

# Measuring Well-Being Through OECD Better Life Index: Mapping the Gaps

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**Abstract** The insufficiency of purely monetary indexes such as Gross Domestic Product (GDP) created the need for indicators that would incorporate the aspects of life that matter to people and bring quality into their lives. One of the indicators of well-being developed in this context is the Better Life Index (BLI), designed by the Organization for Economic Cooperation and Development (OECD). After the advances already achieved, the need to explore the new gaps in this subject arises. This paper aims to map the research gaps of the BLI through a structured review of published articles about the theme with identification of the main applications and critics of the BLI model. It was observed that the BLI is becoming more relevant within the academia and is considered as a well-known and established well-being indicator. The authors are willing to develop new frameworks with the purpose of filling the BLI model gaps, but a few do it while comparing data from different years, which goes against OECD's guideline. This paper provides a structured knowledge based on OECD Better Life Index, where authors interested in developing new studies using BLI can verify the tendencies of the theme and take advantage of a quick view of the academic publications on this subject.

**Keywords:** Better Life Index, Well-being, OECD, Literature review.

## 1 Introduction

For many years, the preferred measure to assess nations prosperity, wealth and welfare has been the Gross Domestic Product (GDP). Although it remains an important measure, it is long known that monetary indicators, such as GDP, are inadequate to measure a broader quality of life by themselves (Caminada *et al.*, 2010; Coyle *et al.*, 2014; Fleurbaey, 2009; Nordhaus *et al.*, 1972; San, 1998; Sen, 1985; Stiglitz *et al.*, 2010).

The insufficiency of purely monetary indexes created the need for indicators that provided a wider and more complete measure of quality of life of the population and prosperity of the countries (Banting *et al.*, 2001). Those indicators have a great importance for their ability to demonstrate the results of the efforts of one country when compared to others, being highly regarded by policymakers. They also evaluate which nations have the best performances and, therefore, are references. Furthermore, they can be a source of information to analyze how different aspects of a society can influence each other (Fuchs, 2013).

The Organization for Economic Cooperation and Development (OECD) created the Better Life Initiative, an international movement with the purpose of developing new metrics that allow a better understanding of quality of life that launched in 2011 the Better Life Index (BLI), an interactive web-based tool of well-being index with 11 dimensions and 24 indicators concerning well-being.

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The paper will map the research gaps of the OECD Better Life Index with a structured study of the academic publications focused on BLI including the general perception of the model, critics expressed by the authors, main uses of the indicators and tendencies regarding the theme.

The basic terminology and conceptual framing of BLI are presented in Sect. 2. Sect. 3 describes the research methodology applied in this study. Sect. 4 discusses the quantitative and qualitative results obtained through bibliographic research. Finally, Sect. 5 exposes the conclusion and final considerations.

## **2 OECD Better Life Index**

OECD introduced the Better Life Index in the year of its 50th birthday, 2011. The goal was to create a set of metrics that went further than economic statistics, taking into consideration the aspects of life that mattered to people and brought quality into their lives.

The BLI consists of 11 dimensions and each of them has one to four indicators, totalizing 24, which evaluates 38 countries, including the 35 OECD member countries with the addition of Brazil, Russia and South Africa, considered by OECD as key partners. The BLI data is updated every year on the OECD Better Life Index website where an interactive web-based tool is available for the users' interaction by choosing the weight of the dimensions and making their personal index according to their preferences. The results can be compared among the countries and between women and men. The visualization is made through an innovative flower chart, a multivariate method developed by OECD (OECD, 2017, 2019).

The eleven dimensions available are universal and significant for all people around the world. They refer to material living conditions and quality of life: housing, jobs, income, life satisfaction, education, safety, environment, community, health, governance and work-life balance. All dimensions have equal weights by default that can be adjusted, but the 24 indicators within them have the same weight and cannot be changed. There is only one indicator that can be compared throughout the years, the employment rate (OECD, 2013).

## **3 Research Methodology**

This research analyses the academic publications using the well-being indicators provided by the OECD Better Life Index through a structured literature review. The methodology used in this study has 5 steps adapted from (de Freitas and Costa, 2017): (1) definition of the research sample, (2) research's refinement, (3) selection of articles for bibliographic review, (4) metadata analysis of the bibliographic dataset (5) qualitative analysis of the bibliographic dataset.

The first step is the research of documents, executed in November 2019. The chosen bases were Scopus and Web of Science (WoS) and the surveyed terms were ("Better Life Index") OR ("Better Life Initiative") OR ("OECD" AND "Better Life") through articles titles, abstracts and keywords. The number of documents found was 70 in Scopus and 48 in WoS with 39 of those being common to both bases, totalizing 79 original documents.

In the second step, the initial database was refined by applying filters of "Document Type" (Article) and "Language" (English), resulting in 51 documents. The authors analyzed the titles, abstracts and keywords of those documents in order to select the ones that could adhere to the goal of this study and selected 37 of them for full reading.

The fourth step is a metadata analysis of the selected database of 37 articles, including the temporal evolution of documents, the authors with the highest number of publications, journals with more publications and most referenced articles by authors. The last step was examining the selected articles by reading them completely and identifying the main chosen applications and critics of the OECD Better Life Index.

## 4 Research Results

The main findings of the 37 articles selected for bibliographic research are presented in Table 1.

**Table 1** Main findings of the selected articles for bibliographic research

Authors	Main findings
(Albo <i>et al.</i> , 2019)	Creation of a framework for design and analysis of composite indicators (CI) visualizations which is applied to BLI as a case study
(Balestra <i>et al.</i> , 2018)	Analysis of people's well-being preferences based on BLI's dataset of indicators weights chosen by approximately 88,000 users
(Basar and Genc, 2018)	Application of ordinal logistic regression analysis to BLI and Program for International Student Assessment (PISA) to identify how much the increase in qualified education influences the job index variable that represents decent work
(Boarini and D'Ercole, 2013)	Deliberation about the use of BLI as a tool to provide multidimensional assessment of well-being with cross-country comparisons
(Chaaban <i>et al.</i> , 2016)	Creation of the Composite Global Well-Being Index (CGWBI), a new indicator for human development that applies the BLI methodology with the inclusion of developing countries
(Decancq, 2017)	Design of the Distribution-Sensitive Better Life Index model focused on the distribution of multidimensional well-being within countries
(do Carvalho Monteiro <i>et al.</i> , 2019)	Identification of 5 cluster of countries in the BLI with the application of k-means algorithm combined with Silhouette Coefficient and visual inspection through a Principal Component Analysis (PCA).
(Durand, 2015)	Discussion of the pros and cons of the BLI framework to present and disseminate information to different audiences about multidimensional well-being indicators
(Greco <i>et al.</i> , 2019)	Development of a multidimensional spatial framework using Euclidean K-dimensional space to evaluate BLI
(Hannah <i>et al.</i> , 2019)	Provision of a preliminary assessment of the outcomes associated with various types of welfare policy regimes using BLI data
(Hetschko <i>et al.</i> , 2019)	Execution of an experiment which demonstrated that BLI does not achieve the citizens' true preferences of the measurement of weights for well-being indicators with the currently used survey-based method
(Hu and Tzeng, 2017)	Creation of a model that combines fuzzy DEMATEL technique, fuzzy DEMATEL-based analytic network process, and modified fuzzy VIKOR methods aiming to help strategizing for better life development
(Hu and Tzeng, 2019)	Development of a hybrid modified multiple-attribute decision making (MADM) model composed of DEMATEL method, DANP and a modified PROMETHEE method to provide optimal strategies to complex problems regarding the BLI
(Janenova and Knox, 2019)	Assessment of civil service reform model in Kazakhstan with five focus groups using indicators based on BLI
(Kangmennaang and Elliott, 2019)	Creation of a global index of well-being (GLOWING) focused on low and middle income countries (LMICs) using Ghana as a case study
(Kasparian and Rolland, 2012)	Provision of a critical review of OECD Better Life Index
(Kaur <i>et al.</i> , 2019)	Development of a model that predicts the life satisfaction score of the countries through a supervised machine-learning approach on BLI
(Koronakos <i>et al.</i> , 2019)	Development of a CI as a multiple objective programming (MOP) problem with normalization process based on data from previous years and assigning the weights of the 11 dimensions of BLI through public opinion provided in the OECD web platform
(Levi, 2017)	Argumentation about the methodological differences between the standard survey questionnaires from OECD and Israel that result in a biased overall health grade in the BLI concerning Israel
(Lorenz <i>et al.</i> , 2017)	Development of a method of rank-optimal weighting using mathematical optimization problem for ranking based on a CI. The BLI is presented as case study

**Table 2** (continued)

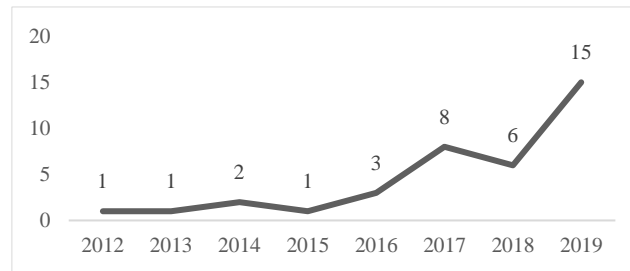
(Marković <i>et al.</i> , 2016)	Designing a CI that uses I-distance method to create different weights to each BLI indicator. The six most significant indicators are identified
(Mehdi, 2019)	Creation of a model for BLI ranking using the stochastic dominance efficiency (SDE) aggregation method
(Mizobuchi, 2014)	Conclusion that the 'benefit of the doubt' approach (BoD) is more adequate than DEA to build a CI of BLI.
(Mizobuchi, 2017a)	Creation of a CI with Corrected Convex Non-parametric Least Squares Method (C <sup>2</sup> NLS) application based on the 11 dimensions of BLI plus World Bank's adjusted net savings indicator
(Mizobuchi, 2017b)	Estimation of a happiness function and specification of the sensitivity score for each country in the BLI using Data Envelopment Analysis (DEA) approach
(Nar and Nar, 2019)	Application of correlation and regression analysis in the dimensions of BLI to measure the degree of their relationships and how they affect society's quality of life
(Nikolaev, 2014)	Analysis of the relationship between economic freedom and quality of life through comparative studies of BLI and Economic Freedom of the World Index (EFWI) indicators
(Patrizii <i>et al.</i> , 2017)	Development of a well-being CI using a Data Envelopment Analysis (DEA) model integrated with Principal Component Analysis based with BLI data
(Peiró-Palomino and Picazo-Tadeo, 2018)	Elaboration of a CI of BLI by combining Data Envelopment Analysis with the Benefit-of-the-Doubt principle (DEA-BoD approach) and Multi-Criteria Decision-Making (MCDM) techniques followed by hierarchical cluster analysis
(Pinar, 2019)	Conception of regional well-being indices across the European regions using generalized mean aggregation method with alternative parameters on BLI
(Resce and Maynard, 2018)	Formulation of a CI for BLI using the relative importance of the topics on Twitter as weights for BLI's dimensions with analysis based on the GATE framework
(Ribes-Giner <i>et al.</i> , 2019)	Elaboration of comparative study of Global Entrepreneur Monitor and BLI data with Fuzzy-set qualitative comparative analysis (FsQCA) methodology to identify which well-being indicators are related to the rate of female entrepreneurship
(Rivadeneira <i>et al.</i> , 2016)	Assessment of the evolution of well-being indicators from BLI during the period 2011-2015 for each country using the STATIS (Structuring Three-way data sets in Statistics) methodology
(Schnorr-Bäcker, 2018)	Provision of a comparative study of European Union and OECD strategies, focused on German politics.
(Skikiewicz and Blonski, 2018)	Ranking of the countries through a assessments of life satisfaction by comparative studies of European Social Survey (ESS) and BLI indicators
(Tsurumi and Managi, 2017)	Creation of a happiness function that describes how happiness is influenced by socioeconomic characteristics and demographic status. Application of the life satisfaction approach (LSA) in the BLI using internet survey, ordered probit model (OPM), stochastic frontier analysis (SFA) and data envelopment analysis (DEA)
(Vladisavljević and Mentus, 2019)	Provision of a comparative study of European Union's Survey on Income and Living Conditions (EU-SILC) and BLI to analyze the relation between subjective well-being and objective well-being indicators in Serbia

#### 4.1 Metadata Analysis of the Bibliographic Dataset

In this section, the development of application of OECD Better Life Index in scientific production is analyzed through the performance of the following indicators: temporal evolution of publications, authors with highest number of publications, journals with more publications, and authors more cited in References.

Fig. 1 displays the number of publications in each year. The temporal evolution of the number of documents can be explained by the evolution of the OECD Better Life Index itself. The publications started

in 2012, one year after BLI creation, and kept going until 2016 when it started to increase. In 2019, the year when this research was held, the numbers of publications was the most significant with 15 articles, representing 40.5 per cent of the database. It demonstrates the increasing relevance of the OECD Better Life Index in the academic community.



**Fig. 1.** Documents distribution by year of publication

Among the 78 authors identified, 93.6 percent are responsible for only one published document each. Five authors are accountable for 12 of the 37 documents, equivalent to 32.4 per cent of the publications (Table 2).

**Table 2** Authors with highest number of publications

Author	Documents
Mizobuchi, H.	3
Resce, G.	3
Boarini, R.	2
Hu, S.K.	2
Tzeng, G.H.	2

In Table 3 the journals with the highest number of publications can be observed. The Social Indicators Research has the lead with 14 documents. Two of the journals are related to social issues and one with happiness. Both subjects are associated with the OECD BETTER Life Index, which is a set of indicators that aims to measure the well-being of society.

**Table 3** Journals with highest number of publications

Journal	Documents
Social Indicators Research	14
Journal of Happiness Studies	2
Socio Economic Planning Sciences	2

The references used in the selected database were analyzed through the authors more frequently referenced (Table 4). Amartya Kumar Sen has 39 citations with documents about socio-economic analysis, equality and welfare/well-being. Gwo-Hshiong Tzeng's studies about Multi-Criteria Decision-Making (MCDM) have 27 citations. Koen Decancq has 26 citations within the references analyzed with studies about quality of life and well-being. Joseph Eugene Stiglitz's documents about socio-economic measurements have 26 citations.

**Table 4** Authors more cited in References

Author	Citations in References
Sen, A.K.	39
Tzeng, G.H.	27
Decancq, K.	26
Stiglitz, J.E.	26

## 4.2 Qualitative Analysis of the Bibliographic Dataset and Research Gaps

The use of the BLI in the bibliographic database is very diverse. There are articles focused on improving the BLI itself, some verify the validation of BLI model through mathematic and statistic methods or comparing it with different well-being indicators, other analyze the relationship between different indicators outside of the standard well-being parameters aiming to verify how they influence each other. Some authors develop frameworks for composite indicator (CI) for well-being and use the BLI as study case, other use the BLI methodology as a base to propose new well-being indexes and a few use the BLI as a guide for assessment of government strategic plans. Two of the articles were written by members of OECD, where they deliberate about the BLI model.

The main criticism to BLI is the issue of aggregated indices (Table 5). The average score of each country is calculated through a hierarchical structure with three levels. The 24 indicators are in the bottom (first) level with equal weights that cannot be changed. Each of the 11 dimensions consists of one to four indicators. The dimensions are in the second level and the users select their weightings. The BLI itself is the third level. The OECD deliberately opted for a framework where the weight of the indicators are the same while the dimensions have variable weighting, leaving the problem of aggregating in the hands of the users. For that reason, many authors propose new frameworks as an effort to fix that situation (do Carvalhal Monteiro *et al.*, 2019; Chaaban *et al.*, 2016; Decancq, 2017; Greco *et al.*, 2019; Hu and Tzeng, 2017, 2019; Koronakos *et al.*, 2019; Lorenz *et al.*, 2017; Marković *et al.*, 2016; Mehdi, 2019; Mizobuchi, 2017a, 2017b; Patrizii *et al.*, 2017; Peiró-Palomino and Picazo-Tadeo, 2018; Pinar, 2019; Resce and Maynard, 2018; Skikiewicz and Blonski, 2018).

One of the possibilities to deal with the issue of aggregated indices within the BLI model is using Multi-Criteria Decision-Making (MCDM) techniques. Although there are a few authors that make use of MCDM approach to support the application other techniques (Hu and Tzeng, 2017, 2019; Peiró-Palomino and Picazo-Tadeo, 2018), no studies focused on non-compensatory methodologies were identified. Therefore, there is a gap for application of non-compensatory MCDM using the BLI data.

**Table 5** Criticisms to the Better Life Index

Criticism	Articles	No. articles
Weight of the indicators / use of aggregated indices	(Balestra <i>et al.</i> , 2018; do Carvalhal Monteiro <i>et al.</i> , 2019; Chaaban <i>et al.</i> , 2016; Decancq, 2017; Durand, 2015; Hannah <i>et al.</i> , 2019; Hetschko <i>et al.</i> , 2019; Hu and Tzeng, 2017, 2019; Kasparian and Rolland, 2012; Koronakos <i>et al.</i> , 2019; Lorenz <i>et al.</i> , 2017; Marković <i>et al.</i> , 2016; Mehdi, 2019; Mizobuchi, 2014, 2017a; Nikolaev, 2014; Patrizii <i>et al.</i> , 2017; Peiró-Palomino and Picazo-Tadeo, 2018; Pinar, 2019; Resce and Maynard, 2018)	21
Indicator cannot be compared over time	(Albo <i>et al.</i> , 2019; Durand, 2015; Nikolaev, 2014)	3
Limited number of countries	(Chaaban <i>et al.</i> , 2016; Kangmennaang and Elliott, 2019; Mehdi, 2019)	3
Lack of sustainability concerns	(Mizobuchi, 2017a)	1
Quality of the data	(Levi, 2017)	1

Comparison between BLI's indicators over the years is not recommended by the OECD with only one exception, the employment rate. Nevertheless, a few authors compare data from different years during the development of a new CI framework or in the analysis of variations of certain indicators of a country (Koronakos *et al.*, 2019; Pinar, 2019; Rivadeneira *et al.*, 2016; Skikiewicz and Blonski, 2018).

## 5 Conclusion

This study revealed the relevance of the BLI in the academia with the increasing number of publications in the year when this article was produced, equivalent to 40.5 per cent. The authors consider the BLI as a well-known and established well-being indicator and are willing to develop new frameworks with the purpose of improving the BLI model, but a few do it while comparing data from different years which should not be done. The main gap identified was the lack of studies applying non-compensatory MCDM to the BLI model.

The 37 articles selected were analyzed through the temporal evolution of publications, authors with highest number of publications, journals with more publications, authors more cited in References and the main findings of each article were evidenced.

This paper contributes by providing a structured knowledge base on OECD Better Life Index, where authors interested in developing new studies using BLI can verify the tendencies of the theme and take advantage of a quick view of the academic publications on this subject.

The suggestion for future research is explore ways to eliminate the compensatory effects of the OECD Better Life Index with outranking methods, such as ELECTRE.

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International Joint Conference on Industrial Engineering and Operations Management- ABEPRO-ADINGOR-IISE-AIM-ASEM (IJCIEOM 2020)

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**Acknowledgement.** This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001 and also by the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).