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TRENDS AND LEVEL OF DEVELOPMENT: VIEW TO NEW EU MEMBERS

Vanda Gineviciene[1], Manuela Tvaronaviciene[2]

[1] *Vilnius Gediminas Technical University, Saulėtekio al. 11, LT-10223 Vilnius, Lithuania, Phone: + 370 52744862; Fax: + 370 52744861, E-mail: rector@adm.vtu.lt*
[2] *Vilnius Gediminas Technical University, Saulėtekio al. 11, LT-10223 Vilnius, Lithuania, Phone: + 370 52744862; Fax: + 370 5274486, E-mail: manuela@vv.vtu.lt*

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Abstract. The paper deals with evaluation of development level of new European Union members and 3 acceding counties. Authors elaborate existing systems of indicators and modern ranking methods used for indicated purpose. Presented analysis argues for superiority of statistical methods over qualitative ones in process of qualified evaluation of development level achieved by particular countries. New system comprising 12 indicators has been presented. The chosen set of indicators have emphasized three the most important dimensions, which provide stability of countries: economical, social and environmental. Evaluation of development tendencies during the last years of new the EU members and ascending countries has been done. Closer look at development level achieved by chosen countries comparing to that of EU-15 has been taken.

Keywords: development evaluation, system of indicators, European Union, new the EU members.

1. Introduction

Evaluation of development level of new the EU entrants and acceding countries have become an urgent issue. At first, equalizing of living and quality standards require of estimation of existing ones. The second, expected synergy of joining of culturally and economically different countries into one alliance could take place in case the process was managed. The third, process of development of each country, especially country in transition, should be measured due to management policy could be corrected, if necessary, as "that good knowledge of the reality of markets, of economic, social and environmental developments, etc., is absolutely a critical element for the success of any policy of an enterprise, of a career" [1].

Hence, the issue of evaluation could be considered as being twofold. On the one hand, enormous amount of information should be estimated and presented in purpose-oriented angles. On the other hand, benchmarking position, needed to compare relative positions of various countries should be adopted.

As scope of presented problem is complex and embraces a lot of discussable questions, authors of presented paper concentrate on new the EU members' development estimation analysis.

2. Differences in development measurement of "old" the EU members

The most widely used indicator for countries comparison is GDP per capita. As a necessary condition to being a key economic performance indicator of sustainable development, one of the often - cited limitations of GDP is that it does not account for the social and environmental costs of production; it therefore is not a good measure of the level of over - all well being. Also, with the help of GDP it is hard to evaluate technological development and quality improvements.

Due to the limitations of GDP per capita it became essential to use the set of indicators, which can fill in all gaps and reflect the whole situation and level of development of countries by reflecting all three dimensions: economical, social and environmental.

We need to admit, that there is no other way to measure complex phenomenon than through set of theoretically grounded indicators. "Indicators can provide crucial guidance for decision-making in a variety of ways. They can translate physical and social science knowledge into manageable units of information that can facilitate the decision-making process. They can help to measure and calibrate progress towards sustainable development goals [2].

Considering general approach that "we measure what we value, and value what we measure." [2], the question of prime importance is to decide what to measure. To put it in other way, we need to decide what the best way of country evaluation is, and which statistical indicators should be taken into account and give the most reliable information about the development level.

In accordance with this, let's start analysis of main systems and methods of statistical indicators used by "old" the EU members.

The next task would be to choose the most relevant set of indicators and evaluate level of development of new the EU members and acceding countries.

There are following main classifications of Sustainable Development indicators:
1. *Lisbon indicators* [3];
2. *Eurostat indicators* [4];
3. *Eurostat task force indicators* [5];
4. *United Nations indicators* [6];
5. *European environment agency indicators* [7];
6. *OECD indicators* [8];
7. *Statistical indicators benchmarking the information society's indicators (SIBIS)* [9];
8. *Directorate's-General for Enterprise indicators (DG ENTR)* [10].

Complexity of task to choose "right" set of indicators has been illustrated by lack of unanimous approach to considered task demonstrated even by "old" the EU countries.

Hence, each group of countries defines sustainable development in terms of its different components. Other countries rely on flow or capital based models, or on a combination of both. The most common framework adopted by countries is based on the idea of three pillars of sustainability: economic, environmental and social. Indicators in this case are selected to reflect each of these three areas.

Indicated above differences don't mean that countries treat development measurement in principle differently. Vast majority countries use comparatively unified approach to evaluation of development level. Nevertheless, as was mentioned above, different sets of indicators have been used for practical purposes. Each of these sets reflects the cultural, natural and economic heritage of each country, and is tailored to the specific strategy or plan of that country. Assessing whether a country has an indicator pertaining to a certain theme is not always easy because of the diversity of indicators, their different definitions and the different descriptions of the national indicators. There are also classification problems, for example when a country (e.g. the Netherlands) has a multi-dimensional index that is relevant to several themes [11].

The work of international organizations such as the UNCSD, OECD, and Eurostat is contributing significantly to the development indicators at the national level. Testing the proposed indicators in individual countries, providing feedback, and proposing new indicators and methodologies are helping countries to make practical progress towards establishing their own national indicator sets. One problem for international comparability is that countries are choosing selectively from the lists proposed by international organizations: one country's choices from the lists put forward by international organizations do not necessarily correspond to those of another country. This suggests that international organizations need to focus their efforts on defining indicators at the international or global level, harmonizing data, providing guidance and co-ordination, and building consensus among countries [11].

Talking about development evaluation so far we put emphasis on indicators of sustainable development (having final task to evaluate new the EU countries and acceding ones, we purposefully haven't concentrated on theoretical discussion what sustainable development is).

After rather close look to currently used sets of indicators and aiming to ground shortlist convenient for practical use we are going to continue our analysis in the following way. As indicators of sustainable development vary across the countries, we will overview other systems of development.

3. Structural Indicators versus Indicators of Sustainable Development

The main statistical agencies- Organization for Economic Co-operation and Development (OESD) and United Nations (UN) provide several systems of indicators: Indicators of Sustainable Development, Structural Indicators and Short- term Indicators. We

are not going to stop on Short-term indicators in presented paper, as"it is the long-term that governs" [12]. It means that system of short term indicators is not the most suitable for comparison of countries development level, because this statistics can't provide a full picture of development process in the time dimension.

The Structural Indicators are politically important socio-economic indicators, covering the policy domains: employment, innovation, economic reform, environment and social cohesion. The European Summit in Nice formally adopted a list of 42 so-called structural indicators [13].

The European Commission proposed a shortlist of only 14 structural indicators (see Appendix 1). The shortlist makes it easier to present policy messages and the Member States' positions relative to the key Lisbon targets in the Spring Report thus helping to maintain the momentum of the Lisbon strategy [14].

The proposed shortlist of indicators has several advantages. First, the main purpose of the structural indicators, as stated in the Lisbon European Council conclusions, is to allow for an assessment of progress towards the Lisbon objectives in the Commission's Spring Report. A shortlist of indicators makes it easier to present a clear picture of the Member States' positions relative to the most important Lisbon targets. This clarity will help to maintain the momentum of the Lisbon strategy. Using a smaller number of indicators it is also possible to achieve a better coverage of the acceding and candidate countries and to present information on both levels and changes in performance more easily. The shortlist of indicators has a clearer logic. Therefore the policy messages drawn from the progress assessment based on the structural indicators will be soundly based [15].

The list of structural indicators meets the criteria, which have been used for the structural indicators over the last 3 years. The indicators are: (1) easy to read and understand; (2) policy relevant; (3) mutually consistent; (4) available in a timely fashion; (5) available for most, if not all Member States, and acceding countries; (6) comparable between these countries and, as far as possible, with other countries; (7) selected from reliable sources; and (8) do not impose too large a burden on statistical institutes and respondents [14].

By accepting provided arguments we need to admit that presented set is more suitable tool for countries evaluation. Eurostat providing comparison statistics refers to this list of indicators.

Comparison of Structural indicators and Sustainable Development ones leads us to conclusion about certain similarities and intersections. The first, both systems have same periodicity – one year. The second both have same dimensions and cover similar areas: economical, social, environmental. The third, some indicators completely coincide in both systems, e.g., GDP per capita, unemployment, poverty rate. Those similarities can lead as to a conclusion that indicators of sustainable development can be treated as one variation of structural indicators.

The main difference, which should be distinguished, lays in targeting of sets being compared. Indicators of sustainable development are more oriented towards evaluation of social and environmental aspects, when structural indicators aim to cover economic side of development.

It should be noted that, indicators of sustainable development haven't been so popular until recently. As it was mentioned, only 22 countries expressed interest in them.

Countries, which are to be analyzed in the paper – new the EU entrants and acceding ones- lack data, which is needed for application of sustainable development indicators.

Consequently, we have chosen approach, which considers incorporation of some basic indicators of sustainable development into shortlist of structural ones. The latter has been used for practical comparisons of new the EU members by the EU.

Now let's concentrate on short list of structural indicators. Examination of available statistical date indicates a fact that data for new members and accession ones lacks statistical coverage. Such indicators as, dispersion of regional employment rate, volume of transport have missing gaps, and another 2 indicators – employment rate of older workers and financial integration - are not presented for acceding countries at all.

Adhering to requirement of statistical data availability, we need to conclude, that out of 14 indicators, which comprise a "shortlist" only 10 could be used for practical purposes.

Despite missing date we can conclude that even 10 left indicators provide possibility to cover and analyze development level (environmental, economic, and social) of considered countries. Having adopted 10 indicators out of 14 suggested, we will complement the set two indicators considered as sustainable development ones, i.e. inflation rate and life expectancy at birth.

As the result of theoretical analysis the following set of indicators suitable for practical evaluation of development level of considered countries has been chosen (Table 1).

Table 1. Selected list of indicators

1. GDP per capita
2. Labor productivity
3. Employment rate
4. Spending on human resources (Expenditure on education)
5. Research and Development expenditure
6. Information Technology expenditure
7. Inflation rate
8. At risk-of-poverty rate
9. Long-term unemployment
10. Life expectancy at birth
11. Greenhouse gases emissions
12. Energy intensity of the economy

4. Main development tendencies of new EU members'

Integration of considered indicators into one set of statistically measurable indicators (Table 1) has let to trace main trends and directions of new the EU members development (EUROSTAT data of the last 10 years estimated, depending of availability, has been employed).

Aim is to detect main directions of indicators' change over the time period of accession countries. Statistical values of indicators are not important in this part of analysis. Differences in development levels will be emphasized later.

Below trends of indicators are presented (Appendix 2). Positive (↑) and negative (↓) indicators' tendencies give as possibility to visualize, which development directions are characteristic for new EU members and accession countries. Concise reflection of complicated multi-facet phenomenon lets us conclude, that Baltic countries develop towards the majority of directions of our interest. Lithuania among them shows the best results: 10 indicators have positive trends. Next goes Latvia with 9 positive growths of indicators and Estonia, respectively, has 8 positive tendencies.

↑ - Positive tendency of indicator; ↑ - strong positive tendency of indicator; ↓ - negative tendency of indicator; ↓ - strong negative tendency of indicator; ~~ - indeterminate tendency of indicator; — - no data found.

The following aim was to summarize positive and negative development tendencies due to indicate countries moving faster towards level achieved by "old" European countries. In the table 2 summarized view to development trends of considered countries has been presented.

It should be noted, that development indicators for Turkey haven't been covered sufficiently in EUROSTAT, what, consequently, didn't allow to present generalized characteristics of development mode. Commenting on development characteristics of other considered countries, we need to draw attention, that, e.g. Cyprus, Czech Republic, Hungary, and Poland have the same quantity of indicators of positive tendency: 7 out of 12 go up. Not as good performance (in indicator growth terms) is demonstrated by Romania, Slovenia and Slovakia. Those countries have just 5 growing indicators, while left ones have negative or non- visible trend.

It should be emphasized, that presented type of analysis doesn't provide with possibility to distinguish the best-performers in terms of achieved development level. It aims to indicate a generalized view to modes according which considered countries develop.

Presented "ranking" allows to distinguish leading country. Cyprus takes 3 the first and 3 the second places. This country shows growth of such indicators as GDP per capita, labor productivity and employment

Table 2. Generalized characteristics of development mode of new EU members and accession countries (time span 10 years: estimated 1993–2004)

Country	Positive trend of indicators (↑)	Negative trend of indicator (↓)	No visible trend (~~)
Bulgaria	6	2	3
Cyprus	7	1	3
Czech Republic	7	2	2
Estonia	8		3
Hungary	7	2	2
Lithuania	10		1
Latvia	9	1	1
Malta	1	2	7
Poland	7	3	1
Romania	5	2	3
Slovenia	5	2	3
Slovakia	5	3	3

rate, which are considered as being the most important macroeconomic indicators. But what is peculiar, this country occupies last positions estimating by growth of investment percent in R&D and IT.

That returns us to not new discussion about purposefulness of investing into research and development versus investing into information technologies for countries on their way of development. Recall, that evaluation of level of spending on research and development isn't straightforward. On the one hand, adequate R&D funding is commensurate with economic growth as investment in intangible assets could be seen as a major source of productivity growth. On the other hand, the incentives to invest in R&D are also tied to the size of the economy, whether that size is measured as the stock of human capital or the size of the labor force. Larger markets imply stronger incentives to conduct R&D, which in turn leads to faster growth [16].

According to those statements, effectiveness' of R&D expenditure depends not only on the amount, but also likewise on the size of market of the country. Second evidence, which a show how difficult is to evaluate the effect and results of R&D expenditure, is discussed in new growth theory. It states, people devote resources to innovations in the pursuit of above-average profit. The pace of innovation depends on the resources devoted to it. But profitable new discoveries are copied and replicated many times, so their benefits spread throughout the economy without diminishing returns [17].

In the presented context, it is clear, that importance of spending on information technologies (IT) is beyond question for transition countries, and hence lack of growth in that sector should be evaluated negatively.

Nevertheless, evidences provided by considered countries indicate, that countries can reach good results in economical performance without making big investments in R&D. For example Estonia is the leader by investing in R&D and IT, but it takes only 7th position in GDP per capita ranking. In the same time, such countries as Slovenia and Czech Republic are taking first places by investing in R&D and presenting good results in economical indicators. It shows as, that analysis of connection between GDP and R&D should be continued considering time lag between investments and possibly caused by them results.

5. Benchmarking and plotting graphically development level of analyzed countries

Speculations provided above, prove once more time, how complex relationships between indicators are and how difficult to rank indicators themselves.

Positioning current development level of considered countries requires a benchmark, which would allow estimating relative development state of chosen aspects.

Let's concentrate on Baltic countries. As benchmark we accept level of development achieved by EU-15, it means "old" European countries. In order our chosen benchmark fitted for graphical analysis, we need to select only those indicators, growth of which correspond economic rationale of positive evaluation. I.e. such indicators as inflation rate, total unemployment, green house emotion, energy consumption should be excluded in this respect. Figure 1 presents development level of Baltic countries compared to level achieved by EU-15. Benchmarking

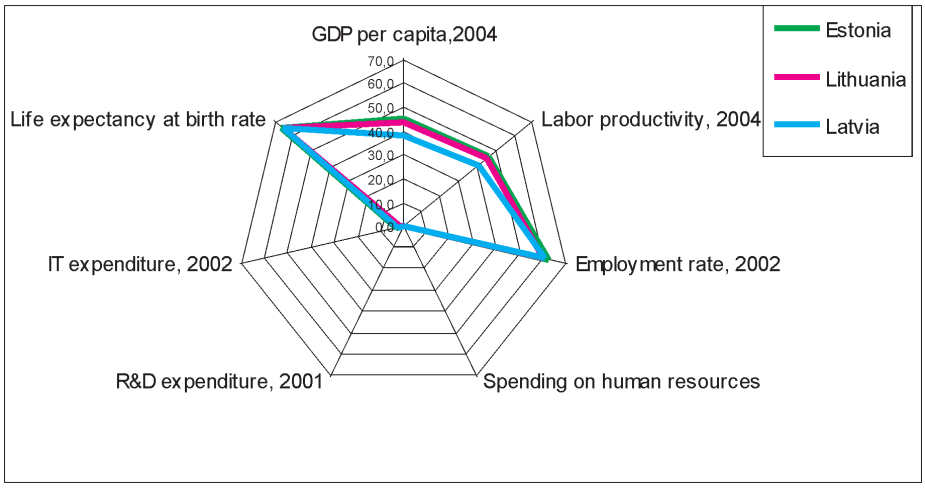

Figure 1. Development level of Lithuania, Estonia and Latvia (Source: EUROSTAT)

indicators represent 100 percent in most cases; spending on human resources, R&D expenditure and IT expenditure are presented as percentage share of GDP, and, finally, life expectance is expressed in years.

Presented above ranking (Figure 1) evidences the strong connection between Baltic countries. The majority of statistical indicators are rather similar in all 3 countries. To generalize, we could consider them as middle ranked countries, because, it has been shown, they are located in the middle positions. More precise evaluation of their development level leads to conclusion, that Estonia could be treated as the most developed, next goes Latvia and Lithuania lags a bit behind.

The worst performance in terms of achieved development is displayed by Bulgaria and Romania. Their considered indicators take last places. Besides that, Romania has the highest high rate of inflation among acceding countries.

Taking Lithuania, as representative of "average" new the EU member and plotting its indicators on one axe system together with Romania and Bulgaria we can get reflection of development gap (Figure 2). Graphical analysis reconfirms that development of later two countries needs to be accelerated.

Evaluation of development tendencies and comparison of achieved development levels of new the EU members and acceding countries leads to corollary about a big progress, which has been made via integration processes into European Union. Nevertheless, a big gap has still existed between acceding countries and average of EU-15. Graphical presentation of Poland, Estonia and Lithuania (Figure 3) reflects actual underdevelopment especially in

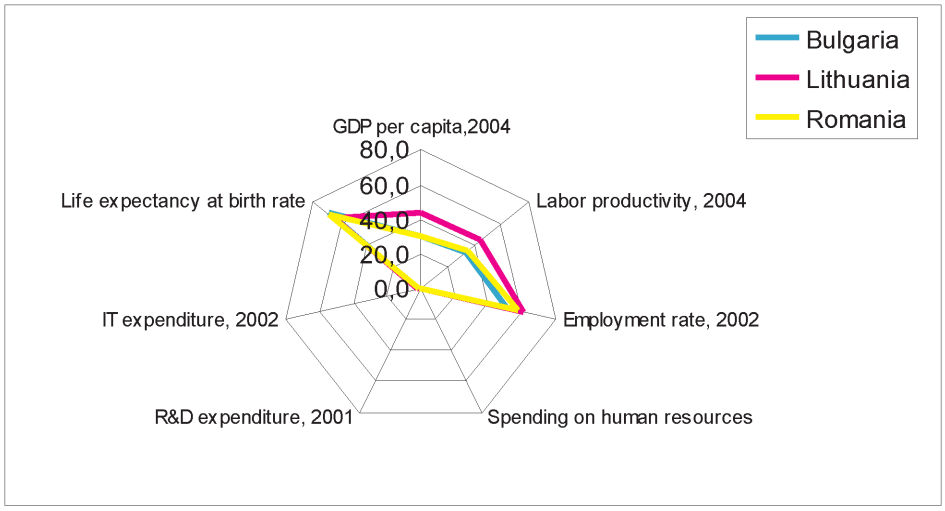

Figure 2. Level of development of Romania, Bulgaria and Lithuania (Source: EUROSTAT)

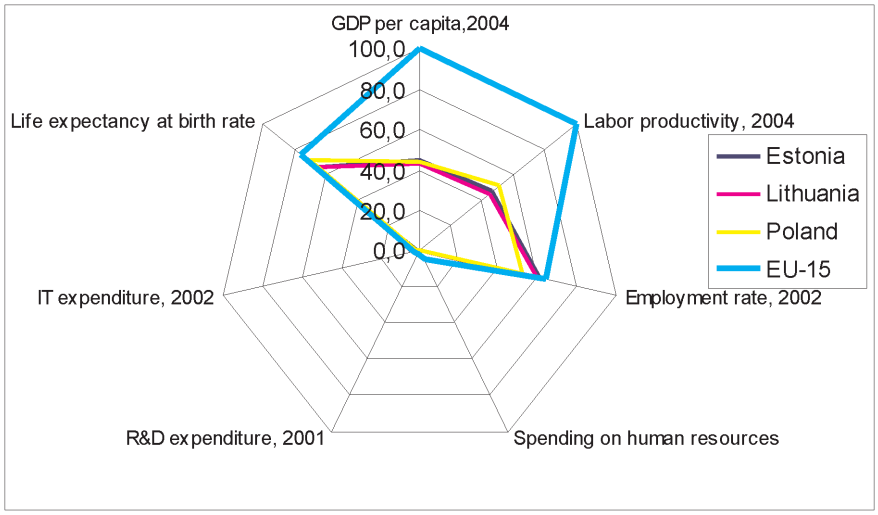

Figure 3. Level of development of Estonia, Lithuania and Poland related to EU-15 (Source: EUROSTAT)

terms of GDP per capita, labor productivity, and life expectancy at birth.

Analysis, which has been made above, gives as possibility to evaluate development level of new members of the EU and acceding countries, to compare them by highlighting social, economical and environmental dimensions. Nevertheless, it should be stressed, that this estimation doesn't provide sufficient information, for unanimous ranking of countries. The facets of development are to complex and not always could be objectively estimated, as objectiveness itself could be differently understood from the point of view of different cultural and political prospective.

6. Conclusions and policy implications

We based our investigation on assumption of necessity to develop.

Despite comparatively complex methods are available, the most widely used indicator for countries comparison is GDP per capita. As a necessary condition of being a key economic performance indicator of sustainable development, one of the often cited limitations of GDP is that it does not account for the social and environmental costs of production; and therefore is not a good measure of the level of over - all well being. Also, with the help of GDP it is hard to evaluate technological development and quality improvements.

Due to the limitations of GDP per capita it became essential to use the set of indicators, which can fill in all gaps and reflect the whole situation and level of development of countries by reflecting all three dimensions: economical, social and environmental.

The aim of the paper is to analyze and evaluate existing systems of indicators and on their basis to ground the most relevant set of indicators for evaluation of tendencies and level of development of new members of EU and acceding countries.

Availability of statistical data has been considered as crucial, as - you can manage what you can measure - in process of grounding suitable set of indicators.

Analysis of existing methods and integration of missing facets has led to elaboration of new system comprising 12 statistically measurable indicators.

The available statistical data of each indicator has been collected for the time span up to ten years. This research has overviewed the three different dimensions of the countries' development level: economical, social and environmental. On the basis of 12 indicators, the comparative analysis of development trends and level achieved of new the EU members and three acceding countries (Bulgaria, Romania and Turkey) have been presented.

Elaborate analysis of statistical data let to estimate development trend of each indicator and generalize directions of countries movement towards sustainable development. Providing better transparency of the research, table of main trends of indicators has been created. The table of trends of indicators showed that "GDP per capita" and "labor productivity" has the same tendency of growth in all countries, which were analyzed.

Leading position in rankings belongs to Cyprus. Baltic countries occupy just in middle positions, not taking into account ranking by spending on human recourses and greenhouse gases emission. Also there is need to emphasize, that Estonia takes leading position by investment in IT, what can be very important for the future development.

Romania and Bulgaria displayed the worst performance among all acceding countries. On the way of integration into the EU, a big progress needs to be enforced due to raise level of development of those candidates. Analysis showed that rather big gap between new members and the EU average still exists.

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Appendix 1. Short list of structural indicators (Commission of the European Communities, 2003)

1. GDP per capita
2. Labor productivity
3. Employment rate
4. Employment rate of older workers
5. Spending on human resources (Expenditure on education)
6. Research and Development expenditure
7. Information Technology expenditure
8. Financial market integration (convergence in bank lending rates)
9. At risk-of-poverty rate
10. Long-term unemployment
11. Dispersion of regional employment rates
12. Greenhouse gases emissions
13. Energy intensity of the economy
14. Volume of transport

Appendix 2. Directions of indicators' change for new EU members and accession countries (time span 10 years: estimated 1993-2004)

	Economical indicators							Social indicators			Environmental indicators
	GDP per capita	Labor productivity per person	Employment rate	Expenditure on human recourses	R&D expenditure	IT expenditure (for last 4 years)	Inflation rate	Long term unemployment rate	Life expectancy at birth	Green house gases emotion	Energy intensity
EU (15 countries)	**100%**	**100%**	↑	≈	↑	≈	↑	↑	↑	↑	↑
Acceding countries	↑	↑	↓	—	—	—	—	—	↑	—	—
Bulgaria	↑	↑	≈	↓	↓	↑	≈	≈	↑	↑	↑
Cyprus	↑	↑	↑	↑	≈	↑	≈	↑	↑	↓	≈
Czech Republic	↑	↑	≈	↓	↓	≈	↑	↑	↑	↑	↑
Estonia	↑	↑	↑	≈	≈	≈	↑	↑	↑	↑	↑
Hungary	↑	↑	≈	↓	↓	≈	↑	↑	↑	↑	↑
Lithuania	↑	↑	↑	↑	↑	↑	↑	↑	≈	↑	↑
Latvia	↑	↑	↑	↑	↓	≈	↑	↑	↑	↑	↑
Malta	≈	≈	≈	≈	—	—	↑	≈	≈	↓	≈
Poland	↑	↑	↓	≈	↓	↑	↑	↓	↑	↑	↑
Romania	↑	↑	↓	↓	≈	↓	↓	↓	↑	↑	↑
Slovenia	↑	↑	↓	—	≈	≈	↑	↑	↑	↓	≈
Slovakia	↑	↑	≈	↓	↓	≈	≈	↓	↑	↑	↑
Turkey	—	↓	↓	≈	↑	↓	—	↓	—	↓	↓