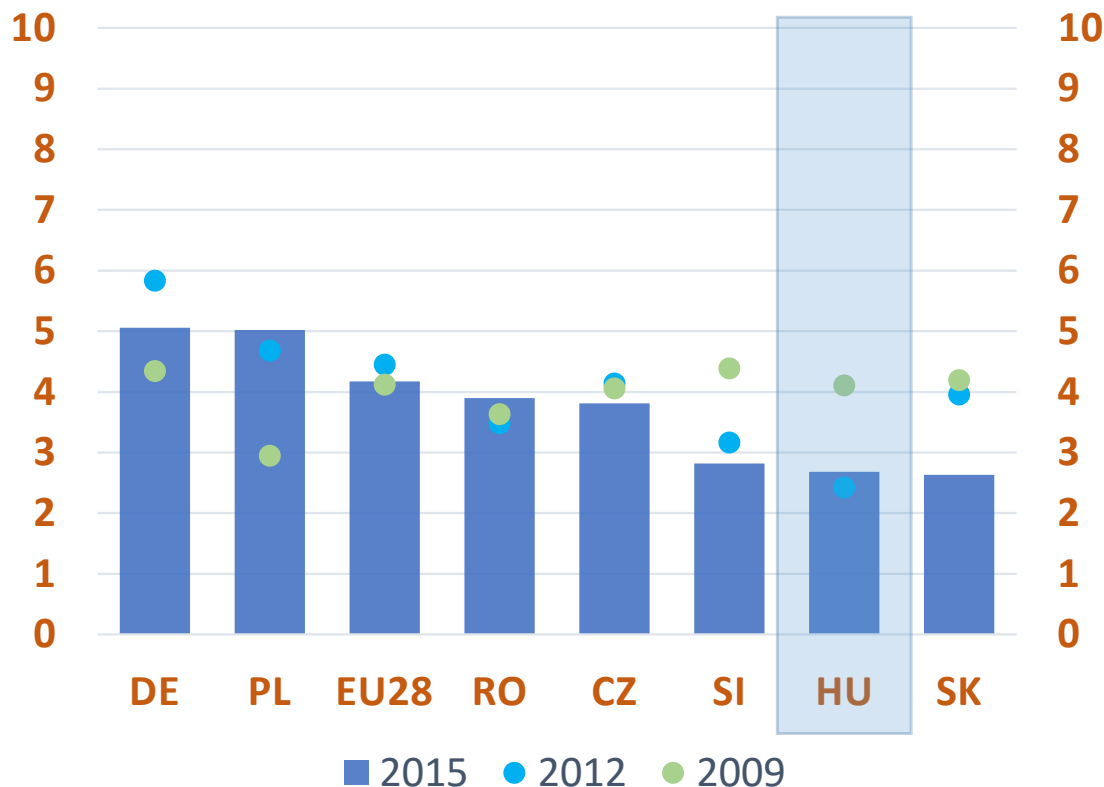
The risk of service relocation has not changed significantly in any of the countries since 2009. Hungary was on the level of the EU average and Germany in 2015, just like Slovakia. Not unlike in 2009, the risk of relocation of services is smaller in the Czech Republic, while it is slightly higher in Slovenia than in other countries of the region like Hungary.

Ranking of Hungary in the EU (2015): 14./26, and 10./26.

## 2.11. BUSINESS ENVIRONMENT

### 49. CHART Legislative and regulatory environment

0=constrains the competitiveness of companies; 10=incites the competitiveness of companies



**Legislative security**, the predictability of the legal and regulatory environment is an outstandingly important element of the business environment for companies. The lack of quick and effective enforcement of laws eases corruption and gives room for the violation of tax regulations. Chain debts are common in Hungary, and businesses that operate in a compliant way have no effective legal remedies to recourse to. This can land small and medium sized businesses in bankruptcy.

According to the survey of IMD the **legislative and regulatory environment was a strong barrier to the competitiveness of companies in Hungary, just like in Slovenia and Slovakia, in 2015**, although it was also more of a barrier than an incentive in other examined countries as well. **We, together with these two countries, have suffered a significant drop in this regard since 2009**. Meanwhile, changes in Poland went the opposite direction, while the position of Romania and the Czech Republic, or in fact the EU average did not change significantly.

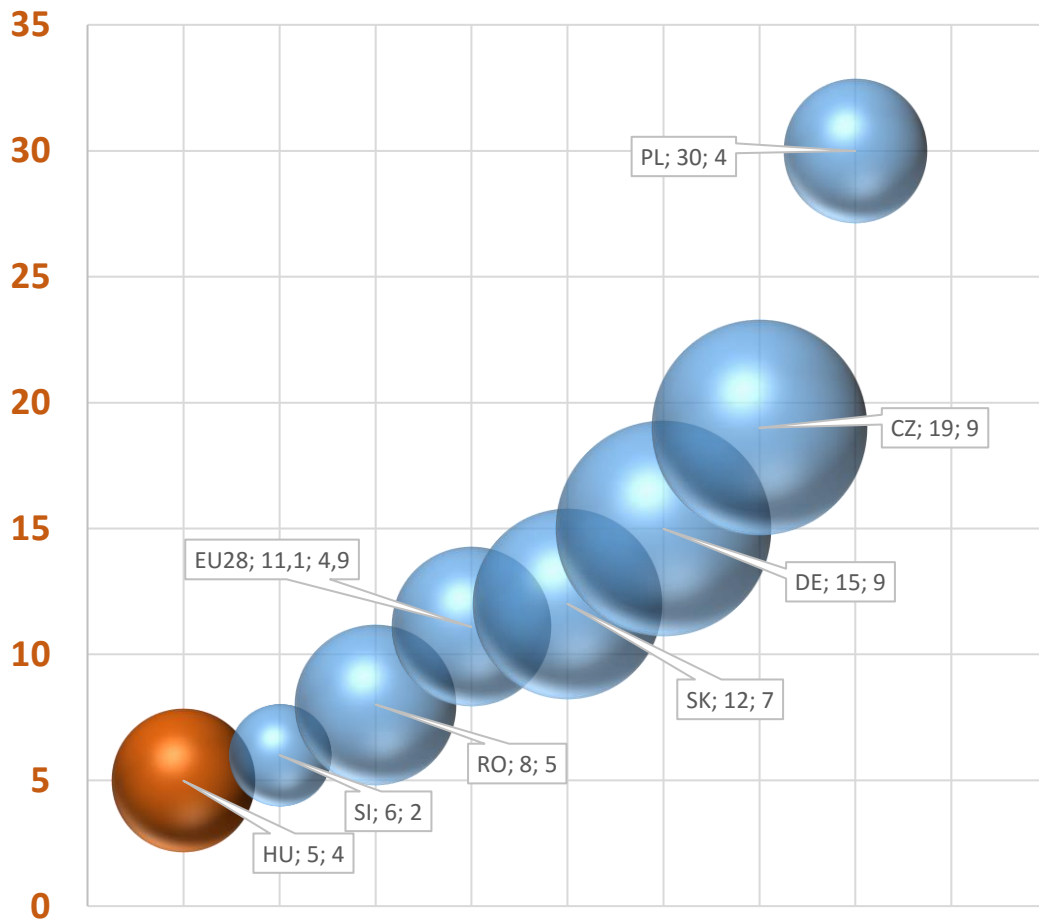
SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): **21./26.**

### 50. CHART Time required to establish a company

2014 (days)

Size of bubble: Number of steps required to establish a company (number)



SOURCE: Doing Business World Bank

Ranking of Hungary in the EU (2014): 5./26, and 7./26.

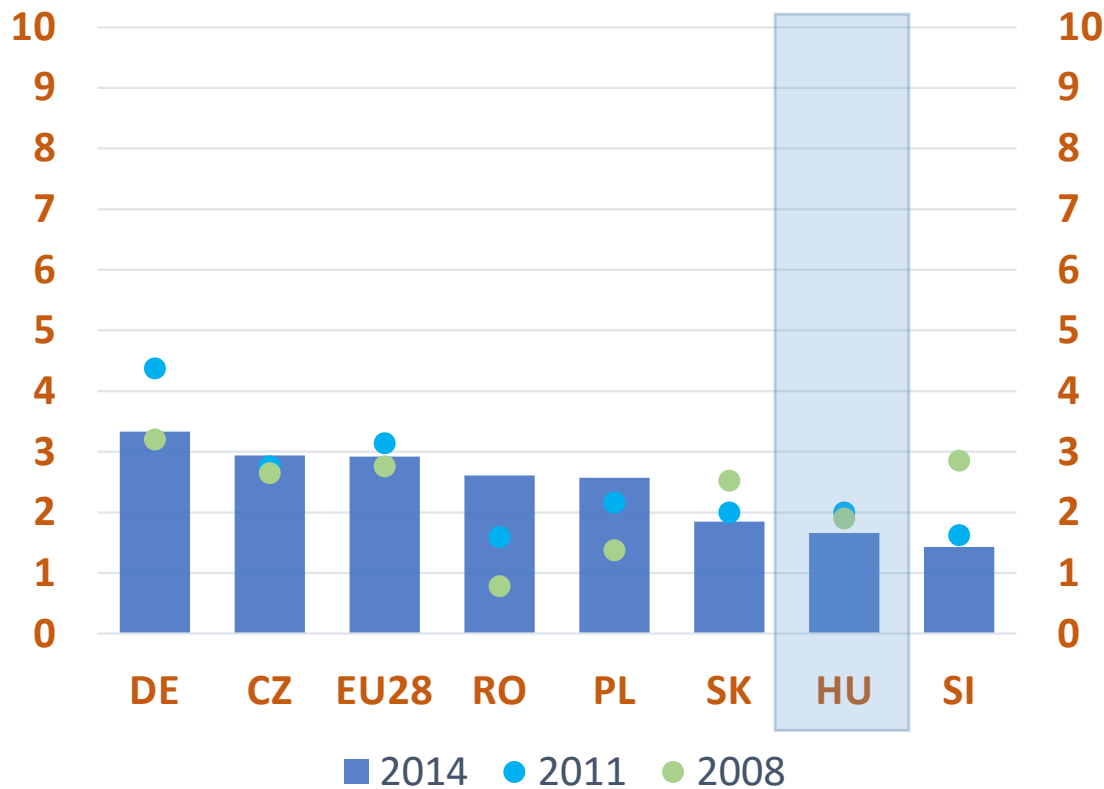
The method and time requirement of establishing a company becomes important especially from the aspect of international capital movement, and thus signifies the competitiveness of the entire country.

**Almost all countries try to make it easier to establish new companies, and Hungary has been performing outstandingly in this field.** According to the World Bank’s Doing Business survey 5 days were needed to establish a company in 2014, while 16 days were needed for the same in 2008. The number of steps required is still 4, and only Slovenia has fewer steps required.

In regional comparison, Hungary moved from the middle of the field to the top of the list in a period of six years. Establishing a company requires the longest time in Poland from the countries examined (30 days), while it requires the biggest number of steps (9 steps) in the Czech Republic (just like in Germany). The average of the EU28 Member States is 11 days and 5 steps to set up a new company.

### 51. CHART Bureaucracy

0=impedes business activity; 10=does not impede business activity



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

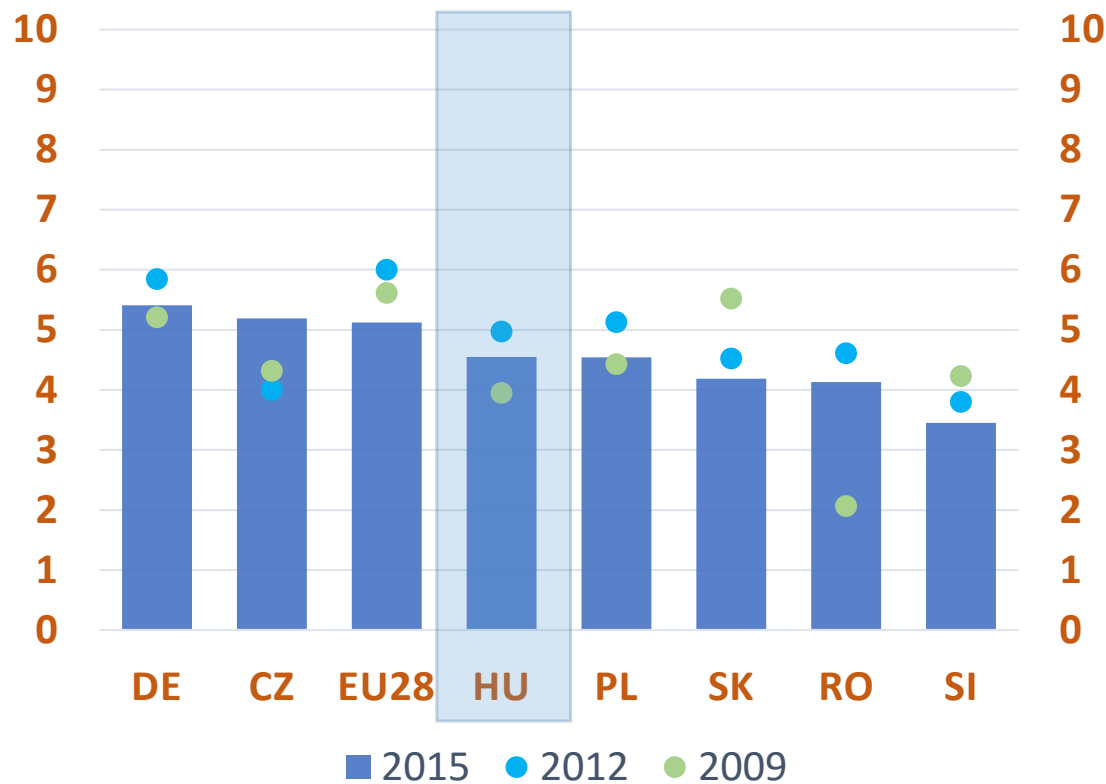
Ranking of Hungary in the EU (2014): 21./26.

Compliance with government regulations (e.g. disclosure of data to public bodies) is necessary, but it also means substantial time and thus regular costs to businesses. The reduction of resulting tasks is on the EU agenda, and the results of the Netherlands, the United Kingdom and Denmark are seen as examples that other countries should follow. Cutting back burgeoning bureaucracy is only possible through systematic commitment that permeates the entire system of public administration, and perseverant work. However, **state administrative apparatuses are not sufficiently interested in reducing administrative burdens on businesses**, and they are also not sufficiently prepared for surveys that would assess the additional burdens caused by changing the rules or introducing new ones. The proliferation of regulations, the increase of burdens are typical, while a few particular areas show some spectacular achievements on short term.

According to the IMD survey with business executives, **bureaucracy in Hungary, just like in Slovenia and Slovakia, is a substantial barrier to business, and the situation has not improved but rather worsened since 2008**. While the bureaucracy index improved significantly in Poland and Romania, and it has remained unchanged against 2008 in the Czech Republic, it is still true for them that bureaucracy is more of an impediment in the work of companies.

## 52. CHART Acceptance of economic and social reforms

0=society does not support reforms; 10=society supports reforms



The acceptance of innovation on the level of society is particularly important during the time of economic crisis. Companies that are able to renew in line with the challenges can adapt the quickest, and their ability to create value will define the welfare of individual national economies.

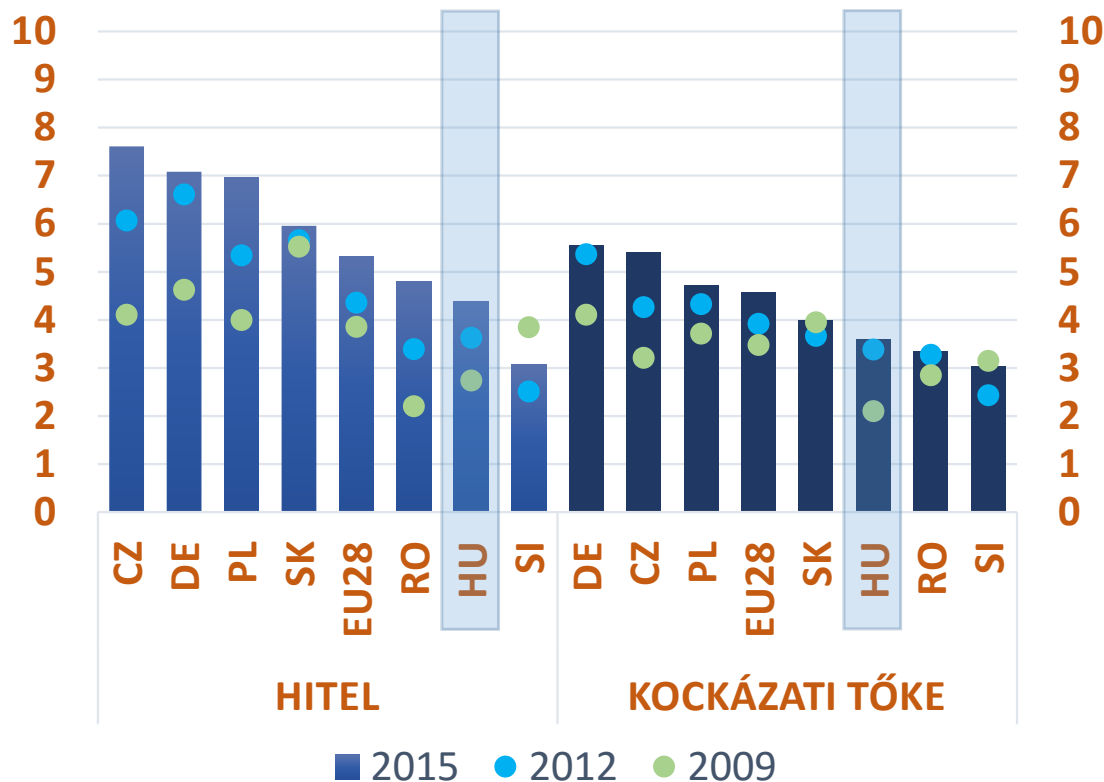
According to the IMD survey, European society is less supportive of economic and social reforms than it was in 2009. However, there has been a slight improvement in Hungary in this area (although some deterioration since 2012-), and we are in the middle of the regional field in this regard. This is encouraging also from the aspect of innovation processes in Hungary, as it conserves more flexibility and an attitude that is prepared more for cooperation. From among regional competitors, the index of Romania improved significantly over six years, while Slovakia and Slovenia deteriorated substantially.

SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): 17./26.

### 53. CHART Credit and venture capital terms and conditions

0=it is hard to access corporate credits and venture capital; 10=easy



Corporate credit terms typically improved after 2000, and then deteriorated globally after 2007. The global credit crisis had an identical effect on all countries in this regard; credit access terms improved between 2009 (which was already a crisis year) and 2015, except for Slovenia. **However, businesses still find it harder than average (score 5) to access credits in Romania, Hungary and Slovenia**, while it is easier than average in the Czech Republic, Poland and Slovakia (the EU28 average is slightly above the median value).

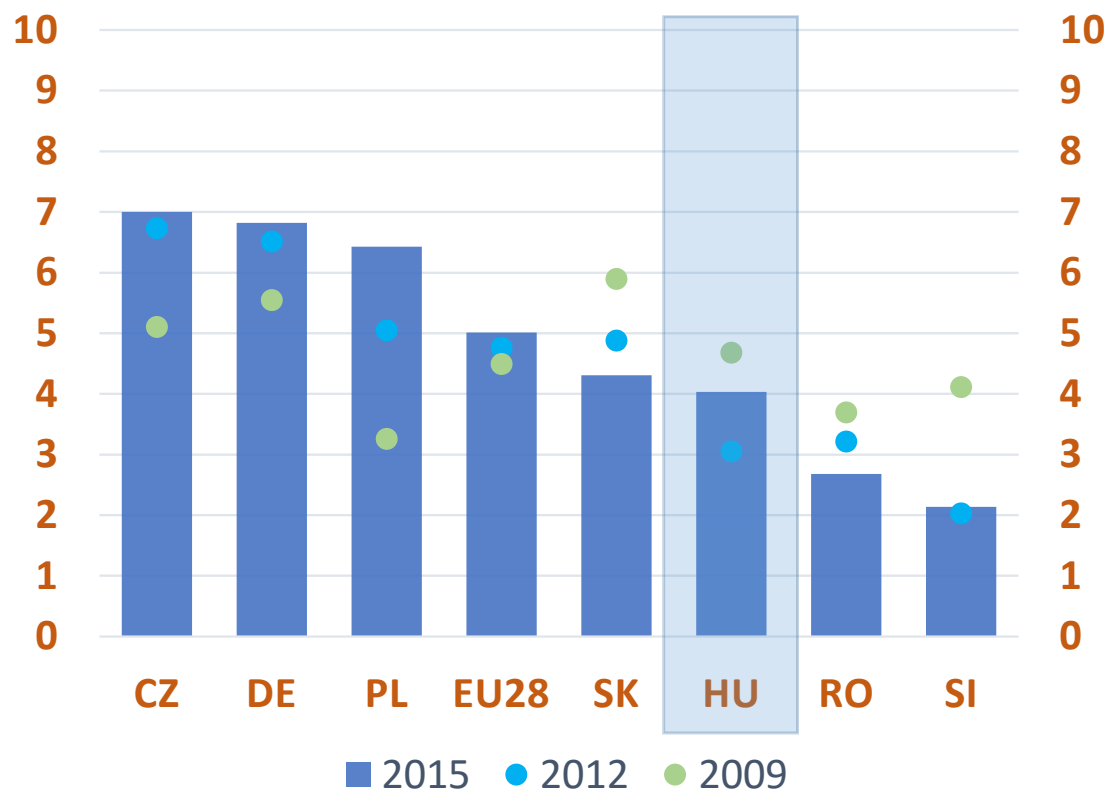
Classical or traditional venture capital finance usually means the long-term funding of start-up, innovative businesses that show great growth potential and are not publicly listed. **This is also typical for investments in Hungary.** Access to venture capital has become easier in all examined countries since 2009; and **Hungary could move from the last position** by a two-notch improvement and overtaking Romania and Slovenia. However, we still lag behind the EU average and also the Polish and Czech positions that are better than the EU average.

SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): 19./26, and 19./26.

## 54. CHART Corporate leverage

0=strong impediment to competitiveness; 10=no impediment to competitiveness



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

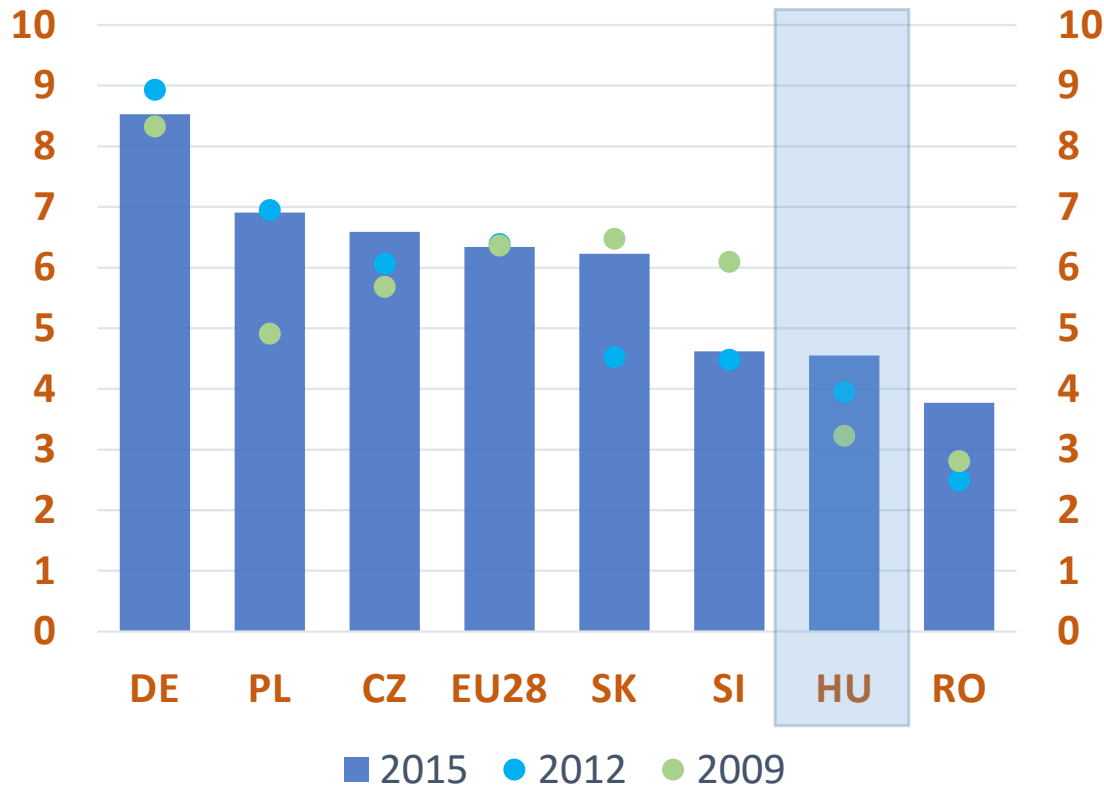
Ranking of Hungary in the EU (2015): 20./26.

Business executive opinions show that the **indebtedness of Hungarian companies has increasingly been a competitive disadvantage in global competition** since the beginning of the crisis. From amongst countries in the region, Poland could develop dynamically and overtook us in the last six years, and also surpassed the EU average (which also improved). Almost faced with state bankruptcy, corporate indebtedness became a strong barrier to competitiveness, but the situation also worsened greatly in Slovakia and Romania. From among the countries of the region, it applies to Poland and the Czech Republic that leverage is not an impediment on the competitiveness of businesses.

The stock of defaulted corporate loans within the lending portfolios of banks first grew rapidly after the beginning of the crisis, and then it reduced slowly only. **The poor performance of the real economy has a negative effect on companies that focus on the domestic market through a drastic drop in domestic consumption, and then its slow expansion.** Project loans make up a significant, more than 20% part of the corporate lending portfolios of banks in Hungary. These are mainly related to property investments in Hungary, so that the ailments of the domestic market are of defining importance in this portfolio's performance.

### 55. CHART Risk of political instability

0=very high; 10=very low



**Political instability** worsens economic predictability, it constrains the dynamism of foreign investments, inhibits interest rate cuts, and predicts a worse economic trajectory than would potentially be possible. Government stability, a predictable legal and economic environment and the fight against corruption are important in order to improve political confidence.

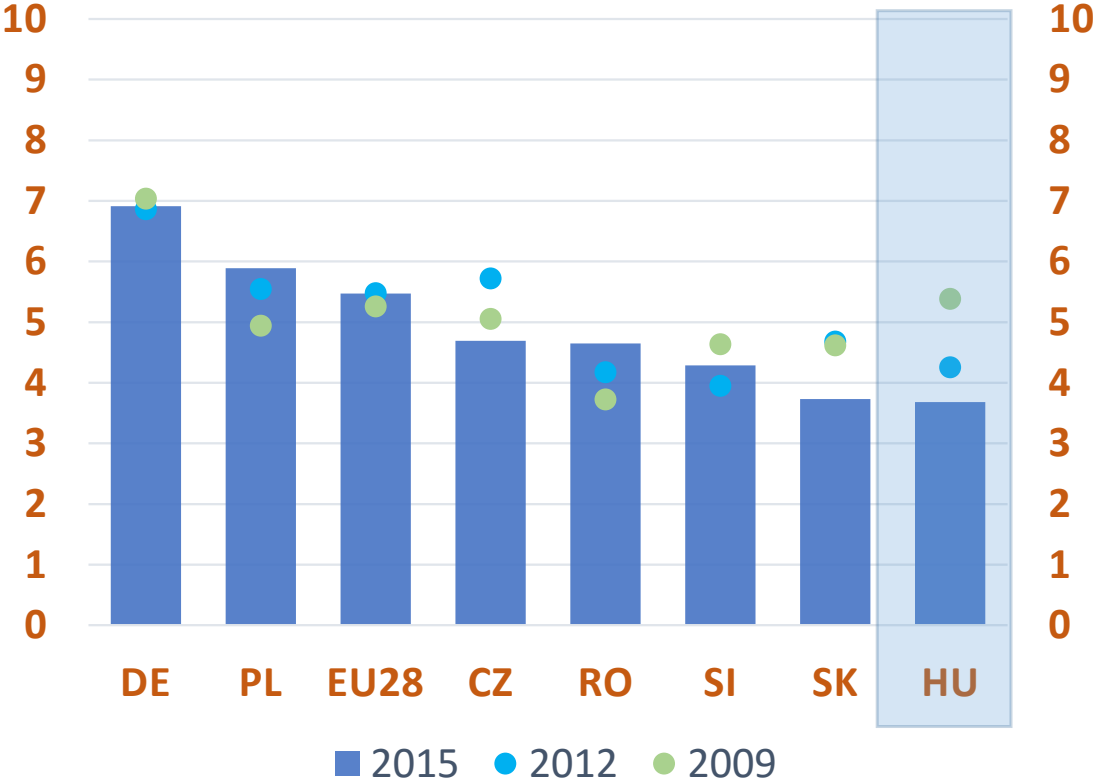
According to the survey of IMD with business executives, exposure to political instability has reduced or not changed significantly in the competitor countries except for Slovenia since the onset of the economic crisis. Poland was very much of the bottom of the list in 2009, while executives saw the risk of instability lower than the EU28 average in 2015. **Despite improving performance, Hungary is on the level of Slovenia, and is second last behind Romania.**

SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): **23./26.**

### 56. CHART Competition laws

0=no impediment to unfair competition; 10=efficient impediment to unfair competition



SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

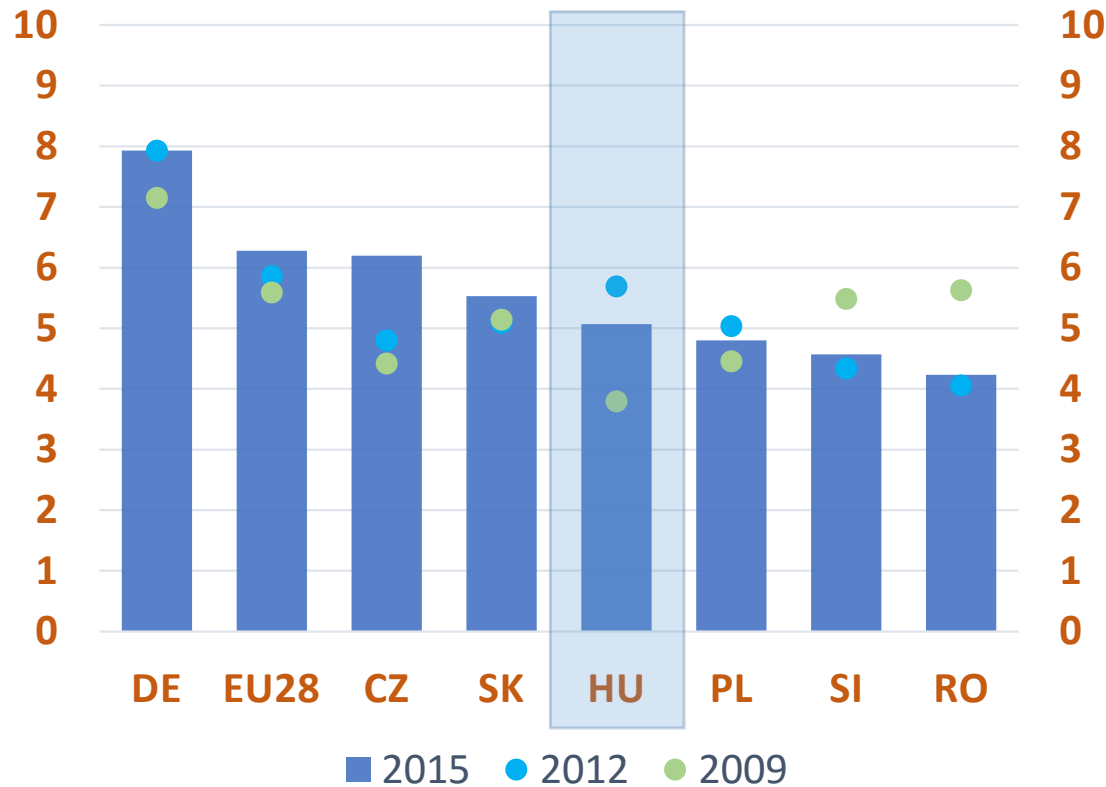
Ranking of Hungary in the EU (2015): 25./26.

The theoretical foundation for **competition rules** in the Member States of the European Union is the *acquis*, however, the effectiveness of competition is very different in individual countries, according to the opinion of businesses. Therefore there is a huge difference between old Member States, while the differences across Central-East-European countries are smaller. **Hungary's situation is worse than the EU average, and we also rank last among competitors in the region.** Only business executives in Poland think that competitive rules rather limit unfair competition than the opposite. The conditions for competition deteriorated in Hungary substantially, while somewhat less than in Hungary in the Czech Republic, Slovakia and Slovenia between 2009 and 2015, and the same conditions improved in Poland and Romania.

Beyond its traditional role in market regulation, competition is also an important engine of innovation, therefore a stronger drive to innovate will automatically imply the appreciation of the value of competition. We can even dare say that a **tougher functioning competition board can promote innovation more than all stakeholders in the economy that work towards the same aim.**

### 57. CHART Corporate ethics

0=amongst the worst in the world; 10=amongst the best in the world



The **ethics culture of companies** includes management methods, continuous training, communication between staff members and the management, the enforcement of rights and rewards. Opinions about this aspect have generally worsened all around the world, including Slovenia and Romania. The situation in Hungary **improved to the level of the average in this regard due to positive changes over the last six years**. As a result, we are further ahead than the two countries mentioned and Poland. Two competitors in the region, the Czech Republic and Slovakia are ahead of us.

Business executives think that companies operate more ethically in countries that are more developed than Hungary (e.g. Germany). The crisis improved the situation in ethics in developed countries, and it has worsened it in developing countries; crises usually tend to weaken rather than strengthen ethical behaviour.

SOURCE: IMD WCY Executive Opinion Survey; Note: EU28 without Cyprus and Malta.

Ranking of Hungary in the EU (2015): **20./26**.

# DATABASE AND LITERATURE REFERENCES

## EUROSTAT

Eurostat is an integral part of the European Statistical System (ESS). In addition to Eurostat, ESS also includes the statistics offices, agencies and central banks of Member States, which collect official statistical data from the Member States, Iceland, Norway and Lichtenstein. Member States capture data according to criteria defined by the EU. ESS works like a network, and its member Eurostat is mainly responsible for harmonising and publishing the statistical indices of nations. Also, ESS does continuous coordination with international organisations, the OECD, UN, IMF and the World Bank.

## KSH

The Central Statistical Office is a national agency with a great history, which reports to the government directly but is professionally independent. Its tasks include the planning of data capture, data recording, processing, storage, analysis and publication, and the protection of individual data. The Office supplies data to public administration bodies and the parliament, to social organisations, interest representations, local governments, public bodies, academia, business entities, the general public and media, and to international organisations and foreign users.

## OECD

OECD includes 30 member states, which are characterised by democratic governance and a commitment to the market economy. It maintains continuous active relations with 70 countries, national governments and NGOs outside the organisation. Its activity includes – in the economic and societal areas – macro-economic analyses, trade and education activities, and scientific research and development. The databases of OECD aggregate economic and social statistical data and indices of member states.

## IMD World Competitiveness Yearbook, IMD World Competitiveness Online

The World Competitiveness Yearbook (WCY) was first published in Lausanne, Switzerland in 1989 as a product of Institute for Management Development. Published annually for 18 years, the priority objective of the yearbook is to assess the competitiveness of the world's countries and to rank them according to various criteria. In addition to the usual indices of competitiveness (productivity index, unit labour cost) they also include indices that define the environment of businesses and the efficiency of the economy's functioning largely. The WCY includes 51 developed and developing countries. It ranks countries according to more than 300 competitiveness criteria organised according to the following areas: economic output, governance efficiency, business efficiency, infrastructure.

IMD World Competitiveness Online offers also longer term historical data. WCY is based, on the one hand, on statistical data, and on the views of app. 4200 experts polled with a survey on the other hand. The latter is called the Executive Opinion Survey, and the questionnaire is completed by top and middle executives of companies working in the given countries. In order to make sure that the survey is statistically representative, the size of the country samples is adjusted to the GDP of the relevant countries. The respondent sample is representative for the entire economy as it considers the rate of contribution of individual economic sectors to the GDP. Respondents rate the questions asked about competitiveness on a scale of 1 to 6, which is then converted to a scale of 0 to 10.

### International Railway Statistics

This trilingual publication contains the statistical figures of UIC member railway companies. The publication discusses the following areas of railway operation: network, rolling stock, personnel, operation, passenger traffic, transport tariffs, financial results, energy, safety and speed.

### International Road Federation

A non-governmental, not-for-profit organisation that was created with the objective of promoting and supporting the development and maintenance of better and more sustainable roads and road networks. The annually published World Road Statistics (WRS) sums up the public road, traffic and transport data of 185 countries; it is a unique resource in this field.

### International Telecommunication Union

The UN's institution for information and communication technologies, with membership from 193 countries.

### UNESCO

The UN's organisation for education, science and culture. The objective of its activity is to create the necessary circumstances for communication across civilisations, cultures and people, based on the respect of joint values. Currently 193 countries are members.

### UN Human Development Report

This report of the UN contains two types of statistical information: Certain indicators of social development, which provide an impression on social development, and thematic comparisons of countries according to certain chapters. The report is published annually, with relatively large delays.

### WEF The Global Competitiveness Report

A Global Competitiveness Report has been published since 1979 in the framework of the Global Competitiveness Program of the World Economic Forum (WEF). This publication, which includes contributions from renowned experts like Michel Porter analyses the competitiveness of countries on the basis of two indices (Growth Competitiveness Index – GCI, and Business Competitiveness Index – BCI). These two indices are generated from publicly available data and a survey conducted in 103 countries (Forum's Executive Opinion Survey). Approximately 9000 business executives can express their views on certain factors or the business environment.

### WIPO

The World Intellectual Property Organisation was established in 1967 to “protect intellectual property around the world, and to promote and help creative activities.” Currently 184 countries are members.

### World Bank, Doing Business

The World Bank's Doing Business database encompasses the regulatory environment of companies on the basis of internationally comparable indices for the economies of 175 countries.

### World Development Indicators

A World Development Indicators (WDI) is the publication of the World Bank that measures and presents the level and progress of development in the world, published annually. This material contains more than 900 indicators in 80 tables ordered into 6 main chapters (World, Society, Environment, Economy, Markets, Global Relations).

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COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Universal service in e-communications: report on the outcome of the public consultation and the third periodic review of the scope in accordance with Article 15 of Directive 2002/22/EC

Deákné Gál Anikó\* A regionális versenyképesség tényezői, különös tekintettel a Nyugat-dunántúlra; külkereskedelmi főiskolai füzetek 15.  
[http://elib.kkf.hu/okt\\_publ/szf\\_15\\_01.pdf](http://elib.kkf.hu/okt_publ/szf_15_01.pdf)

Rác Irma: Üzleti siker a tehetség tükrében, 2013, PhD hallgató, Széchenyi István Egyetem Regionális és Gazdaságtudományi Doktori Iskola.

Hol állunk a régiós adóversenyben? piacesprofit.hu 2013. május 17.

# ABBREVIATIONS

FDI  
Foreign Direct Investment

GDP  
Gross Domestic Product. Total value of goods (products and services) produced.

HDI  
A Human Development Index combines the average life expectancy, the level of education and the per-capita gross domestic product (GDP) on purchase power parity in a single index.

ICT  
Information and Communication Technology

IMF  
International Monetary Fund

SME  
Small and Medium Sized Enterprise

R+D  
Research and development

## ABBREVIATIONS OF COUNTRIES AND REGIONS

CZ – Czech Republic

DE – Germany

EU28 – European Union

HU – Hungary

PL – Poland

RO – Romania

SI - Slovenia

SK – Slovakia

## PISA TEST

PISA (Programme for International Student Assessment) is a series of comprehensive surveys done globally on behalf of developed industrial countries (OECD), with the objective of assessing the effectiveness and success of education.

## LIST OF CHARTS

|   |                                 |
|---|---------------------------------|
| 1. CHART Competitiveness ranking .....  | Hiba! A könyvjelző nem létezik. |
| 2. CHART Changes in real GDP .....  | Hiba! A könyvjelző nem létezik. |
| 3. CHART Per-capita GDP at purchase power parity .....  | Hiba! A könyvjelző nem létezik. |
| 4. CHART Human development index (HDI) .....  | Hiba! A könyvjelző nem létezik. |
| 5. CHART Life expectancy .....  | Hiba! A könyvjelző nem létezik. |
| 6. CHART Rate of dependency .....   | Hiba! A könyvjelző nem létezik. |
| 7. CHART Ageing society .....   | Hiba! A könyvjelző nem létezik. |
| 8. CHART Unemployment rate .....  | Hiba! A könyvjelző nem létezik. |
| 9. CHART Part-time employment .....   | Hiba! A könyvjelző nem létezik. |
| 10. CHART Public spending in education .....  | Hiba! A könyvjelző nem létezik. |
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| 23. CHART Quality of energy supply .....  | Hiba! A könyvjelző nem létezik. |
| 24. CHART Rate of domestic energy production to demand .....  | Hiba! A könyvjelző nem létezik. |
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| 28. CHART R+D expenditure as portion of GDP .....   | Hiba! A könyvjelző nem létezik. |

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