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Entrepreneurship and Competitiveness in the EU Member States, with Special Regard to the Visegrad Countries

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Our research primarily aims at studying the competition and competitiveness in the EU internal market, both at the level of the EU and its member states. As the main tool of our analysis, we create three indicators based on the dataset and methodology of the World Economic Forum (WEF). These indicators are to measure the competitiveness of 1) the state, 2) the enterprise sector and 3) the institution of the market in the EU member states. In order to assess entrepreneurship, we apply the GEDI index. Then we compare our findings along the two dimensions. EU member states obviously form two groups along all indicators: the core and the periphery are clearly visible. The Visegrad countries all belong to the periphery but their relative positions within the group are worth studying. Enterprise sector competitiveness calculated according to the WEF methodology and entrepreneurial spirit calculated through the GEDI index show a very strong linear correlation.

Keywords: competition, competitiveness, entrepreneurship, European Union, Visegrad countries.

Przedsiębiorczość i konkurencyjność w państwach członkowskich UE ze szczególnym uwzględnieniem krajów Grupy Wyszehradzkiej

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Głównym celem prezentowanego badania jest analiza konkurencji i konkurencyjności na rynku wewnętrznym Unii Europejskiej na poziomie zarówno UE, jak też jej państw członkowskich. Za główne narzędzie analizy posłużyły trzy wskaźniki opracowane przez autorów na podstawie zestawu danych i metodologii Światowego Forum Ekonomicznego. Wskaźniki te służą do pomiaru konkurencyjności: 1) państwa, 2) sektora przedsiębiorstw oraz 3) instytucji rynku w państwach członkowskich UE. Do oceny przedsiębiorczości zastosowano wskaźnik GEDI. Następnie wyniki zestawiono w dwóch wymiarach. Nie ulega wątpliwości, że państwa członkowskie dzielą się na dwie grupy pod względem wszystkich wskaźników – centralne i peryferyjne. Wszystkie kraje wyszehradzkie należą do grupy peryferyjnej, lecz warto przeanalizować ich względne pozycje w obrębie grupy. Pomiędzy konkurencyjnością sektora przedsiębiorstw obliczoną

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zgodnie z metodologią Światowego Forum Ekonomicznego a przedsiębiorczością obliczoną za pomocą wskaźnika GEDI zachodzi bardzo silna zależność liniowa.

Słowa kluczowe: konkurencja, konkurencyjność, przedsiębiorczość, Unia Europejska, kraje wyszehradzkie.

JEL: F15, O52, O57, P52

1. Introduction

Our research primarily targets competition, competitiveness, and their elements in the internal market of the EU. We examine these both aspects at the EU and member state levels. In our current study we make an attempt to combine various research approaches in order to come to novel results.

In order to reach our objectives, we first review the concept of competition, primarily in the theoretical context of new institutional economics, but with certain openness to other approaches, which attitude characterises new institutional economics itself. Competition nevertheless can be studied in an applied economics approach as well. The subject of our investigation is the single market of the EEC/EU.

Competition and competitiveness are closely related: the more competitive an actor, the better he performs in competition. Competitive forces are the main drivers of economic development, and intensive competition yields efficiency gains. Based on this logic, we include EU member states' competitiveness in our analysis. We rely on the results of the executive opinion survey carried out by the World Economic Forum (WEF) and we also apply the methodology of the Global Competitiveness Index (GCI) generated from these results. Nevertheless, we go further with our research by generating three new indicators from the WEF sub-indicators: the competitiveness of EU member states along the dimensions of the state, the enterprise (sector), and the market itself, as we believe that these are the basic concepts along which competition can be assessed.

The entrepreneur is the key player in the economy as he is the one who organises production, finds and exploits possibilities of improving productivity, and is the main facilitator of innovation resulting in new products and processes, thus improving performance in competition. Based on this Schumpeterian idea, we use another indicator to perform a comparative analysis of competition in the EU internal market: the Global Entrepreneurship and Development Index (GEDI) assesses entrepreneurial attitudes, abilities, and aspirations.

In the course of our comparative analyses, we focus on the Visegrad countries (Poland, Czech Republic, Slovakia, and Hungary). We strive to show their positions within the EU, and also their relative positions vis-à-vis each other. We are also interested in analysing the relations between the different competitiveness indicators we generated, and the GEDI. Our findings, we believe, are exciting, and match quite well with the implications

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of new institutional economics, namely that there is an identifiable overall institutional quality, and it matters greatly in economic competition, affecting entrepreneurial performance as well.

2. Competition as an Institution

New institutional economics, as widely known, interprets the concept of institution as a set of norms aiming at directing individual actions in a certain way. As North (2005) describes them, "institutions are the rules of the game – both formal rules, informal norms and their enforcement characteristics. Together they define the way the game is played." (p. 22). So, an institution may be formal or informal. Laws, contracts and other tools ensuring the enforcement of the norms are usually also included (Tsuru, 1993). Economists, by now, have largely agreed that institutional quality matters more than geography or trade in explaining economic growth (Rodrik et al., 2002). Among the institutions, we believe, the quality of competition in the market is crucial.

Greif (2005) points out that "markets rest upon institutions" (p. 727). He also identifies those so-called "market-supporting institutions" (mimeo). Nevertheless, the recognition of competition as an institution itself dates back as far as the second half of the 19th century. At that time, with the unfolding modern capitalism in the Western world, competition, in many markets, started to be crowded out by dominant private actors. These processes brought about the revelation that competition is a public good and, as such, needs protection (Vörös, 1991). Evidently, this task was delegated to the state and, consequently, competition policy has become one of the most significant areas of the activities of the modern state (Miskolczi Bodnár, 2004). As markets are dynamic, an active competition policy is legitimate (Pelle, 2011), although there are quite a few other factors and mechanisms destabilising the dominant position and enforcing competition in the markets (Elsner et al., 2014).

The concept of competition being an institution has deep roots in the German history of economic thought as well. The Freiburg School, established in 1933 in order to find the constitutional framework of a free economy and society, has from the beginning been convinced that freedom and order serve one another (Woll, 1989). The Freiburg scholars have regarded (free) market itself as a constitutional-institutional order defining the main structure of the economy. Accordingly, in the Freiburgian intellectual setting, economic development can be achieved through the development of the institutional framework of (economic and legal) order (Albert, 2005). European economic integration, the setup of the single market (with the free movement of goods, services, persons and capital), and the common competition policy have all been based on this branch of German economic thinking.

Freedom (of competition), on the other hand, is closely linked to democracy. Not surprisingly, Western Europe, the cradle of European integration, has historically been the forerunner in democratisation as well (Acemoglu and Robinson, 2000). However, there are countries in the EU where democracy is much younger, including the Visegrad countries – what is the state of competition and competitiveness in these member states? We will soon see.

Competition policy is mainly shaped by and implemented through the adoption and enforcement of competition law. Competition law is often regarded as the constitution of the market because, "in a market economy, economic regulation is substantially realised through market regulation" (Kiss, 2008, p. 14). The task of the regulator is to protect the institution of competition by positive incentives on the one hand (e.g. introduction or encouragement of competition, creation of uniform conditions, promotion of risk-taking and innovation), and by decreasing or stopping negative effects on the other hand (e.g. elimination of barriers to entry, minimisation of exit costs). According to the theory of economics of regulation, legislative activities should be optimised (McNutt, 2005). In particular, market investigations have to be carried out, production costs have to be estimated, and the comparison of various actors has to be executed by the competition authority (Streit and Wegner, 1989). The competition regulation regime of the European Union fulfils these requirements in relation to the internal market.

Coase (2005) warns that economic and legal systems are closely linked and that economists should take that into account. Posner (2001) bases his work on the Coase Theorem, namely that the transaction costs of the application of a certain law should be set against its expected benefits. Therefore, legislation itself should undergo economic analysis, which brings up the question of the efficiency of competition regulation (Don, Kemp and van Sinderen, 2008). Transaction costs are nevertheless reduced if a workable price system based on market competition is applied (Oberender and Christl, 2000).

The European Commission has introduced the so-called 'more economic approach' in its competition policy investigations in the beginning of the 2000s (under Mario Monti as competition commissioner).

3. Competition in the EU Internal Market

The European Union (until 1993, the European Economic Community) has operated a common competition policy from the beginning. Moreover, the common competition policy has been rather stable throughout the decades; it is sometimes called the 'éminence grise' of European integration (Török, 1999). The prohibition on restrictive agreements, on the abuse of dominant position, and on state aid has formed part of primary law since

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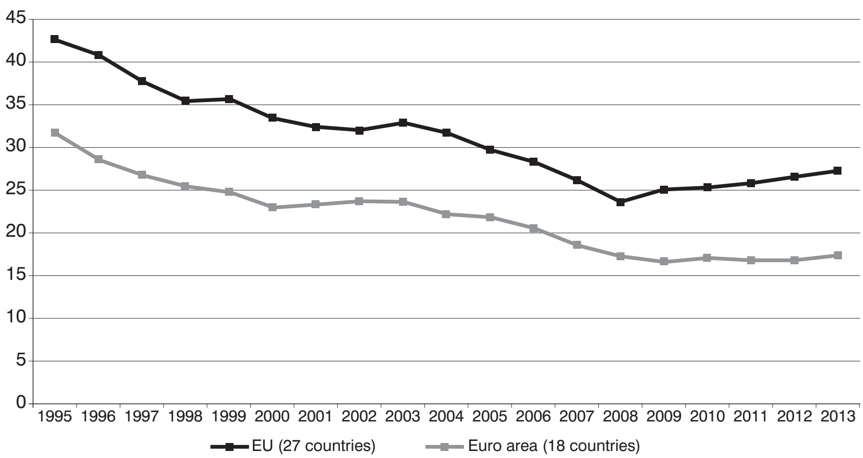
the adoption of the Treaty of Rome in 1957. Moreover, the contents of this primary law has not changed, except for the switching of the original phrase 'common market' to 'single market' after the Single European Act, and then to 'internal market' with the adoption of the Lisbon Treaty in 2007. The change of the expression implies changes in the concept: while the original common market rested on the so-called 'four freedoms' (free movement of goods, persons, services and capital), the single market agenda was mostly shaped by those ca. 300 directives that had to be adopted by member states, forming a single regulatory framework. The current concept of the internal market is a manifestation of the intention of the European Commission (and backed by many experts) to view the European Union as one economic bloc, with its own internal (and external) characteristics, processes, and relations.



* Coefficient of variation of comparative price levels of final consumption by private households including indirect taxes. Comparative price levels are the ratio between Purchasing Power Parities (PPPs) and market exchange rate for each country.

Fig. 1. Price convergence between EU member states (1995–2013). Source: own edition based on http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00121.*

In fact, integration has proceeded for decades and in many terms, including the convergence of prices (Fig. 1), which is the most evident manifestation of economic integration. Nevertheless, the 2008 financial and economic crisis was a serious breakpoint in many aspects, including price convergence in the EU as a whole. Even so, price convergence within the Eurozone continued (or, at least, did not turn into divergence) during the crisis, reaching a 16 per cent coefficient variation by 2013, which can be considered as a high level of economic integration.

Nevertheless, price convergence is one of the very few areas in which the crisis did not cause serious deterioration. The share of intra-EU trade in member states' overall trade, for example, has overall been decreasing in the last decade; only imports in 2013 showed a change in that tendency (Fig. 2).

A deeper analysis of the manifold impacts of the crisis on the European Union and its member states is out of the scope of this study. Extensive literature is available in the field. What we emphasise at this point is that the crisis has brought many of the imperfections of the European economic construct to the surface. In this context, the stability of the competition policy framework and the endurance of the achievements in the Eurozone price convergence are to be appreciated, and may imply that the very fundaments of European economic integration had been designed in an appropriate way. This implication may give courage to the pro-integrationists in Europe.

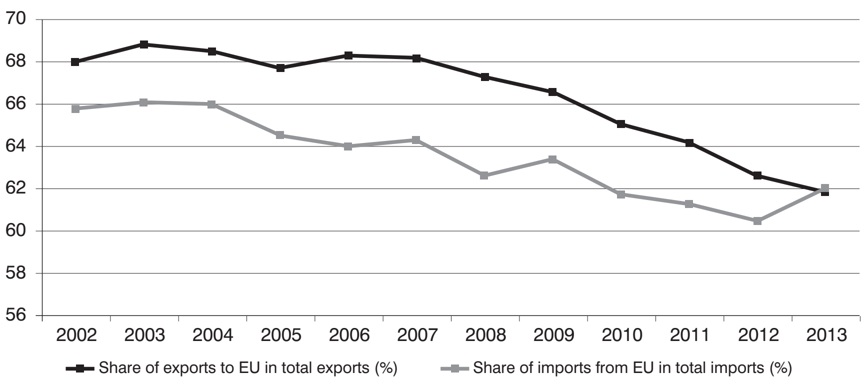


Fig. 2. Share of trade with EU27 (2002–2013). Source: own edition based on http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tet00047&plugin=1.

4. Competitiveness of EU Member States – Some New Insights

In March 2010, after the expiration of the Lisbon strategy, the EU launched its Europe 2020 strategy (EC, 2010) to establish the conditions for a smart, sustainable and inclusive growth in the EU by 2020. In parallel, the WEF launched its 'Europe project' (Schwab, 2012) in the framework of which the Europe 2020 Competitiveness Report is published biannually. So far, two such reports have been released (WEF, 2012, 2014). These can be considered as independent monitoring reports of the Europe 2020 strategy.

Without going into a detailed analysis of the 2014 data (Tab. 1), we can see that the overall score in 2014 ranges between 5.70 (Finland) and

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3.64 (Romania). This is a huge difference between the best and the weakest (2.06 points on the 1–7 scale), which shows that there is a large dispersion in EU member states' competitiveness. There appears to be both an East-West and a North-South divide within the EU[1].

Country	Overall rank 2014 (1–28)	Overall score 2014	Country	Overall rank 2014 (1–28)	Overall score 2014
Finland	1	5.70	Portugal	15	4.44
Sweden	2	5.55	Slovenia	16	4.43
Netherlands	3	5.41	Lithuania	17	4.38
Denmark	4	5.32	Czech Republic	18	4.33
Germany	5	5.28	Latvia	19	4.32
Austria	6	5.16	Cyprus	20	4.22
United Kingdom	7	5.13	Italy	21	4.05
Luxembourg	8	5.07	Poland	22	3.97
Belgium	9	4.93	Slovakia	23	3.91
France	10	4.81	Croatia	24	3.87
Ireland	11	4.75	Hungary	25	3.83
Estonia	12	4.74	Greece	26	3.79
Spain	13	4.47	Bulgaria	27	3.75
Malta	14	4.44	Romania	28	3.64

Tab. 1. Europe 2020 Competitiveness Index rankings and scores (1–7, 7: best). Source: WEF. (2014). The Europe 2020 Competitiveness Report: Building a More Competitive Europe. Geneva: World Economic Forum.

Regarding the Visegrad country group, the Czech Republic is the best performer (rank 20, score 4.33), followed by Poland (22, 3.97), Slovakia (23, 3.91), and Hungary (25, 3.83). We can see that the Czech Republic stands out from the group but the other three show large similarities in overall performance. Going deeper behind the overall score would give us more insight into the differences but that is out of the scope of this study.

Actually, we were interested in the elements of competitiveness that are related to competition in the EU internal market. Accordingly, we created three new indicators from the WEF GCI sub-indicators: the competitiveness of states, enterprises, and markets of EU member states. We did so using the WEF's data and the WEF's methodology applied for similar secondary indexes (e.g. the GCI itself, or the Europe 2020 Competitiveness Index). In particular, we selected the sub-indicators of the WEF GCI shown in Tables 2, 3 and 4. Our selection was based on intuition. We named the new indicators 'State', 'Enterprise', and 'Market'.

Number in GCI	Name of sub-indicator in GCI
1.05	Irregular payments and bribes
1.07	Favouritism in decisions of government officials
1.09	Burden of government regulation
1.10	Efficiency of legal framework in settling disputes
1.20	Protection of minority shareholders' interests
5.03	Quality of the educational system
5.05	Quality of management schools
6.03	Effectiveness of anti-monopoly policy
6.09	Prevalence of trade barriers

Tab. 2. GCI sub-indicators of 'State' competitiveness (1–7, 7: best). Source: WEF. (2013). The Global Competitiveness Report 2013–2014. Geneva: World Economic Forum.

Number in GCI	Name of sub-indicator in GCI
1.17	Ethical behaviour of firms
1.19	Efficacy of corporate boards
11.02	Local supplier quality
12.01	Capacity for innovation
12.03	Company spending on R&D
7.06	Pay and productivity
7.07	Reliance on professional management
8.01	Availability of financial services
9.01	Availability of latest technologies

Tab. 3. GCI sub-indicators of 'Enterprise' competitiveness (1–7, 7: best). Source: WEF. (2013). The Global Competitiveness Report 2013–2014. Geneva: World Economic Forum.

Number in GCI	Name of sub-indicator in GCI
11.04	Nature of competitive advantage
11.04	Production process sophistication
12.06	Availability of scientists and engineers
5.07	Availability of research and training services
5.08	Extent of staff training
6.01	Intensity of local competition
6.02	Extent of market dominance
6.15	Degree of customer orientation
6.16	Buyer sophistication

Tab. 4. GCI sub-indicators of 'Market' competitiveness (1–7, 7: best). Source: WEF. (2013). The Global Competitiveness Report 2013–2014. Geneva: World Economic Forum.

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In order to receive the values for the new indicators, we applied the formula that the WEF itself uses in calculating its secondary indexes:

(country score – sample minimum) / (sample maximum – sample minimum).

As a consequence of the very nature of the formula, for all the 3x9 sub-indicators, the value is 1 for the best-performing country, and 0 for the worst-performing one.

Next, we calculated the (unweighted) arithmetic averages of these values, for all countries. As a result, we could draw up the EU member states' positions along their state, enterprise and market competitiveness (Tab. 5).

The data already give us some insight into the competitiveness of EU member states along the above mentioned dimensions. Firstly, along the 'State' and 'Enterprise' dimensions, Finland and Sweden are the best performers. In the 'Market' dimension, Germany scores highest and thus ranks first. Secondly, Northern and Western European member states tend to be in the top half while Southern and Eastern European member states tend to be in the bottom half. There are a few exceptions, though. Cyprus' rank (10) along the 'State' dimension, Estonia's rank (12) in the 'Enterprise' dimension and Malta's rank (12) along the 'Market' dimension are outstanding. We hereby mention that these countries are rather small and Cyprus and Malta, although Southern European new member states, have never been part of the socialist block of countries while Estonia has, since the moment of gaining its independence in 1991, strived very much for earning a position in the club of European democratic countries with a free market.

At the other end of the ranks, Bulgaria and Romania tend to be the last ones (26 and 28, 26 and 28, 27 and 28 respectively, along the three dimensions), in companion with Croatia, the Slovak Republic and Hungary, among the ex-socialist Eastern member states. But, Italy (rank 24 in 'State' competitiveness and 23 in 'Enterprise' competitiveness) and Greece (27 in 'Enterprise' competitiveness and 23 in the other two lists) are also at the lower end of the ranks – Italy is perhaps more surprising and rather sad.

Let us examine the performance of the Visegrad countries in more detail. We can see that their relative positions vary by indicator. Regarding 'State' competitiveness, Poland (20) is closely followed by Hungary (21) and the Czech Republic (22) while Slovakia (27) is the last-but-one among all EU member states (Romania is the last one). The range within the Visegrad group is 0.15, which is rather narrow in the theoretical 0–1 scale. On the other hand, the Czech Republic's position (15) along the 'Enterprise' competitiveness indicator is rather impressive, and the order of the other three Visegrad countries is different from the previous dimension as well: Slovakia (19), Poland (21), and Hungary (25). The within-the-group range along 'Enterprise' competitiveness is 0.22, somewhat larger than in the first dimension.

Country	State		Enterprise		Market	
	Calculated score	Rank	Calculated score	Rank	Calculated score	Rank
Austria	0.57722095	11	0.73452858	9	0.80898678	4
Belgium	0.65131778	8	0.74020806	7	0.79374302	5
Bulgaria	0.13995800	26	0.16094115	26	0.09454911	27
Croatia	0.16946417	25	0.23821649	24	0.13560834	26
Cyprus	0.59505293	10	0.32271615	20	0.43243083	15
Czech Republic	**0.22062873**	**22**	**0.44376715**	**15**	**0.43211452**	**16**
Denmark	0.62409616	9	0.73926086	8	0.69498248	8
Estonia	0.56552230	12	0.58862180	12	0.36638852	18
Finland	0.98312820	1	0.93457956	1	0.81590192	2
France	0.54346863	14	0.65393521	10	0.59652633	11
Germany	0.65576433	7	0.83613916	3	0.85891692	1
Greece	0.19364823	23	0.13424087	27	0.25444029	23
Hungary	**0.24813735**	**21**	**0.22467896**	**25**	**0.17878811**	**25**
Ireland	0.69090940	6	0.63415114	11	0.66218757	9
Italy	0.18511585	24	0.23964217	23	0.48787435	13
Latvia	0.34078484	17	0.42445567	16	0.30684251	21
Lithuania	0.31619029	18	0.48129728	13	0.36182233	19
Luxembourg	0.70869584	5	0.79194881	6	0.66188596	10
Malta	0.55342270	13	0.45511801	14	0.49091872	12
Netherlands	0.81749837	3	0.81169199	5	0.81305629	3
Poland	**0.25592192**	**20**	**0.30343870**	**21**	**0.37355914**	**17**
Portugal	0.44423910	15	0.41262099	17	0.35426995	20
Romania	0.09997932	28	0.08589199	28	0.05125716	28
Slovakia	**0.10998067**	**27**	**0.33416060**	**19**	**0.21748203**	**24**
Slovenia	0.26731728	19	0.26831017	22	0.27571933	22
Spain	0.43147722	16	0.38571820	18	0.44461836	14
Sweden	0.82120616	2	0.86283055	2	0.79280684	6
United Kingdom	0.73209723	4	0.82714142	4	0.76476741	7

* Visegrad countries market in bold.

Tab. 5. EU member states' positions along their state, enterprise and market competitiveness (2013–2014). Source: own calculations based on WEF GCI dataset: www3.weforum.org/docs/GCR2014-15/GCI_Dataset_2006-07-2014-15.xlsx.*

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Then, we get a yet different picture of the Visegrad group along the 'Market' competitiveness, with the Czech Republic (16) and Poland (17) showing considerably impressive performance among the less developed EU member states while Slovakia's (24) and Hungary's (25) performance is rather poor, not only regarding rank, but also regarding score. Accordingly, it is not surprising that the within-group range in this respect is the largest (0.25). It would need further investigation to disclose the reasons behind these results. Nevertheless, it is quite obvious that the Czech Republic is the best performer in the group, followed by Poland showing a sufficiently good within-the-group performance, while Hungary and Slovakia are lagging behind.

5. Entrepreneurship in EU Member States

Besides competitiveness, we opened another dimension in our research: entrepreneurship. Our decision to do so was inspired by Joseph Schumpeter. In his work The Theory of Economic Development, Schumpeter pointed out that economic development is realised under constantly changing institutional conditions and historic circumstances and that the core actor of development is the entrepreneur who realises new combinations of resources and processes; this is innovation (Schumpeter 2004).[2] The entrepreneur is a dynamic actor but his creativity and imagination is more likely to unfold if the conditions for it are untroubled, compared to the situation when he has to dedicate his energies to constantly and necessarily meeting the challenges of competition. So, at the theoretical level, entrepreneurial performance is context-dependent. Let us test theory with data.

Regarding the quantitative assessment of entrepreneurship in EU member states, we relied on the GEDI index and its three pillars. The GEDI methodology was developed by the Global Entrepreneurship and Development Institute between 2008 and 2011 (http://www.thegedi.org). The index was in fact the outcome of research that had aimed at identifying the factors enhancing sustainable job creation and economic progress. Currently 120 countries of the world are assessed by the Institute, including the Visegrad countries. The first GEDI report was issued in 2011; every year, a new issue follows. In our study, we used the data of the 2014 edition (Ács, Szerb and Autio, 2014).

The GEDI index is constructed of 16 individual and 15 institutional variables altogether. The scores go from a theoretical 0 (worst) to 100 (theoretically reachable limit). Individual data are calculated from the 2006–2012 years, using the two-year moving average principle. In the case of the institutional variable, single-year data are applied. Appendix E of the report introduces the GEDI methodology.[3]

The GEDI index is divided into three sub-indexes. The sub-index 'Entrepreneurial attitudes' encompasses the society's attitudes towards entrepreneurship, including general feelings about recognising opportunities, accepting risks associated with starting a business etc. According to the constructors of the GEDI index, entrepreneurial attitudes are important as countries need people who recognise business opportunities and are perceived as having the skills required to exploit these opportunities. If such attitudes are positive in a country, entrepreneurship and starting businesses will be encouraged.

The second sub-index, 'Entrepreneurial abilities', refers to the characteristics of entrepreneurs and their businesses. The methodology values those entrepreneurs most who are in the medium- or high-technology sectors, educated, and who are motivated by an opportunity in an environment that is not overly competitive. Opportunity motivation is generally a sign of better planning, a more sophisticated strategy, and higher growth expectations than "necessity start-ups" (Ács, Szerb and Autio, 2014, p. 49).

'Entrepreneurial aspirations' relate to the quality of start-ups and new businesses. Innovation, internationalisation and high growth are considered as key characteristics of entrepreneurship. Regarding this pillar, a finance variable has also been added as the informal and formal venture capital potential of innovative start-ups and high-growth firms is a vital element of success. As the report remarks, these three elements of entrepreneurship are interrelated: all three have an influence on the other two.

As regards EU member states, 26 of them are included in the GEDI report: all but Luxembourg and Malta. EU member states' respective scores and ranks are shown by Tables 6 and 7.

Country	GEDI		Attitudes		Abilities		Aspirations	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Austria	63.9	17	63.2	11	65.1	14	63.6	18
Belgium	66.5	13	62.1	13	66.2	12	71.1	10
Bulgaria	45.4	36	44.8	39	38.3	53	53.3	37
Croatia	40.9	49	32.9	72	38.8	52	51.0	38
Cyprus	40.2	51	33.0	71	47.2	31	40.6	51
Czech Republic	44.5	41	33.8	68	36.6	59	63.3	20
Denmark	72.5	4	66.9	8	77.1	4	73.5	7
Estonia	58.9	21	53.7	19	59.6	19	63.6	19
Finland	69.3	7	79.4	2	62.9	18	65.5	17
France	67.2	12	64.0	10	64.4	17	73.2	8
Germany	64.6	16	56.4	17	70.1	9	67.3	13
Greece	37.7	58	30.8	85	42.5	41	40.0	52
Hungary	44.5	42	40.5	52	44.1	37	48.9	41
Ireland	61.8	18	51.0	23	64.5	16	69.9	11
Italy	40.9	48	31.5	82	41.9	43	49.3	40

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Tab. 6 cont.

Country	GEDI		Attitudes		Abilities		Aspirations	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Latvia	48.4	27	39.7	54	50.0	28	55.7	29
Lithuania	49.6	25	42.4	44	51.5	24	55.0	31
Netherlands	69.0	8	73.6	6	64.5	15	68.8	12
Poland	49.0	26	50.4	24	36.5	60	60.3	21
Portugal	46.9	30	38.5	56	47.4	30	54.8	32
Romania	44.6	40	37.3	60	42.6	40	53.9	36
Slovakia	46.5	34	44.9	37	38.1	56	56.7	27
Slovenia	52.7	22	48.3	30	54.3	21	55.5	30
Spain	46.8	31	44.4	41	52.9	23	43.3	48
Sweden	73.7	3	78.7	3	76.5	6	65.8	16
United Kingdom	68.6	9	62.1	14	77.6	3	66.2	15

* There are no data available for Luxembourg and Malta.
** Out of 120 countries.

Tab. 6. EU member states' GEDI scores and global rank**. Source: http://www.thegedi.org.*

Country	GEDI		Attitudes		Abilities		Aspirations	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Austria	63.9	9	63.2	6	65.1	6	63.6	10
Belgium	66.5	7	62.1	7	66.2	5	71.1	3
Bulgaria	45.4	19	44.8	15	38.3	23	53.3	20
Croatia	40.9	23	32.9	24	38.8	22	51.0	21
Cyprus	40.2	25	33.0	23	47.2	17	40.6	25
Czech Republic	**44.5**	**21**	**33.8**	**22**	**36.6**	**25**	**63.3**	**12**
Denmark	72.5	2	66.9	4	77.1	2	73.5	1
Estonia	58.9	11	53.7	10	59.6	11	63.6	11
Finland	69.3	3	79.4	1	62.9	10	65.5	9
France	67.2	6	64.0	5	64.4	9	73.2	2
Germany	64.6	8	56.4	9	70.1	4	67.3	6
Greece	37.7	26	30.8	26	42.5	20	40.0	26
Hungary	**44.5**	**22**	**40.5**	**18**	**44.1**	**18**	**48.9**	**23**
Ireland	61.8	10	51.0	11	64.5	7	69.9	4
Italy	40.9	24	31.5	25	41.9	21	49.3	22
Latvia	48.4	15	39.7	19	50.0	15	55.7	15
Lithuania	49.6	13	42.4	17	51.5	14	55.0	17
Netherlands	69.0	4	73.6	3	64.5	8	68.8	5

Tab. 7 cont.

Country	GEDI		Attitudes		Abilities		Aspirations	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Poland	**49.0**	**14**	**50.4**	**12**	**36.5**	**26**	**60.3**	**13**
Portugal	46.9	16	38.5	20	47.4	16	54.8	18
Romania	44.6	20	37.3	21	42.6	19	53.9	19
Slovakia	**46.5**	**18**	**44.9**	**14**	**38.1**	**24**	**56.7**	**14**
Slovenia	52.7	12	48.3	13	54.3	12	55.5	16
Spain	46.8	17	44.4	16	52.9	13	43.3	24
Sweden	73.7	1	78.7	2	76.5	3	65.8	8
United Kingdom	68.6	5	62.1	8	77.6	1	66.2	7

* There are no data available for Luxembourg and Malta.
** The Visegrad countries are marked in bold.

Tab. 7. EU member states' GEDI scores and EU rank**. Source: http://www.thegedi.org.*

Let us take a closer look at the relative positions within the EU (Tab. 7). We can see that, in the overall GEDI index, the Nordic countries (Sweden, Denmark, Finland), the Netherlands and the United Kingdom lead the rank, followed by other Western member states. Estonia (11), Slovenia (12), Lithuania (13), Poland (14) and Latvia (15) are leading the group of new member states – and, together with Ireland (10), also that of the member states in the periphery of the EU.[4]

Although with slightly different internal positions, we can see a very similar divide between EU member states along the three pillars of the GEDI (Attitudes, Abilities and Aspirations). We hereby highlight only a few interesting facts:

- The United Kingdom scores highest among EU member states in respect of entrepreneurial abilities.
- Sweden and Finland rank relatively low (8 and 9, respectively) along entrepreneurial aspirations.
- At the same time, the Czech Republic ranking 12th along the aspirations pillar is remarkable, especially in light of the country's performance in the other two dimensions (22 for attitudes and 25 for abilities).
- In the case of the three Baltic states, Estonia precedes the other two in all terms.

As for the Visegrad countries, the overall picture is eclectic. Regarding the overall GEDI rank within the EU, Poland (14) is the best, which derives from the fact that the country is a forerunner among the less developed EU member states in two of the three pillars: Attitudes (12) and Aspirations (13). However, there are shortcomings in entrepreneurial Abilities (26) in the country.

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Perhaps surprisingly, the next-best performer in the Visegrad country group in the overall GEDI rank is Slovakia (18). Similarly to Poland, the country is relatively good at Attitudes (14) and Aspirations (14) but underperforms most other EU member states in terms of Abilities (14).

The Czech Republic (21) is the next in the order of the Visegrad countries in the overall GEDI rank. This position consists of above-group-average Aspirations (12), but under-group-average Attitudes (22) and Abilities (25).

Hungary (22) is the next in the overall GEDI rank. Unlike the other Visegrad countries, Aspirations (23) is the dimension in which the country shows below-average performance while in Attitudes (18), Hungary outperforms the Czech Republic, and in Abilities (18), the country is the best in the Visegrad group.

Again, this is just a first shot of the entrepreneurship in these countries and it would take much more to dig deep into what lies behind the figures – which goes beyond the scope of this study.

After seeing the scores and ranks of EU member states according to the competitiveness and entrepreneurship indicators, we were eager to see the relations among these. Comparing the three competitiveness indicators to the overall GEDI indicator has proved to show the most spectacular results (Fig. 3, 4 and 5).

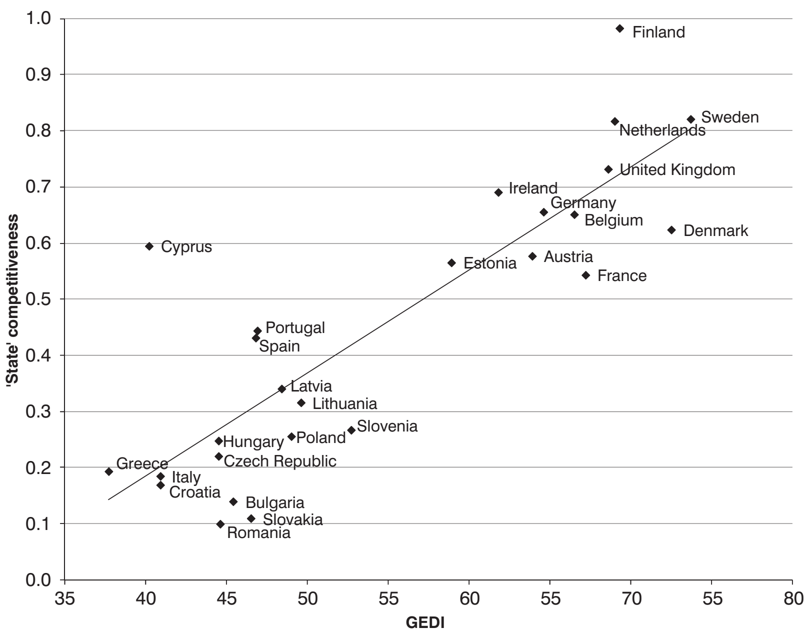

Fig. 3. EU member states' relative positions in 'State' competitiveness in light of their GEDI scores. Source: own calculations.

The best-fitting trend line is a polynomial regression of the second degree:

$$y = -4E - 0.5x^3 + 0.0067x^2 - 0.3639x + 6.5546,$$

$$R^2 = 0.751.$$

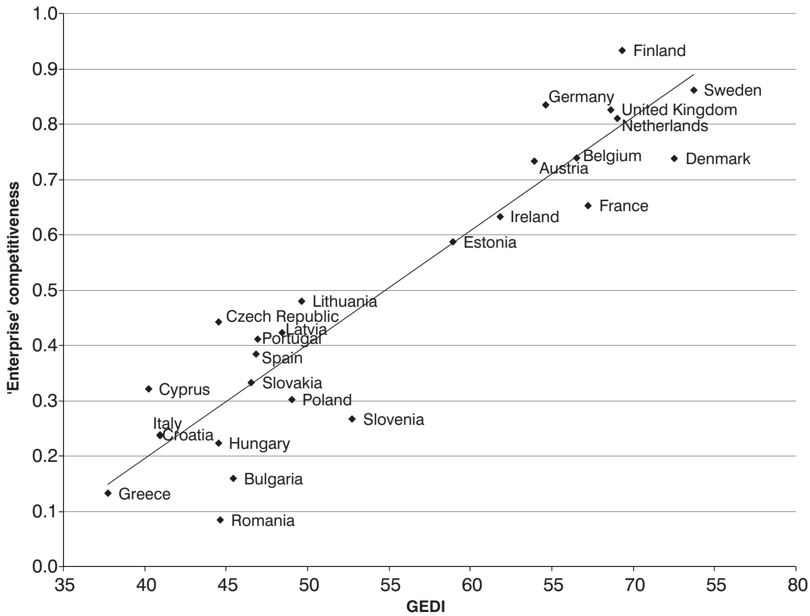

Fig. 4. EU member states' relative positions in 'Enterprise' competitiveness in light of their GEDI scores. Source: own calculations.

Perhaps surprisingly, the best-fitting trend line is no higher-degree but a linear regression:

$$y = 0.0205x - 0.6236,$$

$$R^2 = 0.8585.$$

What is perhaps the most spectacular in all three figures is the very obvious gap between the good performers and the weak performers. The second astonishment may come in connection with Estonia's position (especially along 'State' and 'Enterprise' competitiveness): the country is obviously catching up to the developed core of the EU.

Last but not least, we also found it astonishing that, for 'Enterprise' competitiveness, a linear regression function could largely explain the variations

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($R^2 = 0.8585$) while, for the relation of 'State' and 'Market' competitiveness with the GEDI index of entrepreneurship, a regression of the second degree produced acceptable results (and increasing the degree of the polynomial regression did not increase R^2 significantly). This strong linear relation of our 'Enterprise' competitiveness indicator with the GEDI index tells us that this indicator of ours does indeed tell us about the entrepreneurial aspects of competitiveness. Nevertheless, the gap between the two groups along this linear regression function is perhaps even more striking than those in the other two figures.

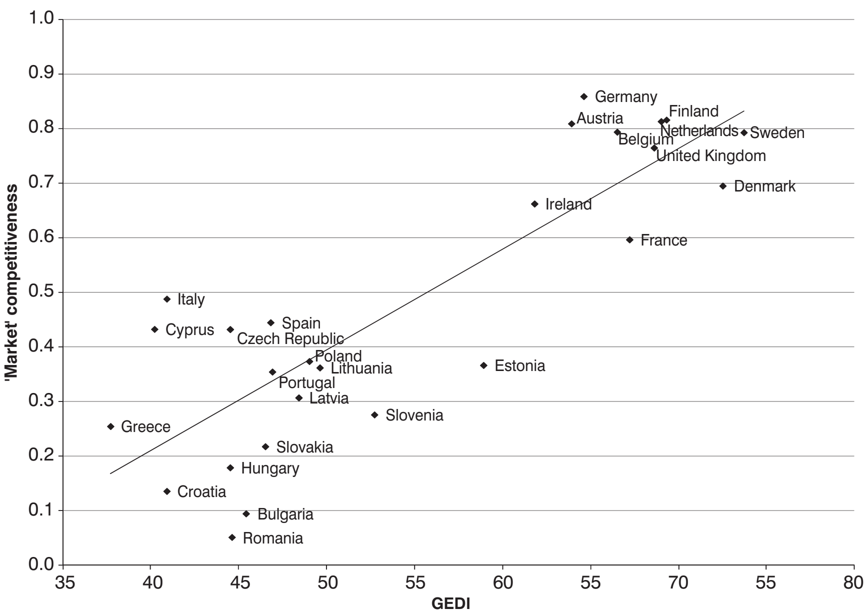

Fig. 5. EU member states' relative positions in 'Market' competitiveness in light of their GEDI scores. Source: own calculations.

The best-fitting trend line is a polynomial regression of the second degree:

$$y = -6E - 0.5x^3 + 0.0095x^2 - 0.5154x + 9.2569,$$

$$R^2 = 0.7732.$$

In all three comparisons, the Visegrad countries fit well in the less developed peripheral country group (Eastern new member states and Southern Eurozone periphery), they do not stand out in any aspect.

6. Conclusions

The interpretation of competition as an institution has its own history. The quality of competition as an institution matters greatly. The development of the concept of competition as an institution has been closely related with the development of competition regulation and the state's role as the main guard of competition. Transaction costs in relation to competition policy can be interpreted. However, they can be reduced if there is strong competition in an economy.

The European common competition regulation is a stable system. Integration in the EU internal market is traceable throughout the decades of the history of European integration. In the case of the Eurozone, even the 2008 crisis did not divert the continuous price convergence that has characterised the countries participating in the single currency area (17 countries, until 2013). On the other hand, the share of intra-EU trade in EU member states' trade has mostly been decreasing in the past decade.

Regarding competitiveness, EU member states show a large dispersion in this respect. In our study, we generated three further indicators to assess member states' competitiveness in relation to competition. Along these dimensions, we had some interesting findings but the North/West and South/East divides within the EU apply in these aspects as well. The Visegrad countries, Poland, the Czech Republic, Slovakia and Hungary all fit in the less developed group of EU member states, and show some variety along the particular dimensions.

We also used the Global Entrepreneurship and Development Institute's GEDI index and its three pillars: entrepreneurial attitudes, abilities and aspirations in EU member states. Although with somewhat different internal order within the certain groups, we found very similar frictions within the EU to those according to the competitiveness indicators. Again, all Visegrad countries take positions in the less developed country group but they exhibit relative differences vis-à-vis each other within the Visegrad group.

The most spectacular manifestation of the gap between the two groups of EU member states came as we plotted the competitiveness and GEDI scores in two-dimension coordinate systems. The relation between competitiveness and the GEDI score was positive in all three cases and for 'Enterprise' competitiveness a linear regression largely explained the variations. In all three cases, there are two groups of EU member states and an obvious gap between the two groups. In this respect, the Visegrad countries do not stand out from the peripheral country group in any aspect, unlike Estonia, which is obviously approaching the more developed country group.

Our main overall conclusion therefore is that there is a serious divide within the EU regarding competition, competitiveness and entrepreneurship, and that this divide is not between old and new member states but between the core and the periphery of the internal market.

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Endnotes

1 For an in-depth discussion of the competitveness divide problematique, see Pelle and Végh (2014).

2 Schumpeter originally published his book in German with Harvard University Press in 1934.

3 We find it important to mention that the variables used by the GEDI institute and the WEF are different.

4 In other words and/or according to other approaches, the new member states and the so-called PIIGS countries (Portugal, Ireland, Italy, Greece and Spain) that suffered most in the crisis make up the periphery of the EU while the Northern and Western member states form the core.

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