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Competitiveness of the Visegrad Countries – Paths for Competitiveness Growth

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Summary:

The article includes two objectives: 1) to determine competitiveness of the Visegrad Countries in terms of 12 pillars of competitiveness used by The Global Competitiveness Report of the Wold Economic Forum (WEF) (Schwab, 2013), 2) to propose taxonomic method to appoint a path of competitiveness growth of economies. The following research methods were applied: literature review and two taxonomic methods i.e. cluster analysis and an object map, based on the matrix of distances. On the basis of the results, we propose a new approach to appoint a path of competitiveness growth for each Visegrad country. Statistical analyses in this article are performed using the statistical software Statistica v. 11.0, SPSS v. 21.0 and R v. 3.1.0. The analysis based on 12 competitiveness pillars of the Visegrad Countries indicates their high diversity of competitiveness level both in terms of their position in the ranking and the fundaments of competitiveness. However, the taxonomic cluster analysis conducted for 78 most competitive economies and based on unweighed values of 12 competitiveness pillars indicates that the Visegrad Group is the area with a relatively small differentiation in terms of competitiveness fundaments. The analysis shows that the strategy to increase competitiveness should not be significantly different for each Visegrad country. It is suggested that in order to increase its international competitiveness each Visegrad country should follow the pattern of the country which stands above it (in terms of competitiveness ranking), and at the same time to the one which is most similar. Thus, for Slovakia, Hungary or the Czech Republic following Polish experiences could be the best solution. We propose a new approach to appoint a path of competitiveness growth of economies and to determine the competitiveness growth direction for Visegrad Countries.

Keywords: international competitiveness, Visegrad Countries (V4), Central Europe, growth
JEL classification: F00

2.1. INTRODUCTORY REMARKS

The discussion on competitiveness and search for its determinants began in the 70s of the twentieth century and have dominated the research in the area of international economics. Until now, however, scientists have failed to create a single definition of competitiveness. Moreover, researchers are faced with a huge excess of definitions. It is because, the phenomenon of competitiveness is analysed on four levels, i.e. micro-, meso-, macro- and megacompetiveness (Olczyk, 2008, p.12-14; Daszkiewicz & Olczyk, 2008, pp.13-20).

Microcompetitiveness refers to businesses, mesocompetitiveness can relate to analyses of sectors industries or regions. In this article we focus on macrocompetitiveness of the Visegrad Group countries. The oldest definitions of macrocompetitiveness refer most frequently to the performance of the country in international trade and specify it as the ability to cope with international competition and maintain a high rate of domestic demand without deteriorating the current account balance. In contrast, in the international market it is expressed by acceptance of products of a particular country and enlarging its shares in export markets" (Wysokińska, 2001, p.37). Later definitions of macrocompetitiveness combine good results of a country in foreign trade with the welfare of its citizens. A principal example of such an approach may be the definition of the OECD which describes competitiveness as a country's ability to produce goods and services that compete well in the international market while increasing the real income of its population in the long term (OECD, 1992, p.12).

According to the Global Competitiveness Report, the term *competitiveness* is defined as "the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates" (Schwab, 2013, p. 4). Thus, a more competitive economy is one that is likely to grow faster over time.

The Visegrad Group countries originated on the 15th February 1991[1] for the purposes of their further European integration as well as economic, military and energy cooperation. Visegrad Four (V4) formed a heterogeneous group in terms of economic potential, macroeconomic situation, pace and the course of political changes and market reforms. Despite these differences, the V4 countries have developed cooperation, which has stimulated the modernisation of their economies and consequently they have improved their international competitiveness. What is

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[1] The Visegrad Group originated at a summit meeting of the heads of state or government of Czechoslovakia, Hungary and Poland. The Czech Republic and Slovakia became members of after dissolution of Czechoslovakia in 1993.

more, integration within the global economy is another factor, which has influenced the development of national competitiveness of the Visegrad Countries since their accession to the European Union (Molendowski & Żmuda, 2013, p. 123).

The goal of this paper is to determine the level of the Visegrad Countries competitiveness in terms of 12 competitiveness pillars (table 2.1) from The Global Competitiveness Report (Schwab, 2013). The results of analysis are verified with additional study based on taxonomic methods. The cluster analysis conducted for 78 most competitive economies and based on unweighted values of 12 competitiveness pillars allows to assess the similarity of competitiveness fundaments among Visegrad Countries. In addition, the authors propose a new approach (an object map) to determine the competitiveness path for growth of Visegrad Countries.

2.2. LITERATURE REVIEW

Until 1970s international trade theory had been dominated by the theory of competitive advantage. This theory assumes that a country can enhance competitive advantage if it specialises in production of those products that can produce relatively more efficiently than other countries (Krugman & Obsfeld, 2003, Smit 2007). However, since World War II, a growing part of trade has come from massive two-way trade in similar industries and could not be longer explained by the competitive advantage theory. It was primarily driven by advantages resulting from economies of scale (Smit, 2007). In the late 1970s the new models of monopolistic competition were developed (Krugman, 1990). The new trade theories assumed that at the level of intra-industry trade, economies of scale could explain trade flows of differentiated products. However, both theories assumed that advantage comes through specialisation (Smit, 2007). Later the focus of scholars shifted towards oligopolistic competition, where economies of scale at the level of firm are sufficient to limit the number of competitors (Krugman, 1992). These resulted in development of trade models that assumed an oligopoly market structure (Krugman & Obsfeld, 2003). The models imply that even without comparative advantage trade still occurs as two-way trade in identical products and can be still mutually beneficial in industries where internal economies of scale are important (Krugman & Obsfeld, 2003).

The theories of monopolistic and oligopolistic competition do not explain where the actual production should be located (Smit, 2007). Porter (1990; 1998) proposed a "new theory" that explains location advantages and thus the competitive advantage of nations.

In 1990, Porter published a book "The Competitive Advantage of Nations", in which he presented a new, four-factor model of economic competitiveness called National Diamond. Porter (1990) in search for sources of competitiveness in 1985-1989 conducted a survey in ten countries (together having more than 50% share in

world exports) which differ in structure, size, geographical location or population. Seeking answers to the question what is macrocompetitiveness he focused on innovative sectors / segments of the industry. The project also employed 30 researchers who used the same method of research. The aim of the study was to identify an industry which had been successful in international markets and to analyse its history in each country (Olczyk, 2008, pp.12-14; Daszkiewicz & Wach, 2013, p. 122)

Porter (1990) asked the question why some countries are more successful in particular industries than others. The proposed National Diamond which identifies four classes of country attributes that determine national competitive advantage of nations: factor conditions, demand conditions, related and support industries and company strategy, structure and rivalry. He also pointed at two other factors – government policy and chance (exogenous shocks) that support the system of national competiveness but do not create it (Figure 2.1).
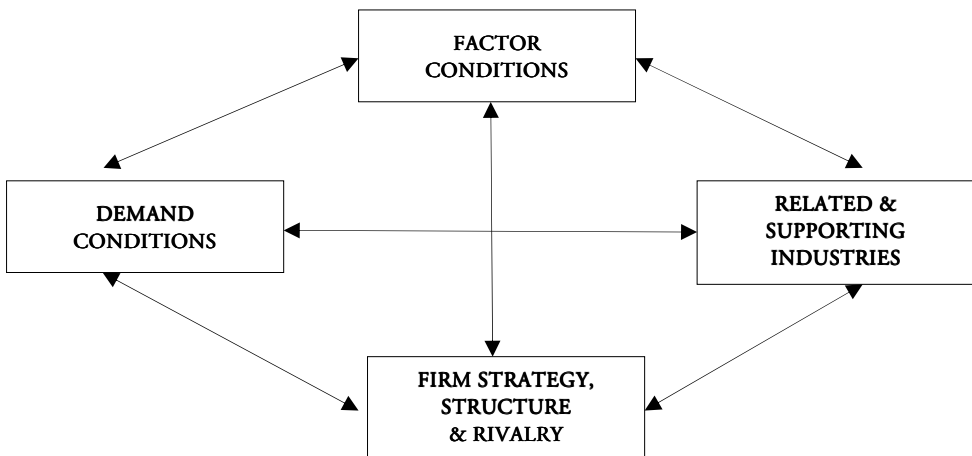

Figure 2.1. Determinants of competitiveness according to M.E. Porter
Source: Porter (1990, p. 72).

Factor conditions include human resources, physical resources, knowledge resources, capital resources and infrastructure. Factor conditions are further subdivided into basic and advanced factors. Basic factors include unskilled labour, raw materials, climatic conditions and water resources and require little or no new investment to be utilised in the production process. In turn advanced factors are created and upgraded through reinvestment and innovation to specialised factors, which are basic for the sustainable competitive advantage of a country.

Demand conditions. The essential conditions of demand are home demand that anticipates international demand, industry segments with a significant share of

home demand, and sophisticated and demanding buyers. Different demand conditions in countries, leading to different demand structures, can determine location economies of increasing returns, as explained by the new trade theories (Smit, 2007).

Strategy, structure and rivalry. The strategies and structures of firms depend on national environment. There are important differences in the business sectors in different countries that determine how firms compete and thus enhance their competitive advantage. Porter (1990) believed that rivalry is the most critical driver of competitive advantage. It forces firms to be cost competitive, innovative and to improve quality (Smit, 2007).

Related and support industries. Porter claimed that specialisation leads to the sticky (not easily moveable) location advantages that are the true sources of sustainable competitive advantage of countries (Smit, 2007). However Porter introduced related and support industry clusters as a separate determinant of national competitive advantage. This is regarded as one of the most important contributions of Porter's Diamond Theory. According to Porter, it is the external economies of related and support industry clusters, such as networks of specialised input providers, institutions and the spill-over effects of local rivalry, that become the true source of competitive advantage (Porter, 2000; 2003).
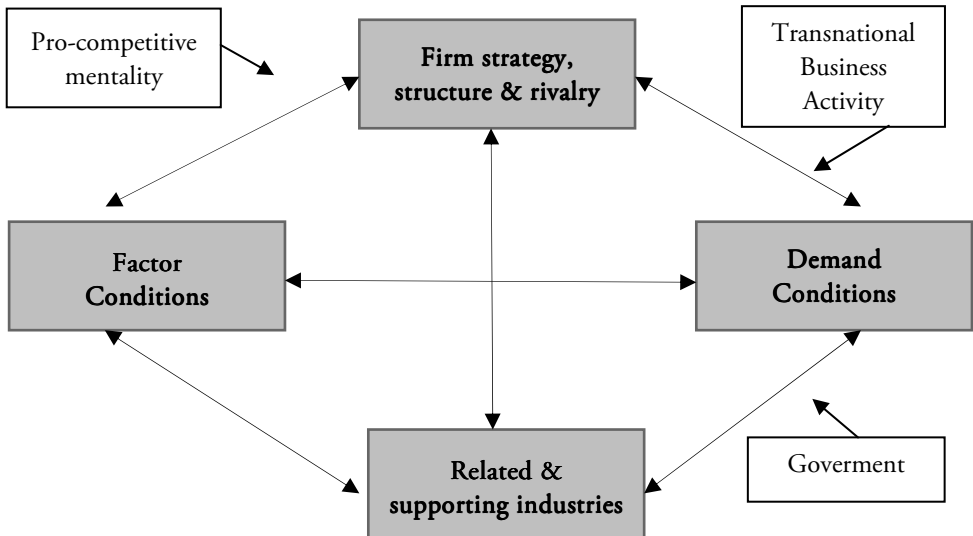

Figure 2.2. Extensions of Porter's Diamond Model
Source: Dunning (1993, p. 9).

Although the National Diamond was a breakthrough in the study of competitiveness it met with criticism. As Porter was an expert in management he was criticized for not considering international activities in the diamond. Dunning enriched Porter's diamond with foreign direct investment, government policies and pro-competitive mentality (Dunning, 1993) (Figure 2.2).

Cho and Moon extended Porter's original model and created the nine-factor model (Cho, 1994; Cho & Moon, 2000). In addition to the four physical determinants of Porter's single diamond, this model includes four additional human variables: workers, politicians and bureaucrats, entrepreneurs, and professionals (Choo *et al.*, 2007, p. 177). Although Porter's single diamond included some of these human variables, it treated the human variables separately from the physical variables. Moreover, the government variable, was treated as exogenous in Porter's model. In the nine-factor model it is incorporated as endogenous. Also the government factor is treated as endogenous since the government is the main factor for a nation's competitiveness (Choo *et al.*, 2007, p. 177).

Table 2.1. Competitiveness pillars according to the Global Competitiveness Report 2013-14

The first pillar: Institutions
The institutional environment is determined by legal and administrative framework for the functioning of individuals, firms and governments. The quality of institutions has a strong impact on economies' competitiveness and growth.
The second pillar: Infrastructure
The level of development of infrastructure is crucial for effective functioning of the economy. It is an important factor in determining the location of economic activity. Well-developed infrastructure reduces the effect of distance between regions, income inequalities and poverty in a variety of ways as well as integrates national markets and influences economic growth.
The third pillar: Macroeconomic Environment
Macroeconomic stability is crucial for overall competitiveness of a country. It drew the attention of the public most recently when some advanced economies (the US and some European countries), needed to take urgent action to prevent macroeconomic instability when their public debt reached unsustainable and caused the global financial crisis.
The fourth pillar: Health and Primary Education
This pillar takes into account the quantity and quality of the basic education received by the population. Nowadays, health and primary education are crucial for a country's competitiveness and productivity.
The fifth pillar: Higher Education and Training
This pillar measures secondary and tertiary enrolment rates as well as the quality of education (evaluated by business leaders). This pillar is crucial for economies that want to move up the value chain beyond simple production processes and products.
The sixth pillar: Good Market Efficiency

Economies having efficient goods markets can produce right mix of products and services which can be efficiently traded in the economy. Market efficiency depends on many factors e.g. demand conditions, government intervention.
The seventh pillar: Labour Market Efficiency
The efficiency and flexibility of the labour market allocate workers to their most effective use in the economy. Labour markets must be therefore flexible to shift workers from one economic activity to another rapidly and at low cost as well as to allow for wage fluctuations without much social disruption.
The eight pillar: Financial Market Development
An efficient financial sector allocates the resources to their most productive uses. It channels resources to those entrepreneurial or investment projects with the highest expected rates of return.
The ninth pillar: Technological Readiness
This pillar measures the agility with which an economy adopts existing technologies to enhance the productivity of its industries. Particular importance is attached to the capacity of industries to fully leverage information and communication technologies (ICTs) in daily activities and production processes.
The tenth pillar: Market Size
The size of the market affects productivity since large markets allow firms to exploit economies of scale. The measure of market size includes both domestic and foreign markets WEF gives credit to export-driven economies and geographic areas (such as the European Union) that are divided into many countries but have a single common market.
The eleventh pillar: Business sophistication
This pillar concerns two elements: he quality of a country's overall business networks and the quality of individual firms' operations and strategies. These factors are particularly important for countries at an advanced stage of development.
The twelfth pillar: Innovations
This pillar focuses on technological innovations which can, in the long run, enhance standards of living.

Source: own study based on Global Competitiveness Report 2013-2014 (Schwab, 2013, pp. 4-8).

In recent years, the concept of international competitiveness has significantly expanded and now includes a growing number of determinants. Thus, it is becoming more widely understood and difficult to measure.. The effect of this broadening of the concept of international competitiveness is visible in the methodology developed by the WEF. According to the WEF, many determinants drive competitiveness of economies. The approach of the WEF towards competitiveness is based on the assumption that the level of productivity of an economy sets the level of its propensity. Moreover, productivity level is fundamental for growth rates of economies. Thus, "a more competitive economy is likely to grow faster over time" (Schwab, 2013, p. 4). Following this assumption, the WEF constructed the Growth Competitiveness Index (GCI) which includes a weighted average of many different

components. These components are grouped into 12 pillars of competitiveness and each of them measures a different aspect of competitiveness.

2.3. MATERIAL AND METHODS

Our analysis is based on the above set of 12 competitiveness pillars (diagnostic variables) of the Global Competitiveness Report 2013-2014 (Schwab, 2013). We used data for 78 countries, ranked from the 1st to the 78th position in the WEF ranking. The set contains the most competitive countries in the world including four Visegrad countries with the Slovak Republic on the 78th position.

Two taxonomic methods are used to identify similarity in the competitiveness level of the Visegrad Countries. Firstly, to group the analysed countries into relatively homogeneous groups cluster analysis is applied. This method allows for determination of the similarity of objects without establishing a hierarchy among them. Classification and separation of the object clusters is carried out by means of a distance matrix. To create this, Ward's method is used. It is based on an analysis of variance to evaluate the distances between clusters, i.e. it attempts to minimize the sum of the squared distances of points from the cluster's centroid. The error sum of squares and r^2 values are computed using the following formulae:

$$\text{ESS (error sum of squares)} = \sum_i \sum_j \sum_k |x_{ijk} - \bar{x}_{ik}|^2, \tag{1}$$

$$\text{TSS (total sum of squares)} = \sum_i \sum_j \sum_k |x_{ijk} - \bar{x}_k|^2, \tag{2}$$

$$\text{R Squared } (r^2) = \text{TSS} - \text{ESS} / \text{TSS}, \tag{3}$$

where: x_{ijk} denotes the value for variable k in observation j belonging to cluster i, $\bar{x}_{ik}$ denotes the cluster mean for variable k, and $\bar{x}_k$ denotes the mean for variable k.

Among very different distance (similarity) matrices, Euclidean distance is chosen, as it is the recommended distance measure for Ward's method (Kaufman & Rousseeu, 1990; Everitt, Landau & Leese, 2001).

Secondly, to create the path of competitiveness growth for each Visegrad country an object map is used. To create this, two steps are needed. The first one requires building the above-discussed matrix of distances, indicating the metric distance of an object relative to the rest. The second is to rank all the objects (countries) in a ranking procedure. To create the ranking we calculate a synthetic variable for each country, which is the sum of 12 competitiveness pillars values. The value of 12 subindexes are unweighted opposite to the the WEF methodology.

Based on this ranking of the 78 countries and on the distance matrix, an object maps for four Visegrad Countries are created. The list of 78 most competitive countries according to the Global Competitiveness Report 2012-2013 (Schwab, 2013) are

presented in appendix. All the statistical analyses in this article are performed using the statistical software such as Statistica® v.11.0, SPSS® v.21.0 and R® v.3.1.0.

2.4. COMPETITIVENESS OF THE V4 COUNTRIES
- EMPIRICAL ANALYSIS

According to the Global Competitiveness Report 2013-2014 (Schwab, 2013), Poland is ranked 42nd, with a relatively stable performance across all 12 pillars of competitiveness. The strengths of Polish economy include its large market size (20th)[2], high educational standards (18th) and well developed financial sector (38th). However, further enhancing competitiveness will require a significant upgrading of transport infrastructure and reduction of high burden of government regulations for business sector (133rd). To improve country's competitiveness Poland should focus on developing capacities in R&D and business sophistication and Polish companies should be more oriented towards R&D and intensify their collaboration with universities.

The Czech Republic is ranked 46th by the Global Competitiveness Report 2013-2014 (Schwab, 2013) seven positions below as compared to the previous year. The main reason is the quality of the country's public institutions, with public trust in politicians ranked an extremely low (146th). The macroeconomic environment has worsened slightly with rising deficits and debt (55th). However, Czech businesses are relatively sophisticated and innovative, supported by a strong uptake of new technologies. The country's competitiveness further growth requires improvements of the educational system and greater flexibility of the labour market.

Hungary is ranked 63rd in the Global Competitiveness Report 2013-2014 (Schwab, 2013). The weaknesses of Hungarian economy include weak institutions, especially burden of government regulations (140th), low efficiency of legal framework (139th) and transparency of government policymaking (132nd). The macroeconomic environment is characterized by high government debt (125th) and inflation (102nd). However the strengths of Hungarian economy includes the quality of overall infrastructure (49th), especially quality of railroad infrastructure (41st) and higher education and training. What concerns innovativeness, Hungary is highly ranked in the areas of quality of scientific research institutions (21st), university-industry collaboration (41st) and PTC patents (28th).

Slovakia is a small country, ranked 78th by the Global Competitiveness Report 2013-2014 (Schwab, 2013). The weaknesses of the Slovak Republic include

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[2] The Report features 148 economies. It contains a detailed profile for each of the economies included in the study, as well as an extensive section of data tables with global rankings covering over 100 indicators.

institutions (119th), with the focus on the burden of government regulations (139th) and efficiency of legal framework (143rd). The macroeconomic environment is not stable enough with relatively high government deficit (118th) and debt (98th). Unfortunately, the innovation pillar situates the country at low positions, except PTC patents (39th). The strengths of the Slovak Republic emerge in the area of financial market development, especially soundness of banks (32nd) and access to loans (49th). Moreover, the technological readiness of the country is quite high, with an emphasis on FDI and technology transfer (26th). Figures 2.3-2.5 show the main pillars for Visegrad Countries.
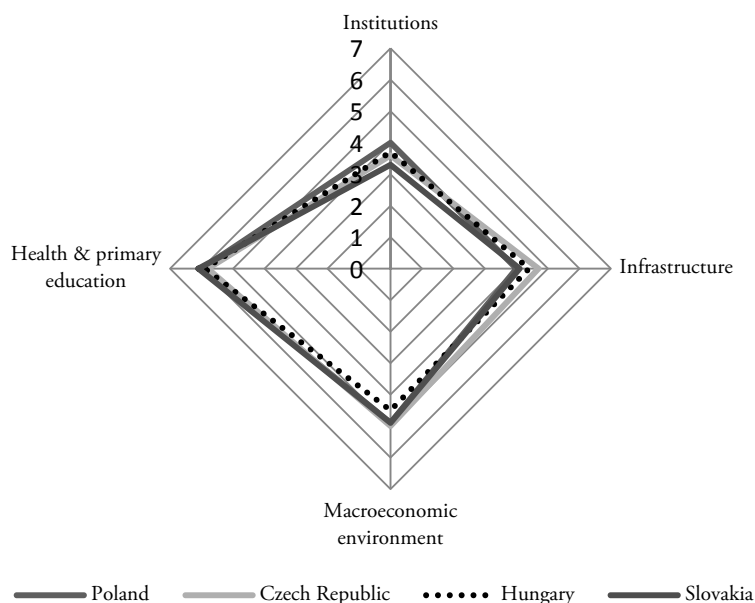

Figure 2.3. Basic requirements (1st, 2nd, 3rd and 4th pillar of competitiveness) in Visegrad Countries according to the Global Competitiveness Report 2013-2014
Source: own study based on the Global Competitiveness Report 2013-2014 (Schwab, 2013).

Basing on strengths and weaknesses analysis of the Visegrad Countries we can infer a high diversity of competitiveness level of four analysed countries: both in terms of their position in the ranking and the base of competitiveness. However the authors decided to verify this argument, using the taxonomic methods and basing on the unweighted values of 12 pillars of competitiveness.

First, we created distance matrices, and based on it, we did the dendrogram. It shows how many clusters, i.e. homogeneous groups of countries, can be found among 78 analysed countries. The interpretation of the dendrogram, i.e. the identification of the number of clusters, depends on the bond distance chosen as the
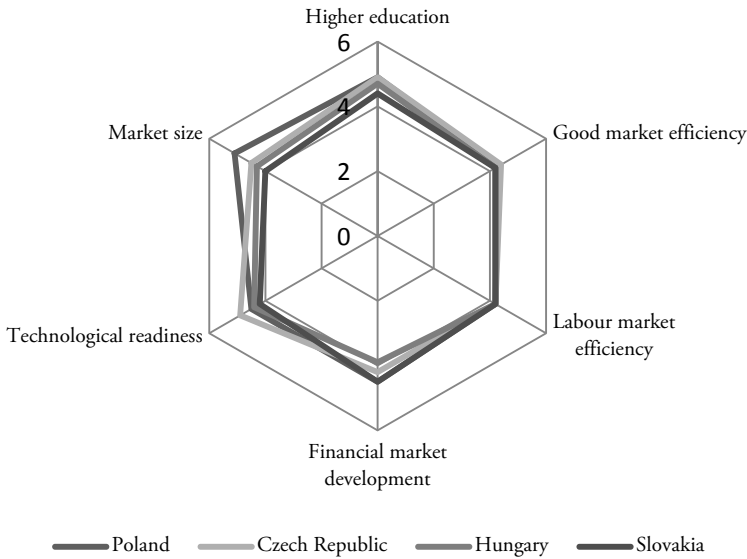
Figure 2.4. Efficiency enhancers (5th, 6th, 7th, 8th and 9th pillar of competitiveness) in
Visegrad Countries according to the Global Competitiveness Report 2013-2014
Source: own study based on the Global Competitiveness Report 2013-2014 (Schwab, 2013).

	Business sophistication	Innovation
■ Poland	4.1	3.2
■ Czech Republic	4.4	3.7
■ Hungary	3.7	3.5
■ Slovakia	4	3

Figure 2.5. Business sophistication and innovation (11th and 12th pillar of competitiveness)
in Visegrad Countries according to the Global Competitiveness Report 2013-2014
Source: own study based on the Global Competitiveness Report 2013-2014 (Schwab, 2013).
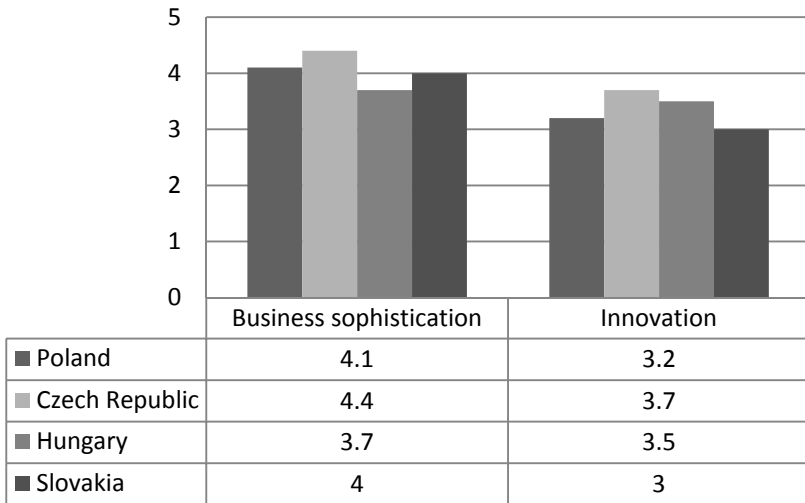
point of interpretation. The rule proposed by Mojena, based on the relative size of the different levels of junctions, was chosen to determine the cut-off Milligan & Cooper (1985, p. 8). The constant in Mojena's inequality has a value of 1.25, which is recommended by Milligan & Cooper (Milligan & Cooper 1985, p. 12).

According to the result of this inequality, a cut-off at the level of 3.72 gives a satisfactory division of the 78 countries into clusters. Using Ward's method, six large homogenous groups of countries (clusters) can be distinguished (Figure 2.6).

The cluster analysis confirms the hypothesis that the group of 78 most competitive countries is a highly differentiated area in terms of their competitiveness level. However we cannot say the same about the Visegrad Countries. Hungary and the Czech Republic are very similar in terms of unweighed values of 12 pillars of competitiveness and together with Croatia, Lithuania, Slovenia and Costa Rica form one small cluster. Despite the fact that Poland and Slovenia belong to others clusters, we can still maintain the hypothesis of a relatively small heterogeneity in the fundaments of the competitiveness in the Visegrad group. If we choose the 7th bond distance as the point of interpretation, all Visegrad Countries will belong to the same large cluster.

Hence the question, what should Visegrad Group countries do to improve their position in the ranking? Should they follow the same strategy? The best path for increasing the competitiveness of each economy is to focus on the solutions used in countries which are higher in the ranking. However, for example, Poland, which is ranked 42nd the WEF ranking, does not have to catch up with all the countries ahead of it.

The proposal here is to build an easily affordable strategy to improve each country's position in the rankings by adopting the pattern of a country which has a better position in the competitiveness ranking but at the same time is also the most similar. Relying on the experiences of this country, which is more competitive but at the same time very similar, ensures easy implementation of the selected solutions. This approach only allows an indication of a particular economy from which a selected economy should draw patterns. The method does not, however, explain why two countries similar to one another should occupy different positions in the competitiveness ranking.

A tool, which allows to analyse each country's position in the ranking and allows to find a better and most similar object (country), is a map of the objects. The map is a polar diagram, where each point on the map is defined by two values. The first value is the value of the synthetic variable (a measure of angle), with the worst countries on the left and the best objects in the ranking on the right. The second value is the distance matrix for each selected country compared to other countries (this distance is represented by semi-circles). The analysed country is always at the bottom of the map, and the bold radius indicates its position in the ranking.
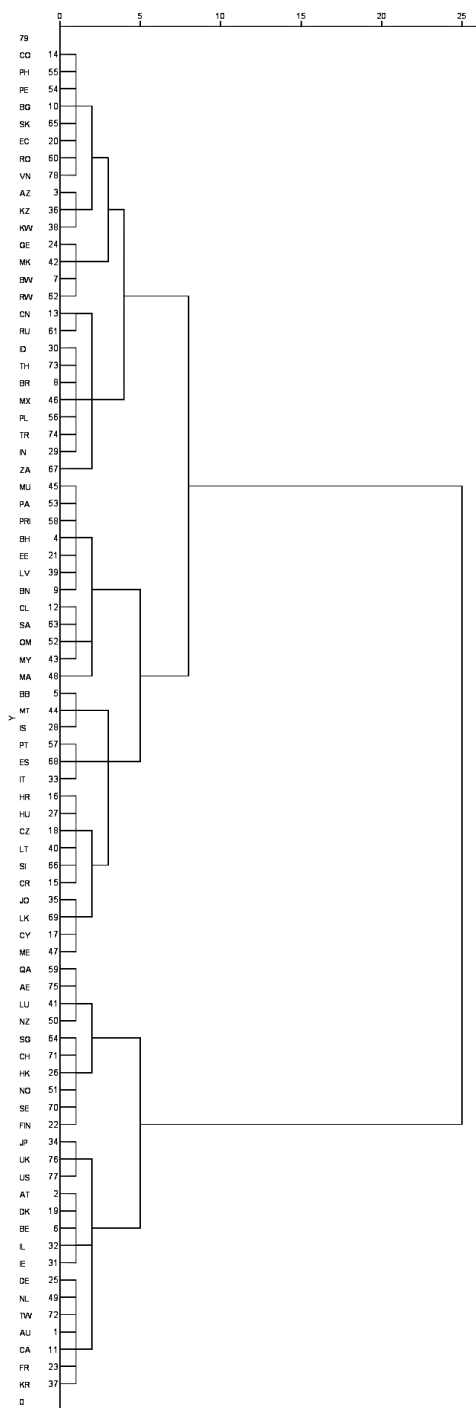
Figure 2.6. Dendrogram for 78 most competitiveness countries in 2013-2014
Source: own study based on the Global Competitiveness Report 2013-2014 (Schwab, 2013).

To identify the path of competitiveness growth, we need to pay attention to all the countries on the map lying to the right of the designated radius and at the same time closest to it.

The path of competitiveness growth for the Polish economy is illustrated in Figure 2.7. Analysis of this figure shows that to increase the competitiveness of Polish economy, we should try to implement competitiveness growth instruments from China, Chile, Oman, Brunei, South Africa and we should base on Maltese and Estonian experiences too.

Figure 2.7. The competitiveness path for growth of Poland
Source: own study based on the Global Competitiveness Report 2013-2014 (Schwab, 2013).

Figure 2.8. The competitiveness path for growth of the Czech Republic
Source: own study based on the Global Competitiveness Report 2013-2014 (Schwab, 2013).

The Czech Republic (see Figure 2.8) should mainly follow the same path as Poland and try to use Polish experiences too. So Poland and the Czech Republic

should copy effective solutions from mentioned countries mainly to strengthen their macroeconomic environment, health and primary education.

Two other countries from the Visegrad group - Hungary and Slovakia occupy much more distant places in the Global Competitiveness Ranking. Theoretically, these countries should have more options i.e. there more countries from whose the experience they can learn. However, if we analyse the Hungarian and Slovak paths of competitiveness (Figure 2.9 and 2.10), we can see that among many options one of the best solution is to follow Polish and Czech experiences. The authors make an argument that the Visegrad Countries apparently different, are quite similar in terms of competitiveness fundaments and they can gain a lot by exchanging experience in building their competitiveness advantages.

Figure 2.9 The competitiveness path for growth of Hungary
Source: own study based on the Global Competitiveness Report 2013-2014 (Schwab, 2013).
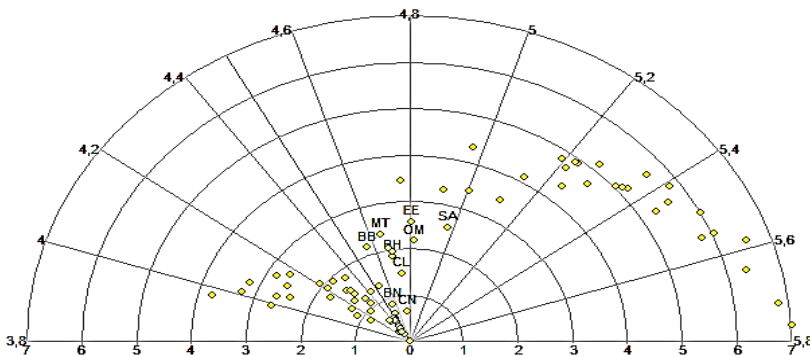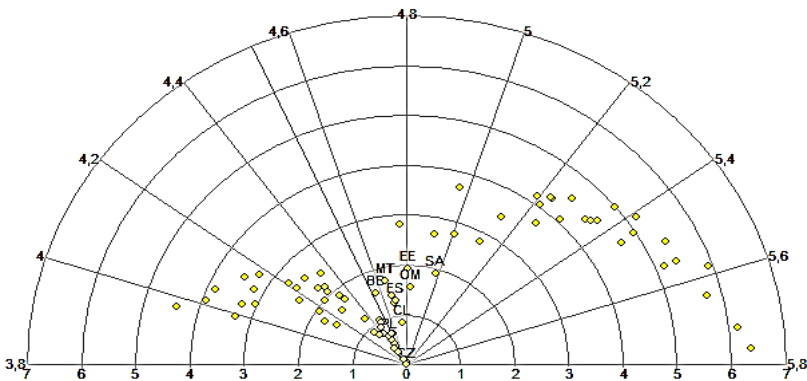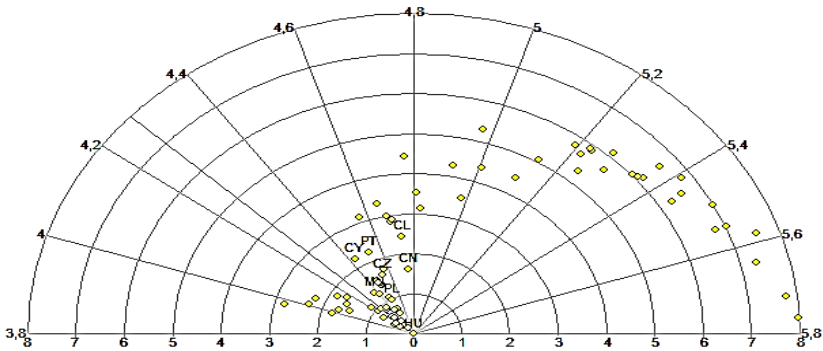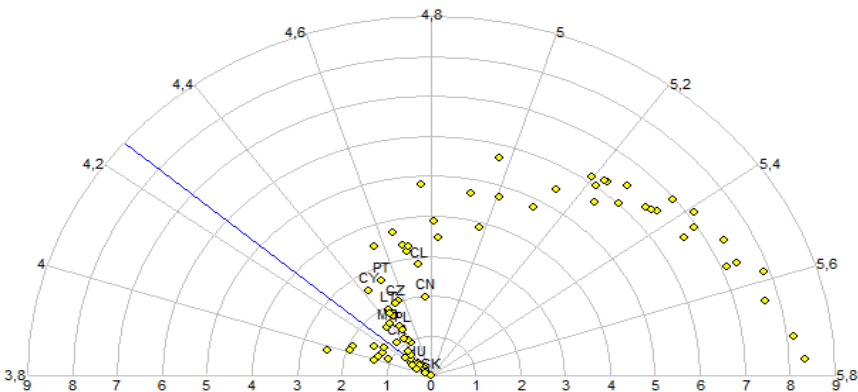

Figure 2.10. The competitiveness path for growth of Slovakia
Source: own study based on the Global Competitiveness Report 2013-2014 (Schwab, 2013).

2.5. CONCLUSIONS

Understanding the factors influencing competitiveness has been the research object for hundreds years. Currently the concept of international competitiveness has significantly expanded and includes a large number of determinants. Nowadays, the most popular method to evaluate the changes in a country competitiveness is the analysis of the shifts in country ranking, based on the Global Competitiveness Index. But the study of the WEF reports doesn't provide information, how to improve the competitiveness of an economy.

The authors propose, based on the values of 12 pillars of competitiveness from the Global Competitiveness Report 2013-2014 (Schwab, 2013) and two taxonomic methods to build an easy affordable strategy to improve each country's position in the rankings by adopting the pattern of a country which has a better position in the competitiveness ranking but at the same time is also the most similar. Relying on the experiences of this country, which is more competitive but at the same time very similar, ensures easy implementation of the selected solutions. This approach only allows an indication of the countries from which a selected economy should draw patterns

The carried out cluster analysis for 78 most competitive economies and based on unweighted values of 12 competitiveness pillars indicates that the Visegrad Group is an area with a relatively small differentiation in terms of competitiveness fundaments. The analysis shows that the strategy to increase competitiveness should not be significantly different for each Visegrad country. The analysis allows us to formulate a conclusion that in order to increase its international competitiveness each Visegrad country should follow the pattern of the country which stands above it (in terms of competitiveness ranking), but at the same time is the most similar. Thus, for Slovakia, Hungary or the Czech Republic following Polish experiences could be the best solution.

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Appendix: 78 most competitive countries according to the Global Competitiveness Report 2013-2014.

Code	Country	12 of competitiveness pillars											
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
AU	Australia	5.04	5.60	5.75	6.36	5.1	4.72	4.45	5.41	5.82	5.15	4.66	4.45
AT	Austria	5.07	5.72	5.37	6.37	5.57	4.88	4.56	4.56	5.59	4.63	5.46	4.82
AZ	Azerbaijan	4.06	4.06	6.42	5.07	4.00	4.27	4.72	3.80	4.17	3.60	3.97	3.45
BH	Bahrain	4.77	5.18	5.90	6.00	4.52	4.96	4.87	4.75	4.95	2.93	4.25	3.17
BB	Barbados	4.80	5.52	3.89	6.36	5.29	4.25	4.79	4.71	5.26	2.06	4.30	3.51
BE	Belgium	5.00	5.60	4.71	6.72	5.83	5.08	4.34	4.48	5.61	4.82	5.27	4.87
BW	Botswana	4.67	3.43	5.76	4.55	3.56	4.10	4.51	4.34	3.11	3.03	3.61	2.99
BR	Brazil	3.73	4.02	4.63	5.43	4.22	3.82	4.13	4.40	4.14	5.65	4.42	3.42
BN	Brunei Darussalam	4.96	4.29	7.00	6.33	4.52	4.52	5.06	4.29	3.75	2.42	4.23	3.38
BG	Bulgaria	3.38	3.93	5.61	6.00	4.25	4.19	4.36	3.95	4.45	3.87	3.59	2.97
CA	Canada	5.38	5.80	5.08	6.55	5.46	5.00	5.26	5.21	5.58	5.49	4.80	4.47
CL	Chile	4.88	4.54	6.02	5.68	4.87	4.64	4.53	4.83	4.48	4.49	4.25	3.60
CN	China	4.24	4.51	6.29	6.06	4.23	4.32	4.63	4.32	3.44	6.85	4.31	3.89
CO	Colombia	3.35	3.50	5.59	5.32	4.33	4.01	4.16	4.08	3.39	4.70	4.06	316
CR	Costa Rica	4.20	3.92	4.56	5.81	5.01	4.30	4.48	3.75	4.16	3.41	4.54	3.74
HR	Croatia	3.60	4.66	4.71	5.80	4.53	3.92	3.94	3.90	4.41	3.59	3.81	3.12
CY	Cyprus	4.47	4.63	3.73	6.54	5.01	4.74	4.62	4.07	4.78	2.83	4.34	3.41
CZ	Czech Republic	3.64	4.71	5.01	5.84	4.85	4.41	4.20	4.20	4.88	4.50	4.43	3.70
DK	Denmark	5.21	5.53	5.28	6.17	5.54	4.87	5.03	4.57	6.05	4.24	5.29	4.99
EC	Ecuador	3.61	3.81	5.24	5.91	4.22	3.97	3.96	3.78	3.49	4.01	3.97	3.40
EE	Estonia	4.90	4.70	5.89	6.22	5.22	4.73	5.03	4.59	5.20	3.06	4.26	3.89
FIN	Finland	6.10	5.55	5.42	6.82	6.27	5.03	4.85	5.57	5.89	4.20	5.51	5.79
FR	France	4.79	6.21	4.65	6.33	5.21	4.43	4.31	4.61	5.69	5.76	5.00	4.68
GE	Georgia	4.00	4.31	4.91	5.75	3.79	4.29	4.59	3.91	3.83	2.96	3.47	2.68
DE	Germany	5.30	6.24	5.68	6.36	5.90	4.92	4.57	4.69	5.72	6.02	5.68	5.50
HK	Hong Kong SAR	5.61	6.74	6.09	6.18	5.24	5.57	5.74	6.02	6.03	4.84	5.22	4.44

HU	Hungary	3.67 4.37 4.51 5.88 4.72 4.23 4.18 3.93 4.35 4.26 3.69 3.51
IS	Iceland	5.05 5.61 3.94 6.54 5.58 4.43 4.91 3.89 5.91 2.43 4.68 4.28
IN	India	3.86 3.65 4.10 5.30 3.88 4.18 4.08 4.83 3.22 6.25 4.38 3.62
ID	Indonesia	3.97 4.17 5.75 5.71 4.30 4.40 4.04 4.18 3.66 5.32 4.44 3.82
IE	Ireland	5.27 5.27 3.57 6.60 5.43 5.21 4.93 3.86 5.75 4.15 5.04 4.58
IL	Israel	4.56 4.92 4.65 6.07 5.00 4.28 4.39 4.81 5.56 4.35 4.88 5.58
IT	Italy	3.50 5.35 4.26 6.29 4.75 4.17 3.48 3.33 4.71 5.61 4.74 3.69
JP	Japan	5.25 6.03 3.68 6.50 5.28 5.01 4.82 4.80 5.59 6.14 5.75 5.49
JO	Jordan	4.60 4.33 3.31 5.80 4.50 4.55 4.07 3.89 3.78 3.29 4.30 3.44
KZ	Kazakhstan	4.09 4.17 5.87 5.33 4.52 4.34 4.98 3.67 4.10 4.21 3.72 3.10
KR	Korea, Rep.	3.84 5.85 6.32 6.37 5.41 4.68 4.21 3.89 5.57 5.61 4.86 4.78
KW	Kuwait	4.21 4.37 6.70 5.62 4.04 4.10 4.01 3.96 3.80 3.80 3.88 2.81
LV	Latvia	4.08 4.24 5.63 6.05 4.84 4.53 4.76 4.46 4.70 3.18 4.01 3.21
LT	Lithuania	4.04 4.69 4.94 5.97 5.15 4.40 4.31 3.82 4.81 3.58 4.29 3.58
LU	Luxembourg	5.59 5.79 6.04 6.08 4.89 5.33 4.83 5.14 6.19 3.14 4.98 4.70
MK	Macedonia, FYR	4.05 3.63 4.94 5.60 4.18 4.47 4.21 4.15 3.84 2.90 3.65 3.09
MY	Malaysia	4.85 5.19 5.35 6.10 4.68 5.23 4.79 5.45 4.17 4.87 5.02 4.39
MT	Malta	4.61 5.02 4.64 6.39 5.04 4.72 4.56 4.61 5.71 2.46 4.44 3.61
MU	Mauritius	4.58 4.44 4.82 6.01 4.32 4.85 4.45 4.73 3.90 2.80 4.40 3.11
MX	Mexico	3.56 4.14 5.11 5.69 4.03 4.19 3.94 4.19 3.66 5.61 4.24 3.35
ME	Montenegro	4.16 4.04 4.07 6.07 4.61 4.31 4.39 4.40 4.22 2.14 3.79 3.42
MA	Morocco	5.62 6.13 5.22 6.61 3.54 4.28 3.86 4.01 3.53 4.16 3.75 2.94
NL	Netherlands	5.62 6.13 5.22 6.61 5.78 5.25 4.84 4.68 5.97 5.11 5.56 5.16
NZ	New Zealand	6.07 5.21 5.25 6.60 5.68 5.24 5.23 5.61 5.40 3.88 4.75 4.34
NO	Norway	5.70 5.02 6.80 6.41 5.67 4.89 5.02 5.31 6.08 4.34 5.24 4.90
OM	Oman	5.39 5.08 6.64 5.97 4.46 4.99 4,73 4.82 4.11 3.60 4.54 3.57
PA	Panama	3.97 4.89 4.95 5.76 4.26 4.65 4.25 5.00 4.35 3.50 4.26 3.72
PE	Peru	3.36 3.50 5.91 5.36 4.01 4.37 4.50 4.50 3.39 4.46 3.95 2.76
PH	Philippines	3.76 3.40 5.34 5.33 4.28 4.19 4.08 4.41 3.58 4.66 4.29 3.21
PL	Poland	4.01 3.96 4.88 6.03 4.88 4.34 4.20 4.54 4.47 5.14 4.06 3.24
PT	Portugal	4.32 5.55 3.75 6.28 5.15 4.26 3.79 3.50 5.24 4.34 4.18 3.93

PRI	Puerto Rico	4.70	4.17	5.12	5.28	5.09	4.83	4.59	4.86	4.60	3.49	5.03	4.39
QA	Qatar	5.95	5.20	6.58	6.32	5.11	5.49	5.29	5.19	5.10	3.96	5.36	4.80
RO	Romania	3.34	3.33	5.14	5.47	4.41	3.89	3.96	3.95	4.14	4.44	3.62	3.01
RU	Russian Federation	3.28	4.61	5.93	5.71	4.66	3.80	4.31	3.39	3.97	5.78	3.56	3.13
RW	Rwanda	5.20	3.20	4.41	5.37	3.00	4.52	5.06	4.23	3.10	2.46	3.86	3.44
SA	Saudi Arabia	5.13	5.18	6.69	5.92	4.65	4.79	4.31	4.71	4.60	5.07	4.74	3.93
SG	Singapore	6.04	6.41	6.01	6.72	5.91	5.59	5.77	5.82	6.01	4.66	5.08	5.19
SK	Slovakia	3.32	4.12	4.91	6.07	4.44	4.24	4.24	4.49	4.16	4.03	3.95	3.02
SI	Slovenia	3.94	4.91	5.03	6.38	5.21	4.32	4.00	2.98	4.90	3.46	4.14	3.63
ZA	South Africa	4.53	4.13	4.39	3.89	3.94	4.75	3.93	5.80	3.92	4.89	4.49	3.64
ES	Spain	4.07	5.97	3.97	6.21	5.19	4.32	3.93	3.72	5.26	5.45	4.52	3.75
LK	Sri Lanka	4.09	4.00	3.90	5.94	4.31	4.63	3.53	4.49	3.30	3.90	4.51	3.49
SE	Sweden	5.72	5.60	6.05	6.45	5.69	5.10	4.88	5.32	6.22	4.64	5.48	5.43
CH	Switzerland	5.63	6.20	6.29	6.48	5.88	5.26	5.76	5.23	5.93	4.56	5.75	5.70
TW	Taiwan, China	4.95	5.77	5.60	6.49	5.65	5.26	4.67	4.95	5.19	5.24	5.20	5.25
TH	Thailand	3.79	4.53	5.61	5.52	4.29	4.67	4.35	4.61	3.56	5.10	4.42	3.24
TR	Turkey	4.08	4.45	4.62	5.86	4.29	4.52	3.74	4.40	4.05	5.30	4.36	3.47
AE	United Arab Emirates	5.55	6.20	6.42	5.97	4.93	5.39	5.20	4.79	5.22	4.44	5.13	4.22
UK	United Kingdom	5.43	6.12	3.98	6.39	5.45	5.05	5.35	5.00	6.06	5.80	5.40	4.90
US	United States	4.64	577	3.95	6.10	5.75	4.93	5.37	5.26	5.72	6.94	5.49	5.37
VN	Vietnam	3.54	3.69	4.44	5.78	3.69	4.25	4.40	3.76	3.14	4.64	3.68	3.14