IMPLEMENTATION OF THE STRATEGY EUROPE 2020 BY THE MULTI–OBJECTIVE EVALUATION METHOD MULTIMOORA

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Alvydas Baležentis, Tomas Baležentis, Willem K. M. Brauers

Introduction

After more than 50 years of ongoing integration, the European Union still faces many challenges [42]. The need of strategic reforms of social, economic, employment, education and environmental policies is therefore actual both at European and national levels. These reforms should lead to creation of a competitive knowledge society [38], [39], [40]. The Lisbon Strategy [29] was adopted in 2000 and focused on turning the European Union (EU) into "the most competitive and dynamic knowledge-based economy in the world" by 2010. At that time, the open method of co-ordination (OMC) was developed as a tool for institutionalization of systematic learning processes between the Member States of the EU [33]. However, European Employment Strategy [31], launched in 1997, gave the initial momentum for development of the OMC. Many studies were dedicated for the analysis of the practice of OMC [1], [2], [7], [25], [33], [44], [45], [46], [47], [48], [49]. This article suggests a new procedure for implementation of the mutual learning process – one of the key elements of the OMC. Baležentis et al. [6] performed analysis of implementation of the Lisbon Strategy in the EU Member States. That study relies on the indicator system covering structural indicators.

Today it is obvious that many goals of the Lisbon Strategy for 2010 were not met. Therefore the new strategy Europe 2020 was initiated in 2010 [26]. The new strategy aims to the creation of a growing and sustainable European economy. Furthermore, greater policy coordination between national governments and the EU is an additional focal point of the strategy Europe 2020. The OMC can thus be applied in this field as an instrument of governance.

The main aim of this article is to develop the OMC practice by offering new procedures for mutual learning coordination between EU Member States, encompassing 1) a system of structural indicators, 2) application of multi-objective evaluation methods, 3) determination of the direction of mutual learning. Hence, the following tasks were raised: 1) to describe the open method of co-ordination as well as Lisbon Strategy and strategy Europe 2020; 2) to transform goals of the strategy Europe 2020 into a system of structural indicators; and 3) to apply the multi-objective evaluation method MULTIMOORA. The analysis of this article is based on data from EUROSTAT covering the period 2005–2008. The article is organized into appropriate sections, describing 1) the raison d'être of the OMC, namely the Lisbon Strategy and strategy Europe 2020; 2) the OMC itself; and 3) application of MULTIMOORA with results of the analysis.

1. Fostering competitiveness of the European Union: the Lisbon Strategy and strategy Europe 2020

The most recent European Union strategies for improvement of competitiveness are overviewed in this section. The Lisbon Strategy covers period of 2000–2010, while the new strategy Europe 2020 – that of 2010–2020.

The Lisbon Strategy was adopted at the Spring European Council in Lisbon, March 23-24, 2000 [29]. The main objective of the strategy was defined as turning the European Union into *the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion* [20], [50].

Targets of the Lisbon Strategy are identified by either performance or policy indicators. Performance indicators refer to economic outputs while policy indicators are results of governmental decisions. Initially there were three main objectives defined, namely 1) creation of competitive, dynamic and knowledge-based economy; 2) modernization of a European Social model; and 3) paying sufficient attention to environmental issues by applying appropriate policy-mix [19].

The open method of co-ordination was defined as an instrument of the Lisbon Strategy's imple-

mentation [33], [49]. This method encompasses 1) joint identification and definition of objectives to be achieved (adopted by the European Council); 2) joint introduction of measuring instruments (statistics, indicators, guidelines); and 3) international comparison of the Member States' performance (monitored by the European Commission). In addition, the practice of structural indicators application was developed. Currently, there are 79 structural indicators describing efforts of Member States in achieving Lisbon goals. They are classified into six groups: 1) general economic background; 2) employment; 3) innovation and research; 4) economic reform; 5) social cohesion; 6) environment. It is possible therefore to analyze integration and convergence processes in various approaches.

However, it soon became clear that the Lisbon Strategy had been struggling and high level group chaired by Wim Kok affirmed that the strategy needs to be reviewed [21]. Therefore the Brussels European Council updated the strategy in 2005, henceforth called the Lisbon Strategy for Growth and Jobs [27]. A new instrument, namely the National Reform Programme, enabling the Member States to set their short-term objectives was introduced.

The renewed Lisbon Strategy had two headline targets to be reached by 2010: overall employment rate as close as possible to 70 % and R&D spending to reach 3 per cent of GDP (both are policy targets). The following additional goals can be outlined [19]:

1. Investing in people and modernising labour markets. This target is identified by such indicators as employment rate *(improvements in the employment rates of women (59.1 per cent in the EU-27 in 2008 with a target of 60 per cent in 2010) and of older workers (44.7 per cent in the EU-27 in 2007 with a target of 50 per cent of 55–64 years olds by 2010) have contributed most to raising the employment rate* [30]), available childcare (90 per cent availability for pre-school children), rates of participation

Tab. 1: Headline targets of the strategy Europe 2020 and appropriate structural indicators

Headline targets	No.	Structural indicators (dimensions)
Raising the employment rate for women and men aged 20–64 to 75 %	1.	Employment rate by gender, age group 20-64 (per cent)
Raising combined public and private investment levels in research and development to 3 % of GDP	2.	Gross domestic expenditure on R&D-GERD (per cent of GDP)
The "20/20/20" climate/energy targets should be met (including an increase to 30 % of emissions)	3.	Greenhouse gas emissions (index)
	4.	Share of renewables in gross inland energy consumption (per cent)
	5.	Energy intensity of the economy (kg OE per 1000 EUR)
The share of early school leavers should be under 10 % and at least 40 % of the younger generation should have a tertiary degree	6.	Early leavers from education and training (per cent)
	7.	Tertiary educational attainment by gender, age group 30-34 (per cent)
Promotion of social inclusion, in particular through the reduction of poverty, with aim to lift at least 20 million people out of the risk of poverty and exclusion	8.	Population at risk of poverty or exclusion (ratio)
	9.	People living in households with very low work intensity (per cent)
	10.	At risk of poverty after social transfers (ratio)
	11.	Severe material deprivation (per cent)

Source [28]

in education processes (at least 85 per cent of 22 year olds should have completed upper secondary or a higher level of education).
2. Unlocking business potential, especially for SMEs. The target is quantifiable through policy indicators reflecting legal reductions, e. g. time required for setting up business.
3. Investing in knowledge and innovation. R&D expenditure by businesses (to amount to 67 % of total R&D) and high-speed internet penetration rate (100 per cent availability in schools) are peculiar to this goal.
4. Energy and climate change. Policy indicators for this goal includes reduction of greenhouse gas emissions (by 20 per cent), share of the renewable energy (20 per cent), increase of energy efficiency thus saving up to 20 per cent in the energy consumption, share of biofuels in overall petrol and diesel consumption (to be increased up to 10 per cent). The first three targets are so–called "20/20/20" targets.

The last improvement of the Lisbon Strategy was accomplished by adopting Community Lisbon Programme 2008–2010 [22] together with Integrated Guidelines for Growth and Jobs 2008–2010 [23]. The need for improving abilities to use globalization benefits was stressed while keeping the strategy organized into economic, social and environmental sections.

The ongoing economic crisis raised new challenges for the European Union; therefore, a new strategy ***Europe 2020*** was proposed by the European Commission [26] and adopted in the European Council [28]. It was stated, that strategy will help *Europe recover from the crisis and come out stronger, both internally and at the international level, by boosting competitiveness, productivity, growth potential, social cohesion and economic convergence* [28]. The five EU headline targets for strategy Europe 2020 are summarized in Tab. 1.

The Council of the European Union [24] adopted six broad economic guidelines describing main characteristics EU and national development policies should include. The guidelines stress the importance of smart, sustainable and inclusive growth. *Smart growth* means growth driven by knowledge and innovation fostered by reforms aimed at improving the quality of education, strengthening research and entrepreneurship throughout the Europe. *Sustainable growth* means decoupling economic growth from the use of resources, building an energy and resource-efficient, sustainable and competitive economy. *Inclusive growth* means building a cohesive society in which people are empowered to anticipate and manage change, thus to actively participate in society and the economy. Member States' reforms should therefore ensure access and opportunities for all throughout the lifecycle, thus reducing poverty and social exclusion. Hence the Member States should prepare and implement their National Reform programmes based on the following broad guidelines:

1. Ensuring the quality and the sustainability of public finances;
2. Addressing macroeconomic imbalances;
3. Reducing imbalances within the euro area;
4. Optimising support for R&D and innovation, strengthening the knowledge triangle and unleashing the potential of the digital economy;
5. Improving resource efficiency and reducing greenhouse gases;
6. Improving the business and consumer environment, and modernising and developing the industrial base in order to ensure the full functioning of the internal market.

Some authors [30], [37] argue that the Lisbon Strategy faced failure mainly because of supply-side and market-liberal orientation. The growing need for more sustainable approach in the new strategy therefore should be outlined. In addition new indicators covering social, economic, environmental and institutional dimensions of sustainable development [17], [18] should be developed.

The system of indicators was formed according to Table 1. Two indicators, namely population at-risk-of-poverty or exclusion and at risk of poverty after social transfers, were presented in absolute values (thousands of inhabitants) therefore they were translated into relative ones by dividing them from total population in certain Member State. Since the data covers period of 2005–2008, it will be possible to evaluate not only relative positions at the beginnings of the strategy Europe 2020, but also the progress Member States made without special programmes oriented towards aims of the latter strategy. However, limited data availability

from the recent period currently prevents from expanding the investigation period.

The indicators are mostly socio-economic oriented with only partly stressing sustainability. For the last point for instance many pollutants are not included. The indicators are not an indication of general well-being either, as many indicators such as on justice, health, security and in general on all forms of happiness are not included. The same for sustainability if sustainability is defined as well-being also for the later generations.

2 The main peculiarities of the Open Method of Co-ordination

The conclusions of the Lisbon European Council [29] introduced the term "open method of co-ordination". The method was a conceptually new tool for EU governance. The open method of co-ordination (OMC) is based on iterative benchmarking of national progress in seeking common EU objectives and mutual learning [2]. The following general elements of the OMC are commonly outlined [47]:

- a dedicated committee representing the Member States and assisted by the European institutions;
- guidelines and objectives adopted by the Council or the Commission of the EU;
- translation of the latter general EU goals into specific national ones;
- EU-level indicators and benchmarking system dedicated to measurement and comparison of progress as well as identification of the best practices;
- regular monitoring and joint evaluation ensuring mutual learning.

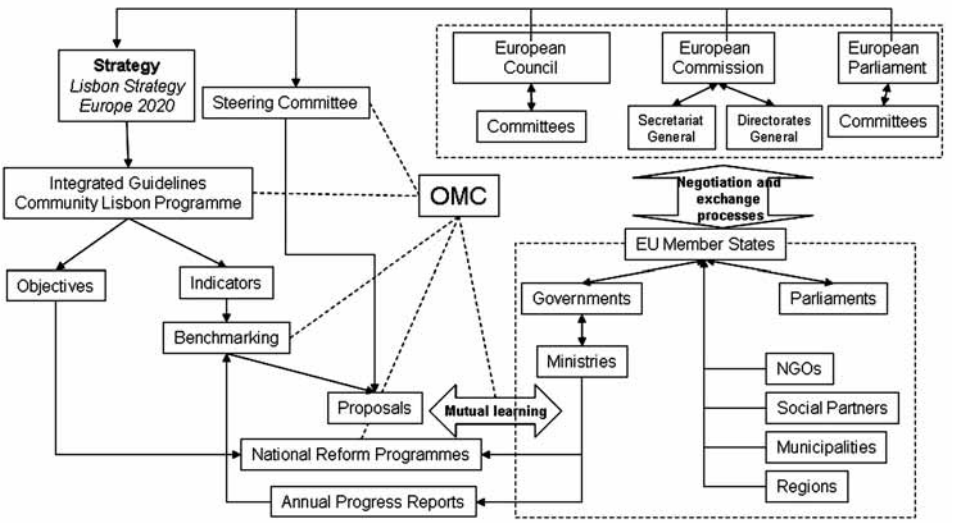
European Employment Strategy (EES), launched in 1997, gave the momentum for development of the OMC. Nevertheless, the term "OMC" was not used at that time. This instrument is an example of so called "soft" coordination since it encompasses no binding prescriptions for national policies. However, the OMC includes reporting of the Member States at the EU level [47]. Economic recession in early 1990s as well as failures in ratification of the Maastricht Treaty highlighted the need for reengineering the European project. While common broad objectives were agreed upon at the Lisbon Summit, the absence of consensus about more detailed priorities led to creation of the OMC. The method thus allowed stakeholders to agree on a working method at EU-level while keeping different views towards national policies. Nakrošis and Vilpišauskas [41] described pattern of the EU management methods where the OMC is attributed with high level of autonomy as well as low level of binding obligations.

Tholoniat [47] describes three stages in development of the OMC: 1) experimental; 2) streamlining; and 3) maturity. The experimental phase continued up to year 2003 and was peculiar with proposals for new operational procedures, more detailed specifications of common priorities in a range of policy fields. Such initiatives emerged from and involved actors from different levels, namely certain Directorates General, national ministries, businesses and NGOs. Informal initiatives contributed to the clarification of concepts, identification of common goals and laying ground for the EU action. These actions therefore resulted in new statistical knowledge, Committees and decision-making procedures, as well as financial support for research and mutual learning. Hence many new actors were involved in OMC processes thus forming new "epistemic communities". The streamlining phase began in 2003 when more political and academic attention was paid for OMC processes. During this phase, more focus had been on central administration rather than national and subnational stakeholders. Moreover, the bureaucratic burden had been increased thus raising the need for clarification of the policy priorities and simplification of processes. Consequently, the Lisbon Strategy was revised and several OMCs terminated between 2003 and 2006. The period of maturity has begun since with relative stability and institutionalization of OMC processes, which successfully survived the previous phases.

Heidenreich and Bischoff [33] prepared a study focused on institutionalization aspect of the OMC. Since its beginnings, the EU has been aimed at achieving economic and social convergence among its members. However, the European social security system currently is nothing but a multi-level system of national redistributive policies and supranational regulations [33]. These authors proposed an analytical framework for analysis of institutionalization processes of the OMC both at EU and national levels.

As it was mentioned before, the OMC is described as a process of joint review and comparison of

Fig. 1: Relationships between stakeholders and processes of the open method of co-ordination



Source: designed by the authors.

progress in seeking for commonly agreed objectives. This comparison should result in exchange of experience as well as reciprocal learning and thus creation of a supranational level for consulting, definition and monitoring of national reform policies [33]. Being one of the most advanced forms of the OMC, the EES embodies common guidelines and objectives, indicators, National Action Plans (National Reform Programmes – NRP, since 2005), joint evaluation of the results, exchange of the best practice and iteration of this cycle as its core components. Some authors [44], [34] hence derive the following main characteristics of the OMC: 1) new and more limited role of law; 2) a new approach to problem-solving; 3) enhanced participation of government and civil society by different levels; 4) new ways of knowledge production and policy learning; 5) preferable substitution principle sometimes of a lower order; 6) flexibility; and 7) multi-level integration in policy making.

As Heidenreich and Bischoff [33] concluded, the OMC has increased the level of participation of various stakeholders, especially those of sub-national level. Among actors from different levels of national government systems, NGOs were given an opportunity to get involved into decision making through the OMC. However, some authors raised the problem of lack of coordination at national as well as EU level [44]. At the EU level, such coordination is performed by bureaucratic, professionalized, not democratically legitimized and politically barely controllable committees [33]. The Employment Committee, the Social Protection Committee and the Economic and Financial Committee can be enumerated as examples. These committees usually agree upon common objectives, guidelines, monitoring practice and propose further recommendations. Since members of these committees represent each Member State, the OMC involves sub-national, national and supranational stakeholders in the processes of decision making thus creating epistemic communities in specific sectors.

The question of soft law efficiency is however the one of high importance. The commonly agreed objectives of the OMC are not binding obligations. Therefore the implementation of the guidelines becomes voluntary process at the national level. Consequently the need for tighter enforceability of the OMC objectives arises. On the other side, however, the absence of legal sanctions can be considered as a prerequisite for creative mutual learning and development of new procedures. To conclude, the boundary points representing sanctions and learning as well as participation and bureaucratic coordination define implementation area where the OMC has to be placed by combining these diametrically opposite attributes.

The OMC institutionalization processes occur in newly established social fields covering both EU and national level policies and stakeholders [33]. These fields encompass specific actors, organizations, issues, interests and rules. Hence, the Commission as well as its officials, the European Council with its committees, the European Parliament and national parliaments, national ministries, different NGOs, social partners, municipalities and regions are involved into the OMC processes. Furthermore, these institutionalization processes can be analyzed in three dimensions, namely strategic, normative and cognitive. The normative dimension is represented by multiplicity of various targeting, monitoring and evaluation practices. The strategic dimension embodies the institutionalization of regulatory structures resulting in many negotiation and exchange processes experienced between various actors, e. g. those between the Council and the Commission. The cognitive dimension is peculiar with creation of steering committees and repetition of coordination procedures resulting in mutual learning. The pattern of relationships in the social field of the OMC is presented in the Fig. 1.

Concluding all the above, the OMC is a powerful instrument of the soft law and thus offers the following advantages. Since the OMC embodies flexibility in seeking EU-wide goals, sovereignty losses are minimized and political resistance overcome (i. e. discrepancies between national and EU agreements can be mitigated). Furthermore, blame for unpopular decisions contributing to EU-level goals can be transferred from local actors to the EU. Symbolic politics, namely actions against social exclusion, poverty and sluggish growth, may also be implemented at the EU level. Finally, the Member States can control their own policies without delegating powers to supranational bodies thus avoiding loss of control.

3 Assessment of the EU Member States' performance according to MULTIMOORA and the dominance theory

3.1 Ranking according to MULTIMOORA

This section contains an overview of the development of the MULTIMOORA method, presentation of calculus and empirical analysis of the EU Member States' efforts in seeking strategy's Europe 2020 goals.

Multi-Objective Optimization by Ratio Analysis (MOORA) method was introduced by Brauers and Zavadskas [13] on the basis of previous researches [8]. This method was extended [15] and therefore became a more robust method, namely MULTIMOORA (MOORA plus the full multiplicative form). These methods have been applied in numerous studies [6], [9], [10], [11], [12], [14], [16] focused on regional studies, international comparisons and investment management.

The MOORA method was proposed by Brauers and Zavadskas (2006). MOORA method begins with matrix X where its elements x_{ij} denote i-th alternative of j-th objective (i=1, 2, ..., m and j=1, 2,..., n). In this case we have n = 11 objectives – indicators – and m = 27 alternatives – European Union Member States. MOORA method consists of two parts: the ratio system and the reference point approach.

The Ratio System of MOORA. Ratio system defines data normalization by comparing alternative of an objective to all values of the objective:

$$x_{ij}^{*} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^{2}}}, \qquad (1)$$

where x_{ij}^{*} denotes i-th alternative of j-th objective (in this case – j-th structural indicator of i-th state). Usually these numbers belong to the interval [–1; 1]. These indicators are added (if desirable value of indicator is maxima) or subtracted (if desirable value is minima) and summary index of state is derived in this way:

$$y_{i}^{*} = \sum_{j=1}^{g} x_{ij}^{*} - \sum_{j=g+1}^{n} x_{ij}^{*}, \qquad (2)$$

where g = 1,..., n denotes number of objectives to be maximized. Then every ratio is given the rank: the higher the index, the higher the rank.

The Reference Point of MOORA. Reference point approach is based on the ratio system. The Maximal Objective Reference Point (vector) is found according to ratios found in formula (1). The j-th coordinate of the reference point can be described as $r_j = \max_i x_{ij}^{*}$ in case of maximization. Every coordinate of this vector represents maxima or minima of certain objective (structural indi-

cator). Then every element of normalized responses matrix is recalculated and final rank is given according to deviation from the reference point and the Min-Max Metric of Tchebycheff:

$$\min_i \left(\max_j \left| r_j - x_{ij}^* \right| \right). \quad (3)$$

The Full Multiplicative Form and MULTIMOORA. Brauers and Zavadskas (2010, pp. 13-14) proposed MOORA to be updated by the Full Multiplicative Form method embodying maximization as well as minimization of purely multiplicative utility function. Overall utility of the i-th alternative can be expressed as dimensionless number:

$$U_i^* = \frac{A_i}{B_i}, \quad (4)$$

where $A_i = \prod_{j=1}^{g} x_{ij}$, $i=1, 2, ..., m$ denotes the product of objectives of the i-th alternative to be maximized with $g=1,...,n$ being the number of objectives (structural indicators) to be maximized and where $B_i = \prod_{j=g+1}^{n} x_{ij}$ denotes the product of objectives of the i–th alternative to be minimized with n - g being the number of objectives (indicators) to be minimized. Thus MULTIMOORA summarizes MOORA (i. e. Ratio System and Reference point) and the Full Multiplicative Form. Ameliorated Nominal Group and Delphi techniques can also be used to reduce remaining subjectivity [15].

EUROSTAT provided the data for the system of indicators which identify objectives of the strategy Europe 2020. This indicator database covering the period 2005–2008 is presented in Table 5 (Annex A). Due to limited data availability some values for 2005 were interpolated for Bulgaria and Romania. The data therefore cover 27 Member States, 2 years and 11 structural indicators, 594 observations in total.

The initial data were translated in dimensionless ratios according to formula (1) and (2) of the Ratio System of MOORA. Formula (3) used the ratios obtained in formula (1) to calculate the distances to the Reference Point of MOORA. Finally, the Full Multiplicative Form used the initial data to rank the Member States according formula (4) (see Table 5, Annex A; N. B. intermediary calculations are available from the authors upon request). The described procedure was repeated two times for the years 2005 and 2008.

If we would use for MULTIMOORA the total of the ranks of the ratio system, the reference point and the multiplicative form at that moment we would work ordinal and arrive in the rank correlation method [35]. The most robust multi-objective method has to satisfy the following condition: the method of multiple objectives based on cardinal numbers is more robust than this one based on ordinal numbers. "An ordinal number is one that indicates order or position in a series, like first, second, etc." [36]. Robustness of cardinal numbers is based first on the saying of Arrow (1974): "Obviously, a cardinal utility implies an ordinal preference but not vice versa" [3] and second on the fact that the four essential operations of arithmetic: adding, subtracting, multiplication and division are only reserved for cardinal numbers [9].

3.2 Application of the dominance theory

3.2.1 Axioms on Ordinal and Cardinal Scales

1. *A deduction of an Ordinal Scale, a ranking, from cardinal data is always possible* [3].
2. *An Ordinal Scale can never produce a series of cardinal numbers* [3].
3. *An Ordinal Scale of a certain kind, a ranking, can be translated in an ordinal scale of another kind.*

In application of Axiom 3 Brauers and Zavadskas (2011) translated the ordinal scale of the three methods of MULTIMOORA in another one based on *Dominance, being Dominated, Transitivity and Equability.*

3.2.2 Dominance, being Dominated, Transitiveness and Equability

The three methods of MULTIMOORA are assumed to have the same importance. Stakeholders or their representatives like experts may have a different importance in ranking but this is not the case with the three methods of MULTIMOORA. These three methods represent all existing methods with dimensionless measures in multi-objective optimization and consequently all the three have the same important significance.

Dominance. Absolute Dominance means that an alternative, solution or project is dominating

in ranking all other alternatives, solutions or projects which are all being dominated. This absolute dominance shows as rankings for MULTIMOORA: (1–1–1). *General Dominance in two of the three methods* is of the form with a < b < < c < d:

(d–a–a) is generally dominating (c–b–b);
(a–d–a) is generally dominating (b–c–b);
(a–a–d) is generally dominating (b–b–c);
and further transitiveness plays fully.

Transitiveness. If *a* dominates *b* and *b* dominates *c* than also *a* will dominate *c*.

Tab. 2: Ranking of the 27 Member States of the EU after MULTIMOORA objectives of Table 1 (2005–2008)

Rank (2005)	Member State	MULTIMOORA (2005)[a]	Rank (2008)[b]	MULTIMOORA (2008)[a]	Change in ranks
Core states					
1	Sweden	1–1–1	1	1–1–1	0
2	Finland	2–2–3	2	2–2–3	0
3	Denmark	3–4–2	3	3–4–2	0
4	Austria	4–3–4	4	4–3–5	0
5	Slovenia	7–5–5	6	9–5–7	–1
6	France	5–12–6	8	7–11–9	–2
7	Germany	6–15–8	7	8–9–8	0
8	Netherlands	9–20–7	9	6–19–6	–1
9	Luxembourg	8–25–9	5	5–22–4	4
Semi–peripheral states					
10	Estonia	15–6–14	10	12–6–10	0
11	Latvia	13–7–18	14	13–10–15	–3
12	Spain	16–13–10	12	19–12–12	0
13	Belgium	10–21–13	13	10–20–13	0
14	United Kingdom	11–24–11	17	16–24–17	–3
15	Czech Republic	12–19–15	11	11–18–11	4
16	Ireland	14–22–12	15	14–21–14	1
17	Italy	17–11–16	20	21–13–20	–3
18	Lithuania	20–8–19	16	15–8–16	2
Peripheral states					
19	Portugal	22–9–17	18	20–7–18	1
20	Greece	18–14–20	22	22–17–22	–2
21	Cyprus	19–23–21	21	18–23–21	0
22	Hungary	21–17–22	24	24–15–24	–2
23	Slovakia	23–18–23	19	17–14–19	4
24	Poland	25–16–24	23	23–16–23	1
25	Romania	26–10–25	26	26–27–25	–1
26	Malta	24–26–26	25	25–25–27	1
27	Bulgaria	27–27–27	27	27–26–26	0

a – each three figures corresponds respectively to the Ratio System, Reference Point and Full Multiplicative Form;
b – underlined classifications show a change in ranking from 2005 to 2008.

Source: Own computation

Overall Dominance of one alternative on the next one. For instance (a–a–a) is overall dominating (b–b–b) which is overall being dominated, with (b–b–b) following immediately (a–a–a) in rank (transitiveness is not playing).

Equability. *Absolute Equability* has the form: for instance (e–e–e) for 2 alternatives. *Partial Equability* of 2 on 3 exists e. g. (5–e–7) and (6–e–3).

Circular Reasoning. Despite all distinctions in classification some contradictions remain possible in a kind of *Circular Reasoning*. We can cite the case of:

Object A (11–20–14) > Object B. (14–16–15);
Object B (14–16–15) > Object C (15–19–12); but
Object C (15–19–12) > Object A (11–20–14).

Here, the operator > represents a General Dominance. In such a case the same ranking is given to the three objects.

By applying the Dominance Theory on the ranking of the EU Member States Table 2 represents the results.

According to the definition of absolute dominance, Sweden absolutely dominated all the states. Finland which generally dominated Denmark and as Denmark generally dominated next country namely Austria it will by transitiveness ipso facto have dominated all the other states. Neither cases of equability nor of a circular reasoning were found. Certain cases of Overall Dominance of one alternative on the next one have been observed (see Table 3).

The MULTIMOORA method provided ranks for the EU Member States thus enabling to evaluate their relative performance in seeking common goals. Here we divide 27 Member States into three groups, namely the Core, Semi-periphery, and Periphery, resembling their relative achievements in 2005 and 2008.

Comparison of the final ranks in 2005 and 2008 provides us with some additional information. As we can see from the data in the last column of Table 2, the changes in ranks varied from descent by four places to ascent by the same four places.

In 2005 all countries except Romania and Bulgaria were EU members. The last ones joined in January 2007, whereas Poland, Lithuania, Latvia, Estonia, Slovenia, Slovakia, the Czech Republic, Hungary, Cyprus and Malta (the Group of Ten) were the last to join before 2005. One of these countries, namely Slovenia, succeeded to penetrate in the Core group.

The year 2008 was in the middle of the serious recession in the High-Income Countries from the end of 2007 until 2009 included. The definition of this period is the conclusion of the symposium Macroeconomics after the Financial Crisis 2010 with articles from Hall (2010), Ohanian (2010), and Auerbach et al. (2010), also Baldwin (2010) discussed this issue in-depth [4], [5], [32], [43]. After the figures from Table 2 relatively speaking Luxemburg, the Czech Republic, Ireland, Lithuania, Portugal, Slovakia, Poland and Malta were better off than the other Member States. On the contrary, Slovenia, France, the Netherlands, Latvia, United Kingdom, Italy, Greece, Hungary and Romania were worse off than the others ones.

The findings mostly rely on the fact that the applied system of indicators is limited compared to this one a well-being and sustainable development society needs. In addition further studies with application of significance coefficients for

Tab. 3: The cases of overall dominance on the next country

Overall dominance	Overall dominated	Overall dominance	Overall dominated
Year 2005		Year 2008	
Sweden (1–1–1)	Finland (2–2–3)	Sweden (1–1–1)	Finland (2–2–3)
Austria (4–3–4)	Slovenia (7–5–5)	Austria (4–3–5)	Slovenia (9–5–7)
France (5–12–6)	Germany (6–15–8)	Hungary (24–15–24)	Malta (25–25–27)
Greece (18–14–20)	Cyprus (19–23–21)		
Hungary (21–17–22)	Slovakia (23–18–23)		
Malta (24–26–26)	Bulgaria (27–27–27)		

Source: Own computation

objectives are important. Furthermore, new data from after the depression period 2007–2009 will be more effective for the strategy Europe 2020.

Conclusion

The Lisbon Strategy was initiated in 2000 aimed at turning the European Union into the most competitive and dynamic knowledge-based economy in the world by 2010. Being based on rather wishful thinking and on the unexpected 2007-2009 severe depression this target was a serious mistake. Therefore a new project was launched under the name of Europe 2020.

In this article the Multi-Objective evaluation method, MULTIMOORA, was applied when analyzing a system of structural indicators, covering headline targets of the strategy Europe 2020. The data used cover the years 2005 and 2008, enabling to identify the progress of the EU Member States before adoption of the strategy Europe 2020. According to ranks given by MULTIMOORA, the Member States were classified into three groups: high performance Core States, medium performance Semi-Peripheral States and low performance Peripheral States. The analysis shows that there is still a big difference in economic and social performance of the Member States.

Nevertheless in order to take away the influence of the 2007–2009 recession more recent data are needed. In addition further studies with application of significance coefficients for the objectives are important. Furthermore besides this socio-economic modelling a more general model with the leading structural indicators of general well-being and sustainable development are needed.

References

[1] ARMSTRONG, K. The Open Method of Coordination – Governance after Lisbon. *Journal of Contemporary European Research*. 2006, Vol. 2, Iss. 1, pp. 1-104. ISSN 1815-347X.

[2] ARMSTRONG, K., BEGG, I., ZEITLIN, J. The Open Method of Coordination and the Governance of the Lisbon Strategy. *Journal of Common Market Studies.* 2008, Vol. 46, Iss. 2, pp. 436-450. ISSN 0021-9886.

[3] ARROW, K. J. General Economic Equilibrium: Purpose, Analytic Techniques, Collective Choice. *American Economic Review*. 1974, Vol. 64, Iss. 3, pp. 253-272. ISSN 0002-8282.

[4] AUERBACH, A. J., GALE, W. G., HARRIS, B. H. Activist fiscal policy. *Journal of Economic Perspectives*. 2010, Vol. 24, Iss. 4, pp. 141-164. ISSN 0895-3309.

[5] BALDWIN, R. *The Great Trade Collapse: Causes, Consequences and Prospects*. [online]. Geneva: The Graduate Institute, 2009. [cit. 2010-31-7] Available from: <http://www.voxeu.org/index.php?q=node/4297>.

[6] BALEŽENTIS, A., BALEŽENTIS, T., VALKAUSKAS, R. Evaluating Situation of Lithuania in the European Union: Structural Indicators and MULTIMOORA method. *Technological and Economic Development of Economy*. 2010, Vol. 16, Iss. 4, pp. 578-602. ISSN 2029-4913.

[7] BORRAS, S., JAKOBSSON, K. The Open Method of Coordination and New Governance Patterns in the EU. *Journal of European Public Policy*. 2004, Vol. 11, Iss. 2, pp. 185-208. ISSN 1350-1763.

[8] BRAUERS, W. K. *Optimization Methods for a Stakeholder Society, a Revolution in Economic Thinking by Multi-Objective Optimization*. Boston: Kluwer Academic Publishers, 2004. ISBN 1-4020-7681-9.

[9] BRAUERS, W. K. M., GINEVIČIUS, R. Robustness in Regional Development Studies. The Case of Lithuania. *Journal of Business Economics and Management.* 2009, Vol. 10, Iss. 2, pp. 121-140. ISSN 1611-1699.

[10] BRAUERS, W. K. M., GINEVIČIUS, R. The economy of the Belgian regions tested with MULTIMOORA. *Journal of Business Economics and Management.* 2010, Vol. 11, Iss. 2, pp. 173-209. ISSN 1611-1699.

[11] BRAUERS, W. K. M., GINEVIČIUS, R., PODVEZKO, V. Regional development in Lithuania considering multiple objectives by the MOORA method. *Technological and Economic Development of Economy*. 2010, Vol. 16, Iss. 4, pp. 613-640. ISSN 2029-4913.

[12] BRAUERS, W. K. M., GINEVIČIUS, R., ZAVADSKAS E. K., ANTUCHEVIČIENĖ J. The European Union in a transition economy. *Transformations in Business and Economics.* 2007, Vol. 6, Iss. 2, pp. 21-37. ISSN 1648-4460.

[13] BRAUERS, W. K. M., ZAVADSKAS, E. K. The MOORA method and its application to privatization in a transition economy. *Control and Cybernetics*. 2006, Vol. 35, Iss. 2, pp. 445-469. ISSN 0324-8569.

[14] BRAUERS, W. K., ZAVADSKAS, E. K. Robustness of the multi–objective MOORA method

with a test for the facilities sector. *Technological and Economic Development of Economy*. 2009, Vol. 15, Iss. 2, pp. 352-375. ISSN 2029-4913.

[15] BRAUERS, W. K. M. and ZAVADSKAS, E. K. Project management by MULTIMOORA as an instrument for transition economies. *Technological and Economic Development of Economy*. 2010, Vol. 16, Iss. 1, pp. 5-24. ISSN 2029-4913.

[16] BRAUERS, W. K. M., ZAVADSKAS, E. K. MULTIMOORA Optimization decides on Bank Loan to buy Property. *Technological and Economic Development of Economy*. 2011, Vol. 17, Iss. 1, pp. 174-188. ISSN 2029-4913.

[17] CIEGIS, R., RAMANAUSKIENE, J., MARTINKUS, B. Concept of Sustainable Development and its Use for Sustainability Scenarios. *Inzinerine Ekonomika – Engineering Economics*. 2009, Iss. 2, pp. 28-37. ISSN 1392-2785.

[18] CIEGIS, R., RAMANAUSKIENE, J. and STARTIENE, G. Theoretical Reasoning of the Use of Indicators for Sustainable Development Assessment. *Inzinerine Ekonomika – Engineering Economics*. 2009, Iss. 3, pp. 33-40. ISSN 1392-2785.

[19] CODOGNO, L., ODINET, G., PADRINI, F. The Use of Targets in the Lisbon Strategy. *Rivista di Politica Economica*. 2009, Vol. 99, Iss. 1-3, pp. 3-21. ISSN 0035-6468.

[20] COLLIGNON, S. *Forward with Europe: a democratic and progressive reform agenda after the Lisbon strategy.* International Policy Analysis. April. Bonn: Friedrich Ebert Stiftung, 2008. 10 p. ISBN 978-3-89892-883-0.

[21] COMMISSION OF THE EUROPEAN COMMUNITIES. *Facing the Challenge: The Lisbon Strategy for Growth and Employment. Report from the High Level Group chaired by Wim Kok*. Luxembourg: Office for Official Publications of the European Union, 2004.

[22] COMMISSION OF THE EUROPEAN COMMUNITIES. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Proposal for a Community Lisbon Programme 2008–2010*. Brussels, 11.12.2007, COM(2007) 804 final.

[23] COMMISSION OF THE EUROPEAN COMMUNITIES. *Communication from the Commission to the Spring European. Integrated Guidelines for Growth and Jobs (2008–2010).* Brussels, 11.12.2007, COM(2007) 803 final.

[24] COUNCIL OF THE EUROPEAN UNION. *Recommendation for a Council Recommendation on broad guidelines for the economic policies of the Member States and of the Union.* Brussels, 7 July 2010, 11646/10.

[25] DE LA ROSA, S. The Open Method of Coordination in the New Member States – The Perspectives for its Use as a Tool of Soft Law. *European Law Journal.* 2005, Vol. 11, Iss. 5, pp. 618-640. ISSN 1468-0386.

[26] EUROPEAN COMMISSION. *Communication from the Commission: Europe 2020. A Strategy for smart, sustainable and inclusive growth.* 3.3.2010, COM(2010) 2020.

[27] EUROPEAN COMMISSION. *Working Together for Growth and Jobs: A New Start for the Lisbon Strategy*. 2 February 2005, COM(2005)24.

[28] EUROPEAN COUNCIL. *European Council 17 June 2010 Conclusions.* EUCO 13/10, CO EUR 9, CONCL 2, 2010.

[29] EUROPEAN COUNCIL. *Presidency Conclusions.* Lisbon, 23 and 24 March, SN 100/00, 2000.

[30] FISCHER, S., GRAN, S., HACKER, B., JAKOBI, A. P., PETZOLD, S., PUSCH, T. and STEINBERG, P. *„Europe 2020" – Proposals for the Post–Lisbon Strategy* [online]. Friedrich Ebert Stiftung, 2010 [cit. 01-04-2010]. Available from: <http://www.fes.de/ipa>. ISBN 978-3-86872-325-0.

[31] GOETSCHY, J. The European Employment Strategy: Genesis and Development. European *Journal of Industrial Relations*. 1999, Vol. 5, Iss. 2, pp. 117-137. ISSN 0959-6801.

[32] HALL, R. E. Why does an economy fall to pieces after a financial crisis? *Journal of Economic Perspectives*. 2010, Vol. 24, Iss. 4, pp. 3-20. ISSN 0895-3309.

[33] HEIDENREICH, M., BISCHOFF, G. The Open Method of Co–ordination: A Way to the Europeanization of Social and Employment Policies? *Journal of Common Market Studies*. 2008, Vol. 46, Iss. 3, pp. 497-532. ISSN 0021-9886.

[34] JACOBSSON, K. and VIFELL, A. Deliberative Transnationalism? Analyzing the Role of Committee Interaction in Soft Co–ordination. In LINSENMANN, I., MEYER, C. O., WESSELS, W. (ed.). *Economic Government of the EU. A Balance Sheet of New Modes of Policy Co–ordination.* New York: Palgrave Macmillan, 2007. ISBN 978-1-4039-3580-9.

[35] KENDALL, M. G. *Rank Correlation Methods.* London: Griffin, 1948.
[36] KENDALL, M. G., GIBBONS, J. D. *Rank Correlation Methods.* London: Edward Arnold, 1990. ISBN 0195208374.
[37] KĖDAITIENĖ, A. and KĖDAITIS, V. The Lisbon strategy and economic growth. *Ekonomika ir vadyba: aktualijos ir perspektyvos.* 2009, Vol. 2, Iss. 15, pp. 94-103. ISSN 1648-9098.
[38] MELNIKAS, B. Sustainable development and creation of the knowledge economy: the new theoretical approach. *Technological and Economic Development of Economy.* 2010, Vol. 16, Iss. 3, pp. 516-540. ISSN 2029-4913.
[39] MELNIKAS, B. Integration processes in the Baltic region: the new form of regional transformations in the European Union. *Inzinerine Ekonomika – Engineering Economics.* 2008, Vol. 5, Iss. 60, pp. 54-64. ISSN 1392-2785.
[40] MELNIKAS, B. The knowledge based economy in the European Union: innovations, networking and transformation strategies. *Transformations in Business and Economics.* 2008, Vol. 7, Iss. 3, pp. 170-192. ISSN 1648-4460.
[41] NAKROŠIS, V., VILPIŠAUSKAS, R. Kodėl neveiksmingas Europos Sąjungos atvirasis koordinavimo metodas: silpnas iš prigimties ar dėl netinkamo taikymo Lietuvoje? *Politologija.* 2007, Iss. 3, pp. 44-70. ISSN 1392-1681.
[42] NICOLAIDIS, K. The JCMS Annual Review Lecture Sustainable Integration: Towards EU 2.0? *Journal of Common Market Studies.* 2010, Vol. 48, pp. 21-54. ISSN 0021-9886.
[43] OHANIAN, L. E. The economic crisis from a neoclassical perspective. *Journal of Economic Perspectives.* 2010, Vol. 24, Iss. 4, pp. 45-66. ISSN 0895-3309.
[44] RADAELLI, C. *The Open Method of Coordination: A New Governance Architecture for the EU?* Rapport 1/2003. Stockholm: Swedish Institute for European Policy Studies, 2003. ISBN 91-85129-00-3.
[45] DE RUITER, R. EU soft law and the functioning of representative democracy: the use of methods of open co–ordination by Dutch and British parliamentarians. Journal of European Public Policy. 2010, Vol. 17, Iss. 6, pp. 874-890. ISSN 1350-1763.
[46] SCHAEFER, A. A new form of governance? Comparing the open method of co–ordination to multilateral surveillance by the IMF and the OECD. J*ournal of European Public Policy.* 2006, Vol. 13, Iss. 1, pp. 70-88. ISSN 1350-1763.
[47] THOLONIAT, L. The Career of the Open Method of Coordination: Lessons from a 'Soft' EU Instrument. *West European Politics.* 2010, Vol. 33, Iss. 1, pp. 93-117. ISSN 0140-2382.
[48] TRUBEK, D. M., TRUBEK, L. G. Hard and Soft Law in the Construction of Social Europe: the Role of the Open Method of Co–ordination. *European Law Journal.* 2005, Vol. 11, Iss. 3, pp. 343-364. ISSN 1468-0386.
[49] ZEITLIN, J. The Open Method of Coordination and the Governance of the Lisbon Strategy. *Journal of Common Market Studies.* 2008, Vol. 46, Iss. 2, pp. 436-450. ISSN 0021-9886.
[50] ZGAJEWSKI, T. and HAJJAR, K. *The Lisbon Strategy: Which Failure? Whose Failure? And Why?* Egmont Paper. Iss. 6. Brussels: Academia Press, 2005. ISBN 90-382-0767-0.

Alvydas Baležentis (Prof.)
Mykolas Romeris University
Department of Strategic Management
Lithuania
a.balezentis@gmail.com

Tomas Baležentis
Vilnius University
Lithuania
t.balezentis@gmail.com

Willem K. M. Brauers (Prof.)
Vilnius Gediminas Technical University
Lithuania
willem.brauers@ua.ac.be

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Annex A. The initial data and MULTIMOORA method.

Tab. 4: The system of indicators identifying objectives of the strategy Europe 2020 (Part 1)

Indicator	*Employment rate, %*		*Gross domestic expenditure on R&D, % of GDP*		*Greenhouse gas emissions, index (1990=100)*		*Share of renewables in gross inland energy consumption, %*		*Energy intensity of the economy, kg of oil equivalent per 1000 EUR*	
Direction of optimization	max		max		min		max		min	
Period	2005	2009	2005	2008	2005	2008	2005	2007	2005	2008
	1.		**2.**		**3.**		**4.**		**5.**	
Austria	71.7	74.7	2.45	2.67	118.9	110.8	21.1	23.8	153.99	138.06
Belgium	66.5	67.1	1.83	1.92	98.7	92.9	2.4	3.1	224.07	199.82
Bulgaria	61.9	68.8	0.49	0.49	60.3	62.6	5.6	4.7	1129.32	944.16
Cyprus	74.4	75.7	0.4	0.46	182	193.9	1.9	2.4	208.9	213.39
Czech Republic	70.7	70.9	1.41	1.47	74.5	72.5	4	4.7	601.15	525.3
Denmark	78	77.8	2.46	2.72	92.6	92.6	16.4	17.3	106.48	103.13
Estonia	72	69.9	0.93	1.29	47.5	49.6	10.6	10	616.96	570.51
Finland	73	73.5	3.48	3.73	97.3	99.7	23.1	22.6	231.39	217.79
France	69.4	69.6	2.1	2.02	98.8	93.6	6.3	7	176.46	166.74
Germany	69.9	74.8	2.49	2.63	79.4	77.8	5.1	8.3	163.37	151.12
Greece	64.6	65.8	0.59	0.58	128.6	122.8	5.2	5	186.09	169.95
Hungary	62.2	60.5	0.94	1	82	75.1	4.4	5.3	443.92	401.35
Ireland	72.6	66.7	1.25	1.43	125.6	123	2.4	2.9	110.55	106.52
Italy	61.6	61.7	1.09	1.18	110.8	104.7	6.5	6.9	151.41	142.59
Latvia	70.4	67.1	0.56	0.61	42.4	44.4	33	29.7	356.7	308.74
Lithuania	70.6	67.2	0.75	0.8	46.2	48.9	8.8	8.9	478.3	417.54
Luxembourg	69	70.4	1.56	1.62	101.2	95.2	1.6	2.5	179.64	154.61
Malta	57.9	58.8	0.57	0.54	141.7	144.2	0.1	0.1	212.07	194.88
Netherlands	75.1	78.8	1.79	1.63	100.2	97.6	3.4	3.6	184.83	171.58
Poland	58.3	64.9	0.57	0.61	86	87.3	4.8	5.1	432.06	383.54
Portugal	72.3	71.2	0.81	1.51	146.1	132.2	13.2	17.6	204.5	181.53
Romania	63.6	63.5	0.41	0.58	61.8	60.3	12.6	11.9	730.94	614.57
Slovakia	64.5	66.4	0.51	0.47	67.8	66.1	4.3	5.5	680.69	519.68
Slovenia	71.1	71.9	1.44	1.66	109.4	115.2	10.6	10	283.5	257.54
Spain	67.2	63.7	1.12	1.35	152.6	142.3	6	7	195.36	176.44
Sweden	78.1	78.3	3.6	3.75	93.5	88.3	29.6	30.9	168.67	152.08
United Kingdom	75.2	73.9	1.73	1.88	84.8	81.4	1.7	2.1	128.4	113.66

Tab. 4: The system of indicators identifying objectives of the strategy Europe 2020 (Part 2)

Indicator	*Early leavers from education, %*		*Tertiary educational attainment by gender, age group 30–34, %*		*Population at–risk–of–poverty or exclusion, ratio*		*People living in households with very low work intensity, %*		*At risk of poverty after social transfers, ratio*		*Severe material deprivation, %*	
Direction of optimization	min		max		min		min		min		min	
Period	2005	2009	2005	2009	2005	2008	2005	2008	2005	2008	2005	2008
	6.		**7.**		**8.**		**9.**		**10.**		**11.**	
Austria	9.1	8.7	20.5	23.5	0.166	0.185	5.1	6.1	0.122	0.122	3	6.4
Belgium	12.9	11.1	39.1	42	0.227	0.206	12.4	9.3	0.147	0.146	6.5	5.7
Bulgaria	20.4	14.7	24.9	27.9	0.712	0.381	15.63	6.3	0.175	0.214	67.07	31.4
Cyprus	18.2	11.7	40.8	44.7	0.252	0.222	3.7	3.4	0.160	0.162	12.2	8.2
Czech Republic	6.2	5.4	13	17.5	0.195	0.151	7.1	5.7	0.103	0.089	11.8	6.8
Denmark	8.7	10.6	43.1	48.1	0.171	0.164	8	6.6	0.117	0.117	3.1	2
Estonia	13.4	13.9	30.6	35.9	0.258	0.219	7.3	4.4	0.182	0.193	12.4	4.8
Finland	10.3	9.9	43.7	45.9	0.170	0.172	7.8	5.7	0.116	0.134	3.7	3.4
France	12.2	12.3	37.7	43.3	0.177	0.180	6.7	6.8	0.122	0.126	5.3	5.5
Germany	13.5	11.1	26	29.4	0.183	0.202	9	9	0.121	0.151	4.5	5.1
Greece	13.6	14.5	25.3	26.5	0.283	0.273	5.8	5.8	0.189	0.195	12.8	11.2
Hungary	12.5	11.2	17.9	23.9	0.313	0.293	7.5	12.7	0.132	0.122	22.7	17.8
Ireland	12.5	11.3	39.2	49	0.253	0.239	12.6	11.5	0.199	0.157	5	5.5
Italy	22	19.2	17	19	0.250	0.253	7.8	7.3	0.188	0.187	6.4	7.5
Latvia	14.4	13.9	18.5	30.1	0.441	0.334	6.4	4.2	0.185	0.252	38.8	19
Lithuania	8.1	8.7	37.9	40.6	0.409	0.296	7.6	4.4	0.205	0.199	32.6	15
Luxembourg	13.3	7.7	37.6	46.6	0.167	0.149	4.7	3.8	0.132	0.128	1.8	0.7
Malta	38.9	36.8	18.4	21.1	0.206	0.193	7.8	6.4	0.139	0.146	5.5	3.9
Netherlands	13.5	10.9	34.9	40.5	0.169	0.150	8.2	6.6	0.107	0.105	2.5	1.5
Poland	5.3	5.3	22.7	32.8	0.457	0.329	13.6	10.5	0.203	0.167	33.7	17.7
Portugal	38.8	31.2	17.7	21.1	0.261	0.260	4.6	5	0.194	0.185	9.3	9.7
Romania	19.6	16.6	11.4	16.8	0.500	0.438	7	6.7	0.280	0.232	43.7	32.9
Slovakia	6.3	4.9	14.3	17.6	0.320	0.206	5.5	4.2	0.133	0.109	22.1	11.8
Slovenia	4.9	5.3	24.6	31.6	0.181	0.180	6.9	5.4	0.119	0.120	5.1	6.7
Spain	30.8	31.2	38.6	39.4	0.237	0.231	5.5	5.1	0.197	0.196	3.2	2.5
Sweden	10.8	10.7	37.6	43.9	0.147	0.155	6.2	4.9	0.095	0.123	2	1.4
United Kingdom	11.6	15.7	34.6	41.5	0.277	0.280	14.1	13.9	0.187	0.188	5.3	4.3

Tab. 5: The ratios of MULTIMOORA and appropriate ranks of Member States

Member State	***MOORA***								***The Full Multiplicative Form***				***MULTIMOORA***		
	Ratio System				***Reference Point***										
	2005	*2008*	*Rank 2005*	*Rank 2008*	*2005*	*2008*	*Rank 2005*	*Rank 2008*	*2005*	*2008*	*Rank 2005*	*Rank 2008*	***Rank 2005***	***Rank 2008***	***Change in ranks 2005–2008***
Austria	0.154	0.041	4	4	0.185	0.140	3	3	1.467	0.951	4	5	4	4	0
Belgium	-0.408	-0.421	10	10	0.474	0.421	21	20	0.015	0.051	13	13	13	13	0
Bulgaria	-2.029	-1.564	27	27	0.593	0.479	27	26	0.000	0.000	27	26	27	27	0
Cyprus	-0.644	-0.674	19	18	0.482	0.432	23	23	0.002	0.008	21	21	21	21	0
Czech Republic	-0.502	-0.454	12	11	0.450	0.397	19	18	0.011	0.080	15	11	15	11	4
Denmark	0.257	0.201	3	3	0.257	0.206	4	4	3.183	6.859	2	2	3	3	0
Estonia	-0.521	-0.490	15	12	0.347	0.317	6	6	0.013	0.092	14	10	10	9	0
Finland	0.385	0.275	2	2	0.154	0.126	2	2	1.953	2.974	3	3	2	2	0
France	-0.085	-0.222	5	7	0.414	0.362	12	11	0.212	0.262	6	9	6	8	–2
Germany	-0.151	-0.243	6	8	0.433	0.342	15	9	0.146	0.263	8	8	7	7	0
Greece	-0.641	-0.813	18	22	0.431	0.392	14	17	0.004	0.005	20	22	20	22	–2
Hungary	-0.771	-1.004	21	24	0.443	0.388	17	15	0.001	0.003	22	24	22	24	–2
Ireland	-0.518	-0.542	14	14	0.474	0.424	22	21	0.016	0.039	12	14	16	15	1
Italy	-0.633	-0.738	17	21	0.411	0.363	11	13	0.009	0.013	16	20	17	20	-3
Latvia	-0.517	-0.528	13	13	0.356	0.342	7	10	0.005	0.029	18	15	11	14	–3
Lithuania	-0.713	-0.619	20	15	0.375	0.333	8	8	0.005	0.028	19	16	18	16	2
Luxembourg	-0.169	-0.076	8	5	0.487	0.430	25	22	0.143	2.311	9	4	9	5	4
Malta	-0.975	-1.053	24	25	0.510	0.466	26	25	0.000	0.000	26	27	26	25	1
Netherlands	-0.175	-0.183	9	6	0.459	0.413	20	19	0.172	0.658	7	6	8	9	-1
Poland	-1.123	-0.951	25	23	0.437	0.391	16	16	0.000	0.004	24	23	24	23	1
Portugal	-0.774	-0.699	22	20	0.378	0.325	9	7	0.005	0.023	17	18	19	18	1
Romania	-1.396	-1.457	26	26	0.381	0.503	10	27	0.000	0.001	25	25	25	26	–1
Slovakia	-0.812	-0.645	23	17	0.445	0.385	18	14	0.001	0.016	23	19	23	19	4
Slovenia	-0.166	-0.253	7	9	0.347	0.317	5	5	0.231	0.308	5	7	5	6	–1
Spain	-0.601	-0.694	16	19	0.419	0.362	13	12	0.023	0.053	10	12	12	12	0
Sweden	0.598	0.532	1	1	0.095	0.084	1	1	10.634	21.207	1	1	1	1	0
United Kingdom	-0.455	-0.621	11	16	0.485	0.436	24	24	0.016	0.026	11	17	14	17	–3

IMPLEMENTATION OF THE STRATEGY EUROPE 2020 BY THE MULTI–OBJECTIVE EVALUATION METHOD MULTIMOORA

Alvydas Baležentis, Tomas Baležentis, Willem K. M. Brauers

The Lisbon Strategy was initiated by the European Union in 2000 in order to turn the European Union into the most competitive and dynamic knowledge-based economy in the world by 2010. The Lisbon Strategy recognized the open method of co-ordination (OMC) as the EU-level governance tool. In the presence of the failure of the 2010 strategy the EU Member States adopted a new one as Europe 2020. Headline targets of the new strategy include an increase of the employment level, encouraging Research and Development, ensuring sustainable development and reducing social exclusion. The aim of this article is the development of the OMC practice by offering new procedures namely a system of structural indicators and the application of a multi-objective evaluation method. Being suitable for international comparisons, the multi-objective method MULTIMOORA is applied for analyzing a system of structural indicators and for covering headline targets of the strategy Europe 2020. The data cover the period 2005–2008 enabling to identify the progress of the EU Member States before adoption of the strategy Europe 2020. According to ranks given by MULTIMOORA, the Member States are classified into three groups: high performance, medium performance, and low performance states.

Key Words: *European Union, strategy Europe 2020, the open method of co-ordination (OMC), multi-objective evaluation, MULTIMOORA, dominance theory.*

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