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Proposal of Composite Appraising Supportive Progress beyond Twelve (12) Economic Sustainability Indices

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Abstract

The purpose of sustainable development represents as the precursor of nowadays policy makers and planners. Sustainability indices are supporting well-informed verdicts as an important topic in economy. The current manuscript proffers composite appraising supportive progress (CASP) beyond evaluation of twelve (12) sustainability indices: ecological footprint (EF), human development index (HDI), environmental sustainability index (ESI), index of sustainable economic welfare (ISEW), well being index (WI), gross domestic product (GDP), genuine savings index (GS), sustainability performance index (SPI), sustainable society index (SSI), sustainability index (SI), sustainable development index (SDI) and composite sustainable development index (CSDI). These twelve (12) indices are suggested by investigating thousands of papers. Indices are explored as concepts recounting on scaling, normalizing, weighting and aggregating methodologies. Pros and cons approaches are examined for each economic metrics as per decision making inspirations. Preference is given to CSDI as a main leader in all inspected sustainability indices. A proposal for the new economic sustainability metric is provided in illustrating the concept of CASP and pointing to combined sustainable development on the way to composite appraising supportive progress.

Keywords: sustainable development, decision making, sustainability indices, sustainability metrics, sustainability assessment, composite appraising supportive progress (CASP)

1. Introduction

Some tendency in contemporary society is sprouting more progressively than society's apprehensions on the status of non-sustainable development.

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Society's mounting eagerness is dealing with the current non sustainable situation. The last mentioned impend has led to an augmented attention in environmental sciences on the way to the sustainable development (Robert, 2000).

Attractive studies in relation to sustainable development indices appraising the sustainability of countries have been published in Ecological Economics (Azar etc, 1996; Baloccoa etc, 2004; Bicknell etc, 1998; Gilbert and Feenstra, 1994; Neumayer, 2001; Nilsson and Bergstrom, 1995; Pearce and Atkinson, 1993; Siche etc, 2008; Stockhammer etc, 1997) and other prominent journals (Barrera-Roldan and Saldıvar-Valdes, 2002; Krotscheck and Narodoslawsky, 1996; Moser, 1996; Steinborn and Svirezhev, 2000).

Nourry (2008) employed the well-known description of the Brundtland Report on Our Common Future in (1987): "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It aims at assuring the on-going productivity of exploitable natural resources and conserving all species of fauna and flora". In Nourry (2008)'s scrutiny, two (2) key conception are as:

(i) Apprehension for the well-being of prospective generations;
(ii) Identification of the bi-directional impacts of both economic activities and prominence of environmental and natural assets.

Some papers (Dietz and Neumayer, 2007; Keiner, 2006; Neumayer, 2004a; Nourry, 2008; Wackernagel and Rees, 1996) portray two (2) central SD approaches as:

(a) Weak sustainability imposes only on a non-declining collective supply of all assets. The substitution is possible between social, economic and environmental means. The aspire is to preserve constancy or to increase supply of total assets.
(b) Strong sustainability recompenses an imperative spot to natural assets. Strong sustainability imposes on preservation of environmental functions and natural resources in support of life of ecosystems and comprises irreversibility or threshold consequences. Thus, models of strong sustainability combine existent constraints on the swapping options of social, economic and natural assets.

The requirement is recognized for an incorporated systematic progress to the indicators portrayal and assessment (Bossel, 1999). Coherent methodologies are kept for an easy reproduction and assurance of all-important aspects.

Yet, clear designations of indicators are achieved in policy aspires to sustainability (Jepson, 2007).

This article reviews the explanatory power of 12 sustainability indices (see Table 1 – Twelve (12) Sustainability Indices) applied in policy practice. Different authors' opinions are provided to each index. The paper compiles also on the information related to the formularized methodologies of sustainability indices in strategies, scales, normalizations, weights and aggregations. It is shown that all twelve (12) sustainability indices fail to accomplish the fundamental scientific requirements making them rather useless if not misleading with respect to policy advice. Composite appraising supportive progress (CASP) is a new proposal as an economic index for sustainable development in three (3) dimensions: society, economy and nature.

2. Review of Twelve Sustainability Indices

Twelve (12) sustainability indices are presented in Tables 1 & 2. These SD metrics are used to support in policy making and to pursue sustainable development. More specifically, some descriptions of these indices are existing in Section3.

The main purpose of this article is to retrieve proposals, based on authors' review of twelve (12) chosen indices according to Petrosyan and Stratigea. These indices have been chosen on the subsequent basis and works:

Table 1: Presented Twelve (12) Sustainability Indices

	Index	Authors	Scale / Normalization	Weighting	Aggregation
1	Ecological Footprint (EF)	Barrett and Scott (2001); Bicknell etc (1998); Bohringer and Jochem (2007); Chambers etc (2000 a, b); Chen and Chen (2007); Costanza (2000); Dietz and Neumayer (2007); Fiala (2008); Finco and Nijkamp (2001); Gasparatos etc (2009; 2008); Gnegne (2009); Hanley etc (1999); Hong etc (2007); Mitchell (1996); Monfreda etc (2004); Moran etc (2008); Nourry (2008); Odum (1989); O'Regan etc (2009); Rees (1992; 1996; 2001); Rees and Wackernagel (1996); Robert (2000); Rosenstrom and Lyytimaki (2006); Scotti etc (2009); Senbel etc (2003); Shawkat (1995); Siche etc (2008); Singh etc (2009); Tanzil and Beloff (2006); Van den Bergh & Verbruggen (1999); Van Vuuren and Smeets (2000); Vitousek (1986); Wackernagel (1998); Wackernagel and Rees (1997; 1996); Wackernagel etc (1999 a,b; 1997); Wiedmann (2006); Wilson etc (2007); WWF (2005; 2004; 2002 a,b; 2000); Zhao etc (2005)	Area	Equal	Summation $\sum_{i=1}^{N} x_i$
2	Human Development Index (HDI)	Bohringer and Jochem (2007); Costantini and Monni (2004); Dasgupta and Weale (1992); Desai (1994); Fiala (2008); Gasparatos etc (2009); Gnegne (2009); Halme etc (2006); Hicks (1997); Moran etc (2008); Morse (2004a ; 2004b); Neumayer (2010); Noorbakhsh, (1998); Nourry (2008); Ronchi etc (2002); Singh etc (2009; 2007); Srinivasan (1994); UNDP (2006; 2004; 2002; 2001); United Nations (1990); Van de Kerk and Manuel (2008); Wilson etc (2007)	$\frac{x_i - \underline{x}}{\bar{x} - \underline{x}}$	Equal	Arithmetic average of the normalized indicators $\frac{1}{N}\sum_{i=1}^{N} x_i$
3	Environmental Sustainability Index (ESI)	Bohringer and Jochem (2007); Esty etc (2005); Fraser etc (2006); Pan and Kao (2009); Rosenstrom and Lyytimaki (2006); Siche etc (2008); Singh etc (2009; 2007); Sutton (2003); Van de Kerk and Manuel (2008); WEF (2002 a; b); Wilson etc (2007); Zidansek (2007)	Mean - & / by standard deviation	Equal weights	As HDI: $\frac{1}{N}\sum_{i=1}^{N} x_i$
4	Index of Sustainable Economic Welfare (ISEW)	Bohringer and Jochem (2007); Cobb (1989); Cobb and Cobb (1994); Cobb etc (1995); Gasparatos etc (2009; 2008); Gnegne (2009); Halme etc (2006); Hanley etc (1999); Lawn (2003); Mitchell (1996); Nourry	Sub-indicators are expressed in monetary terms.	Equal.	Summation $\sum_{i=1}^{N} x_i$

		(2008); Ronchi etc (2002); Singh etc (2009); Stockhammer etc (1997); Van de Kerk and Manuel (2008)			
5	Well Being Index (WI)	Bohringer and Jochem (2007); Chiappero Martinetti (2000); Distaso (2007); Prescott-Allen (2001); Singh etc (2009); Van de Kerk and Manuel (2008); Wilson etc (2007)	Best=100 worst=0	Subjective	Weighted average $\frac{1}{N}\sum_{i=1}^{N}(w_i)x_i$
	Index	Authors	Scale / Normalization	Weighting	Aggregation
6	Gross Domestic Product (GDP)	Barrera-Roldan and Saldıvar-Valdes (2002); Fiala (2008); Khanna etc (1999); Lawn (2003); Ledoux etc (2005); Lin (2007); Mitchell (1996); Ronchi etc (2002); Stockhammer etc (1997); Van de Kerk and Manuel (2008); Van den Bergh (2007); Wilson etc (2007); Zidansek (2007)	$I_{GDP} = \begin{cases} 0, if GDP \le GDP_{\min} \\ \frac{GDP - GDP_{\min}}{GDP_{\max} - GDP_{\min}}, if GDP_{\min} < GDP < GDP_{\max} \\ 1, if GDP \ge GDP_{\max} \end{cases}$		
7	Genuine Savings Index (GS)	Bohringer and Jochem (2007); Hanley etc(1999); Lin (2007); Nourry (2008); Randall (2008); Singh etc (2009)	Monetarized	Equal	Summation $\sum_{i=1}^{N} x_i$
8	Sustainability Performance Index (SPI)	GRI (2002); Narodoslawsky and Krotscheck (2004); Singh etc (2009; 2007)	Area	Equal	Total area per unit product / area per capita
9	Sustainable Society Index (SSI)	Estes (1974); Shi etc (2004); Singh etc (2009); Van de Kerk and Manuel (2008)	Math formula	Equal	Summation $\sum_{i=1}^{N} x_i$
10	Sustainability Index (SI)	Bastida etc (2008); Bene and Doyen (2008); Budd etc (2008); Dobson (1996); Dovers and Handmer (1993); Edum-Fotwe and Price (2009); Jepson (2007); Van de Kerk and Manuel (2008)	Mathematical formula	Equal	Summation $\sum_{i=1}^{N} x_i$
11	Sustainable Development Index (SDI)	Barrera-Roldán and Saldıvar-Valdés (2002); Darton (2003); Escobar (1996); Keiner (2006); Nourry (2008); O'Regan etc(2009); Petrosyan (2010); Sapountzaki and Wassenhoven (2005)	$SDI = \frac{1}{100}\sum_{i=1}^{3} WGC_j \frac{1}{n_j}\sum_{j=1}^{3} AG_{ji}$ where $WGC_j$is the weighting factor of the jth general criterion; AG_{ji} grade obtained by the evaluated region .		
12	Composite Sustainable Development Index (CSDI)	Blanc etc (2008); Gasparatos etc (2008); Krajnc and Glavic (2005a; 2005b); O'Regan etc (2009); Petrosyan (2010); Searcy etc (2007); Singh etc (2009); Tanzil and Beloff (2006)	Distance from maximum and minimum	Analytic hierarchy process (AHP)	Weighted average $\frac{1}{N}\sum_{i=1}^{N}(w_i)x_i$

1. Thousands of articles with the keywords on sustainable development, sustainability indices and sustainability metrics are taken into consideration;
2. A table of authors and metrics is created;
3. The most repeated indices are chosen;
4. The indices including "sustainability" are selected;
5. Tables 1 & 2 of twelve (12) SD indices are created as per the aforementioned works.

The attention is given to those sustainability indices, which play an important role to the sustainable development. The details of twelve (12) indices are discussed to support their roles in the sustainable development examined by Petrosyan and Stratigea.

The current paper converses the strong or weak points for all twelve (12) sustainability indices. The strongest sustainability index is estimated as the Composite Sustainable Development Index (CSDI) as a main, easy, proper, suitable and appropriate leader in mentioned twelve (12) sustainability indices. Composite appraising supportive progress (CASP) is a new economic index for economic sustainable development in there (3) dimensions: society, economy and nature.

3. Discussions on Twelve (12) Sustainability Indices

3.1. Ecological Footprint (EF)

The core concept of the ecological footprint (EF) is based on the appreciation that closed-loop ecological systems present the productivity as the compulsory aspect supporting human society (Rees and Wackernagel, 1996). Whereas this indicator is attractive and widespread, EF is not perfect. Nourry (2008) presents below three (3) main restrictions:

(i) EF construction is problematic because of transformations of heterogeneous data into land units. Conversion techniques are criticized (Neumayer, 2004b).
(ii) EF can be supposed as a weak sustainability indicator whereas Rees and Wackernagel (1996) proposes EF as a measure of strong sustainability. Even though this indicator compacts as the environmental constraint on development, EF does not comprise irreversibility or threshold consequences. Consequently, EF should not be scrutinized as a strong sustainability indicator.

(iii) EF has the lack of precise policy proposals rooted in ecological footprint estimations. If the aim of EF is on its reduction as per satisfaction of carrying capacity of the earth, then supporters of this indicator do not bestow complete policy advice.

3.2. Human Development Index (HDI)

United Nations (1990) creates human development index (HDI) as a summative assessment of human development in three (3) imperative dimensions:

α. A long and healthy life; β. Knowledge; γ. GDP per capita.

There are several limitations which are as follows:

- Dasgupta and Weale (1992); Hicks (1997); Sen (1997) are pointing to the idea of HDI as not imitating to human development aptly.
- Mac Gillivray (1991); Noorbakhsh (1998); Srinivasan (1994) are criticizing the construction and technical assets of the index.
- Critics of Nourry (2008) are pertaining to the non-existence of "green HDI", i.e. environmental measures.
- Neumayer (2001) is supposing HDI conquest of being a negligible part in SD aspects.
- Van de Kerk and Manuel (2008) is referring to HDI as presenting a rough concept on the stage of development, though unrevealing development of being sustainable.

3.3. Environmental Sustainability Index (ESI)

As prescription of WEF (2002a), environmental sustainability index (ESI) is comprised of five (5) key components: ¤ Environmental systems; ¤ Human vulnerability reduction; ¤ Stress decrease; ¤ Global stewardship; ¤ Social & institutional capacity.

Even though ESI is advanced with available information and the level of measurement, ESI does not provide an entire depiction of environmental sustainability. Perchance, the biggest provocation to universal comparisons and the most severe weakness of ESI are on the appropriate data existence (Johnson, 2002).

3.4. Index of Sustainable Economic Welfare (ISEW)

Index of sustainable economic welfare (ISEW) has been created by Cobb (1989) to amalgamate environmental and social rationalization in nationwide welfare accounting. ISEW is in charge of domestic inflation-attuned consumption. Time series of consumption worth is adapted from five (5) categories to attain "GDP" as an apt measure of social welfare:

- Income allotments;
- Economic actions without estimations of the straight gross national incomes;
- Time adaption;
- Damages attributable to economic activities;
- Inspections of net capital bequests of foreign investors.

However, ISEW is computed for a few countries, these calculations are arranged by very dissimilar institutions being barely comparable (Cobb etc, 1995; Cobb and Cobb, 1994). ISEW is obtainable for a restricted number of countries (Van de Kerk and Manuel, 2008).

3.5. Well Being Index (WI)

Prescott-Allen (2001) proposes well-being assessment as an assumption of steady environment requires strong humans. Well being index (WI) is the mean of two (2) indices as per five (5) deployments:

i. Human Well-being Index (HWI):

α. Society; β. Welfare; γ. Knowledge; δ. Culture; ε. Equity.

ii. Ecosystem Well-Being Index (EWI):

α. Land; β. Water; γ. Air; δ. Species; ε. Genes.

Results and discussions of Distaso (2007) are illustrating the rates of Greek, Irish and Portuguese values below the mean and being at the bottom of the range. As the disadvantage of WI, a superb and comprehensive index was in print a few times up-to-date (Van de Kerk and Manuel, 2008).

3.6. Gross Domestic Product (GDP)

Gross domestic product (GDP) is a measure of economic performances and progresses (Wilson etc, 2007). Very few authors yet regard as GDP per capita to be a practical pointer to sustainable development. Other indicators, such as ISEW (Bleys, 2007; Daly and Cobb, 1989) or the Dutch SNI - DNI, i.e. Sustainable National Income - Duurzaam Nationaal Inkomen (Hueting, 1980) are more indicative than GDP. Regrettably, ISEW and SNI-DNI cannot be applied to the sustainable development, since these two (2) metrics are accessible for a couple of countries (Van de Kerk and Manuel, 2008).

3.7. Genuine Savings Index (GS)

Pearce and Atkinson (1993) proposes an index anchored in the concept of Hicksian income (Xenarios, 2009) and enhanced by Hamilton etc (1997) using the Hartwick (1977) rule as the assurance of the stability of the societal capital stock as:

- Industrial production;
- Human expertise and knowledge;
- Natural resources.

Genuine savings index (GS) is supposed as an indicator for a weak sustainable development.

3.8. Sustainability Performance Index (SPI)

Singh etc (2009) emphasizes on index of sustainable performance (SPI) as an operationalized appearance of principles in sustainable development. SPI operates process data at the beginning of planning and data of natural attentiveness. The weakness of the present index is on the assessment of SPI.

Computational requirements of SPI are processes embedded in the biosphere (Narodoslawsky and Krotscheck, 2004).

3.9. Sustainable Society Index (SSI)

Many people believe that the major concept of sustainable development is greatly focused on depletion of resources. Others proposes sustainability in terms of irreversible pollution, nature preservation and other environmental aspects. Some authors comprise the aspects of human quality, well-being and life. Van de Kerk and Manuel (2008) accentuates on three (3) basics and five (5) categories of SSI as:

(i) Three (3) basics:

- Resource depletion → to give a chance to prospective generations;
- Environmental and ecological phases → to permit present and prospective generations in survival of fresh and strong environments;
- Life quality → to guarantee WI for present and prospective generations.

(ii) Five (5) categories

α. Personal development; β. Clean environment; γ. Well- balanced society; δ. Sustainable use of resources; ε. Sustainable world.

Even though indicators are presumed according to three (3) basics and five (5) categories, the weakness of SSI is anchored in giving more power to the society rather than to the environment / ecology or to the natural balance.

3.10. Sustainability Index (SI)

There are numerous definitions of SI even among scientists (Pearce, 1996). The weak point of sustainability index is that the concept of sustainability varies considerably. A clear definition of SI is required to maintain any defined sustainable approach of our planet's creature, to measure the present stage of sustainability and to refer into the deepness of the complete sustainable development (Lawn, 2004). The concept of sustainability is appropriate to incorporate systems and encompass humans and nature.

The human part (society, government, economy etc.) must support the persistence of the natural part (ecosystem relationships by means of biodiversity concept) and vice versa within their structures and operations (Cabezas etc, 2005).

3.11. The Sustainable Development Index (SDI)

Escobar (1996) defines sustainable development in two (2) subsequent ways:

- A rational vision of future generations requirements;
- A proper observation of earth's progress towards a sustainable prospects.

As Owens and Cowell (2002); Sagoff (2007); Stimson etc(2006) suggest the appropriate balance among "three Es": α. Environment; β. Equity; γ. Economy.

3.12. Composite Sustainable Development Index (CSDI)

The paper of Krajnc and Glavic (2005a) presents the design of a composite sustainable development index (CSDI) assessing production performance as a function of time. The focus of the paper is on the integration of indicators determining sustainable development in a pertinent and valuable approach for decision-making. CSDI ponders on sustainability trending, developing, promoting and measuring sustainability achievements according to SDI. The paper organizes sustainability assessments in three (3) production performances: α. Society; β. Economy; γ. Nature.

3.13. Composite Appraising Supportive Progress (CASP)

Petrosyan (2010) proposes a model for incorporated measurement of sustainable development (IMOSD) comprising remote sensing data and using the concept of biodiversity. Petrosyan's perception of IMOSD in 2010 preserves Krajnc and Glavic's concept of CSDI in 2005 emphasizing on 3 dimensions of sustainable development: α. Society; β. Economy; γ. Nature.

IMOSD is suggested to proceed 350 indicators in 6 themes per each dimension in the sustainable development.

The present paper pioneers the composite appraising supportive progress (CASP) as a new economic index for the economic sustainable development. The concept of CASP is offered in the sustainable development because a superior prominence is implied from incorporated measurement of sustainable development. As the model IMOSD is already prepared, sustainable development appraises the supportive progress of CASP.

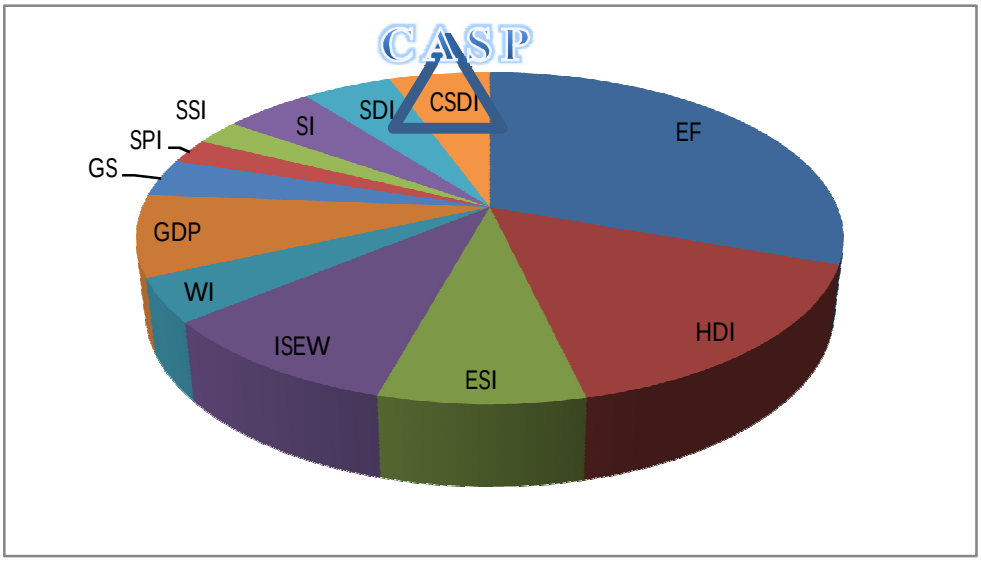
4. Results

An interesting approach is provided to demonstrate all twelve (12) economic sustainability indices. Number of papers are counted to reveal the authors' contribution to each metric as accessible in Table 2 and Figure 1.

Table 2. Counted Authors Papers Contributions Per Each Metric

Section	*Index*	*No. of Papers*
3.1	Ecological Footprint (EF)	50
3.2	Human Development Index (HDI)	26
3.3	Environmental Sustainability Index (ESI)	13
3.4	Index of Sustainable Economic Welfare (ISEW)	16
3.5	Well Being Index (WI)	7
3.6	Gross Domestic Product (GDP)	13
3.7	Genuine Savings Index (GS)	6
3.8	Sustainability Performance Index (SPI)	4
3.9	Sustainable Society Index (SSI)	4
3.10	The Sustainability Index (SI)	8
3.11	Sustainable Development Index (SDI)	8
3.12	Composite Sustainable Development Index (CSDI)	9

Figure 1: Authors Papers Roles Per Each Economic Metric

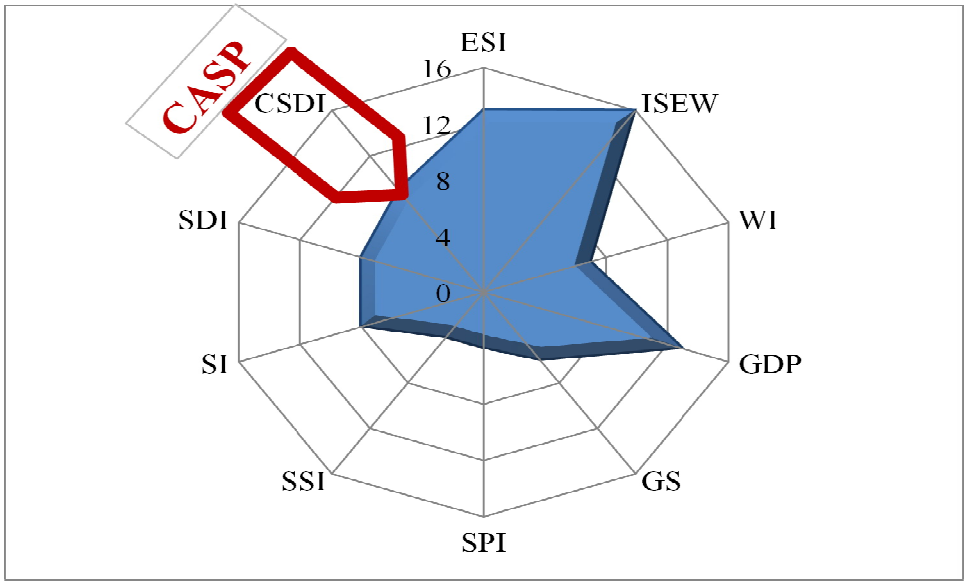


Ecological footprint has its roots in Rees and Wackernagel (1996) paper providing huge distribution of the current metric to play one of the important roles not only in twelve (12) sustainability indices but also in economic approaches to evaluate the economic stages. Even though EF has the major contribution to twelve (12) SD indices, EF is not proposed due to its limitations as prescribed in Section 3.1.

Human Development Index (HDI) as in Figure 1 and Table 2 has the second major impact on the economic development over twelve (12) economic sustainability indices. HDI is not suggested due to its restrictions as described in Section 3.2.

Figure 2 represents ten (10) sustainable development indices to express the importance of Composite Sustainable Development Index (CSDI) as performed by Petrosyan (2010).

Figure 2: Importance of ten (10) Sustainable Development Indices

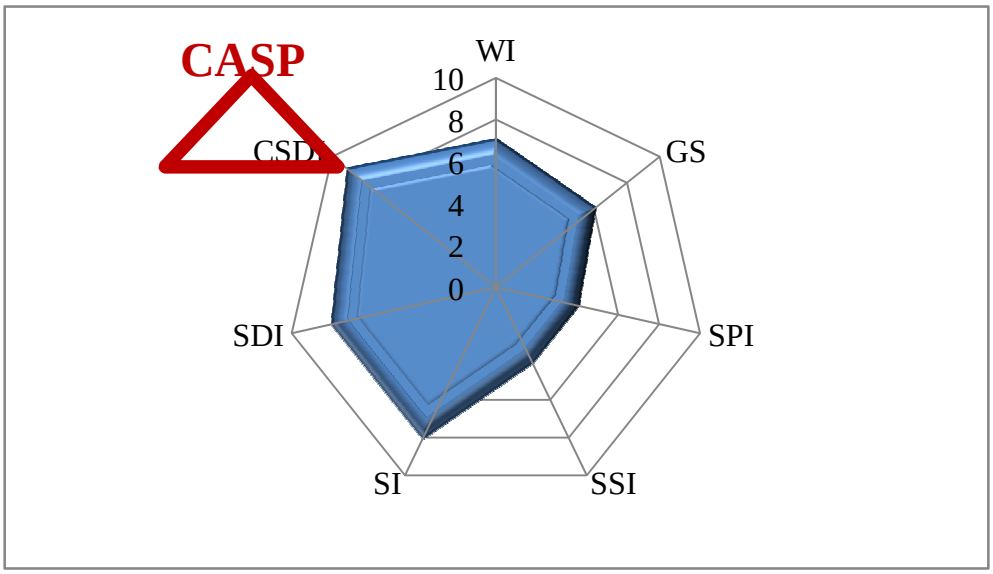


5. Actualizations

Although environmental sustainability index (ESI), index of sustainable economic welfare (ISEW) and gross domestic product (GDP) are three significant measures of ten (10) remaining SD metrics, these three (3) indices are excluded because of their limitations are imposed in Sections 3.3, 3.4 and 3.6, respectively. An approach is given to pick the rest seven (7) metrics exemplified in Figure 3 according to the following suggestions:

α. Representation of up to ten (10) authors papers per each economic metric;
β. Illustration of major limitation impacts per each SD index;
γ. Approval of minor impacts of authors active papers as higher products in 12 SD metrics;
δ. Depiction of each preferred SD index as being more progressive;
ε. Realization of Petrosyan's (2010) paper approving path to progress CSDI metric.

Figure 3: Impacts of Seven (7) Sustainable Development Indices



Petrosyan has conversed in details considering the huge range of authors prescriptions on various topics of sustainable development. This paper proves the importance of CSDI as the main metric in twelve (12) SD metrics. The most imperative contribution of authors papers in the range of seven (7) is achieved by CSDI as depicted in Figure 3. As it is visible from Figure 3, SI, GS and SDI seize as three (3) following progressive metrics after CSDI metric. The CSDI impacts are examined in Petrosyan (2010) papers progressing SD concept to Biodiversity Economics. Another names of the CSDI concept are both incorporated measurement of sustainable development (IMOSD) and composite appraising supportive progress (CASP).

6. Conclusions

This paper reviews twelve (12) sustainability indices (see Table 1 and 2) applied in policy and practice: EF, HDI, ESI, ISEW, WI, GDP, GS, SPI, SSI, SI, SDI, CSDI → (CASP). Petrosyan has separately conversed by counting on the huge range of authors proposals on various topics of sustainable development themes (Table 1). Generally, overviews of diverse authors are reserved to demonstrate not only the accurate opinion of the authors but also their various judgments on the same metrics.

The current paper expresses that most of these indices fail to perform the primary scientific requirements with respect to policy supervision. For instance, the Ecological Footprint is one of the major metrics to measure the sustainable development, whereas EF is not perfect (Nourry, 2008). This article presents three (3) main boundaries of Ecological Footprint (Section 3.1).

Furthermore, an appealing approach is supplied in the selection of CSDI as a key economic metric to determine economic sustainability. All twelve (12) indices have their own limitations in their access to sustainable development. However, composite sustainable development index (CSDI) is proposed as the most appropriate metrics for the calculation of sustainable development. O'Regan etc (2009) and Wilson etc (2007) aggregate two (2) sustainable development indices to derive CSDI. Besides, the papers of Krajnc and Glavic (2005 a, b) present the design of CSDI apprising industry performance as a function of time. The spotlight of that paper is a consideration of integrating indicators and establishment of sustainable development in a proper manner for decision-making. It concentrates on developing, promoting and measuring a concrete model in sustainability achievements. The main limitation of the papers of Krajnc and Glavic (2005 a, b) is that CSDI is calculated only for the company level. The latter limitation is taken as an advantage, where CSDI is proposed by Petrosyan (2010) as incorporated measurement of sustainable development (IMOSD) expressing in terms of composite appraising supportive progress (CASP). CASP is not computed for the company level but this metric is appraised for all stages of sustainable development. The latest index is projected to be the core of the current paper leading the combined sustainable development in the way of the composite appraising supportive progress (CASP) as a proposal to the paper of Petrosyan (2010).

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