



Full length article

Which countries are more ecologically efficient in improving human well-being? An application of the Index of Ecological Well-being Performance



Shuai Zhang^a, Dajian Zhu^{b,*}, Qinghua Shi^a, Mingwang Cheng^b

^a Antai College of Economics and Management, Shanghai Jiao Tong University, Shanghai 200030, China

^b School of Economics and Management, Tongji University, Shanghai 200092, China

ARTICLE INFO

Keywords:

Index of Ecological Well-being Performance
Human well-being
Ecological consumption
Human Development Index
Ecological Footprint

ABSTRACT

In today's world, improving the efficiency of transforming ecological consumption into human well-being is a necessary condition for humanity as a whole to achieve higher levels of well-being within ecological limits. In this paper, the Index of Ecological Well-being Performance (IEWP) is defined and constructed to measure the efficiency of transforming ecological consumption into human well-being and to determine which countries are more ecologically efficient in improving human well-being. As an efficiency measure, the main mission of the IEWP is to urge and stimulate countries to improve human well-being in an ecologically efficient way. The Human Development Index (measuring human well-being) and the Ecological Footprint (measuring ecological consumption) are employed to construct the IEWP. An empirical IEWP analysis of 82 countries with a population larger than 10 million in 2012 demonstrates that the developed countries (except Romania) and the G20 countries (except India and Indonesia) are generally less ecologically efficient in improving human well-being. To make national well-being improvement not only ecologically efficient but also equitable, several suggestions are proposed regarding respective responsibilities for global ecological sustainability in the process of improving IEWP performance for countries with different ecological conditions and development stages.

1. Introduction

"It is often said that what you measure is what you get. Building the future we desire requires that we measure what we want, remembering that it is better to be approximately right than precisely wrong."

null

Based on the principles of ecological economics, it is argued that well-being improvement, rather than economic growth, is the ultimate goal that humanity should pursue, while ecological consumption is the ultimate means and source for improving human well-being (Costanza et al., 2016; O'Neill, 2015). Improving human well-being while simultaneously respecting ecological limits is the main challenge humanity is currently facing. An integrated analysis of the ultimate goal (well-being improvement) and the ultimate means (ecological consumption) can provide a new research perspective on sustainable development.

Growing evidence demonstrates that humanity has left yesterday's "empty world" and entered into a "full world" (Pirgmaier, 2017; Toth and Szigeti, 2016). In the current "full world", absolutely scarce natural

capital has been a limiting factor to well-being improvement (Daly, 2005, 2010, 2013).¹ Therefore, improving the efficiency of transforming ecological consumption into human well-being is urgently needed for humanity as a whole to achieve higher levels of well-being within ecological limits (Mancini et al., 2016; O'Neill, 2015). For the convenience of expression, the efficiency of transforming ecological consumption into human well-being is named Ecological Well-being Performance.

Achieving higher levels of well-being within ecological limits is an essential requirement for sustainable development. "Development" can be interpreted as well-being improvement, and to be "sustainable" demands that the ecological consumption of humanity should be kept within ecological limits, which is the only way in which well-being improvement can be ecologically sustained into the distant future (Costanza et al., 2016; Griggs et al., 2013). Therefore, it can be inferred that improving Ecological Well-being Performance is a necessary, but not a sufficient, condition for humanity as a whole to approach sustainable development. It is beyond the scope of this paper to identify a group of convincingly sufficient conditions for achieving sustainable development, but the necessary condition discussed here can at least

* Corresponding author.

E-mail address: dajianzhu@263.net (D. Zhu).

¹ In yesterday's "empty world", because natural capital was abundant and man-made capital was relatively scarce, man-made capital was a limiting factor to well-being improvement (Daly, 2005, 2010, 2013).

provide a clear direction for our efforts to approach sustainable development.

To accelerate the progress of approaching sustainable development for humanity as a whole, improving Ecological Well-being Performance should be established as an important policy objective at the national level. The international community should also take measures to urge all countries to improve their Ecological Well-being Performance, which is helpful for implementing the 2030 Agenda for Sustainable Development. Because “You cannot manage what you do not measure” (O’Neill, 2012; Valenzuela-Venegas et al., 2016), measuring Ecological Well-being Performance is the first step in integrating Ecological Well-being Performance into empirical research and policymaking courses related to sustainable development. The purpose of this paper is to measure Ecological Well-being Performance by providing an applicable proxy along with accessible, reliable and timely data.

In this paper, the Index of Ecological Well-being Performance (IEWP) is constructed to measure Ecological Well-being Performance. Two widely known indicators, the Human Development Index (HDI) and the Ecological Footprint (EF), are employed to construct the IEWP. Calculating, updating and comparing national IEWP values and ranks will empirically answer the question: Which countries are more ecologically efficient in improving human well-being?

Eighty-two countries with a population larger than 10 million in 2012 are taken as cases of a national IEWP analysis. The 82 countries are classified into three types based on their ecological conditions and development stages. To take equity in the use of ecological consumption into account, some suggestions are finally proposed regarding respective responsibilities for global ecological sustainability in the process of improving IEWP performance for countries of different types.

The remainder of this paper is organised as follows. Section 2 discusses why the HDI and the EF are selected to measure human well-being and ecological consumption, respectively. Section 3 presents specific methods used to construct the IEWP and elaborates upon characteristics of the IEWP. Section 4 empirically analyses IEWP values and ranks of the 82 countries. The discussion and conclusions are presented in Sections 5 and 6, respectively.

2. Indicators of human well-being and ecological consumption

Selecting appropriate indicators of human well-being and ecological consumption is the first step in constructing the IEWP. The HDI, which is one of the most typical indicators of objective well-being, is selected to measure human well-being. The EF is selected as a natural indicator of ecological consumption. A comparative analysis of the EF and the Biocapacity (BIO) can be used to determine ecological conditions, that is, whether ecological consumption is within ecological limits.

2.1. HDI, happiness or happy life years

Generally, well-being indicators can be divided into three broad types: objective well-being indicators, subjective well-being indicators, and objective well-being indicators adjusted by subjective well-being indicators. Three typical well-being indicators that correspond to the abovementioned three types are introduced and discussed below.

Objective well-being indicators are quantitative and impersonal evaluations of residents’ living conditions, which reflect the degrees to which human needs are met. One of the most frequently used indicators of objective well-being is the HDI, which was proposed and is promoted by the United Nations Development Programme (UNDP). Since 2010, the UNDP has adopted new indicators and methods to construct the HDI (Klugman et al., 2011; UNDP, 2010). The new HDI measures national objective well-being in three basic dimensions: a long and healthy life (measured by life expectancy at birth), access to knowledge (measured by mean years of schooling and expected years of schooling), and a decent standard of living (measured by Gross National Income per capita). Three corresponding dimensional sub-indices are calculated, and

the new HDI is a geometric mean of the three equally weighted dimensional sub-indices.

Subjective well-being indicators are respondents’ self-assessed satisfaction with their lives, which reflect how they perceive the fulfilment of their needs. To assess satisfaction, the following is a frequently used question: “All things considered, how satisfied are you with your life as a whole these days?”. The respondents are required to provide an answer using a numeric scale, ranging from 0 (or 1), representing “very dissatisfied”, to 10, representing “very satisfied”. To our knowledge, the subjective well-being indicator that covers the most countries is named Happiness, the scores of which are released and updated by the World Happiness Reports. The World Happiness Report 2016 has released the latest Happiness scores of 157 countries (regions) based on surveys, conducted in the period of 2013–2015.

Objective well-being indicators adjusted by subjective well-being indicators are a combination of objective and subjective well-being indicators. The Happy Life Years (HLY) is such a typical indicator. The HLY is the product of life expectancy at birth and satisfaction scores divided by 10; in other words, the HLY is life expectancy at birth adjusted by satisfaction scores (Abdallah et al., 2009).

Note: The data for the HDI and life expectancy were obtained from the Human Development Report 2015. The data for the Happiness scores were obtained from the World Happiness Report 2016. The HDI and life expectancy values are for 2014, whereas the Happiness scores are for 2013–2015. We assume that the Happiness scores in 2013–2015 are comparable with the HDI and life expectancy values in 2014.

Table 1 shows differences in the HDI values, the Happiness scores and the HLY values among seven countries (regions) in 2014. The HDI values and the Happiness scores show opposite trends, while the HLY values show almost the same trend as that observed in the Happiness scores. It is also not difficult to observe that the disparity between the HDI values, the Happiness scores and the HLY values among some other countries is not large. The abovementioned examples at least demonstrate that objective well-being indicators and subjective well-being indicators (including objective well-being indicators adjusted by subjective well-being indicators) provide somewhat different conclusions regarding human well-being.

The Happiness scores and the HLY values of Hong Kong, the Republic of Korea, Japan and Italy are lower than those of Argentina, Mexico and Brazil. However, can we accordingly declare that the well-being levels of the four developed countries (regions) are lower than those of the three developing countries? Cultural differences and religious beliefs may help explain why the Happiness scores and the HLY values of the three Latin American countries (Argentina, Mexico and Brazil) are higher. Some other factors, such as relative status, hedonistic adaptation and information asymmetry, can also affect the respondents’ self-assessment of their real well-being conditions (Bartolini and Sarracino, 2014). It can be inferred that subjective well-being indicators are not suitable for cross-national comparisons (Costanza et al., 2014, 2016; Koch et al., 2017).

This paper selects the HDI to measure human well-being due to three reasons: (1) the theoretical basis of the HDI is Amartya Sen’s Capability Approach, which states that human well-being should be evaluated in terms of the freedoms, opportunities and capabilities to

Table 1
HDI values, Happiness scores, and HLY values of seven countries (regions) in 2014.

Country (Region)	HDI	Happiness	Life Expectancy	HLY
Hong Kong	0.910	5.458	84.0	45.847
Korea, Rep.	0.898	5.835	81.9	47.789
Japan	0.891	5.921	83.5	49.440
Italy	0.873	5.977	83.1	49.669
Argentina	0.836	6.650	76.3	50.740
Mexico	0.756	6.778	76.8	52.055
Brazil	0.755	6.952	74.5	51.792

Download English Version:

<https://daneshyari.com/en/article/7494499>

Download Persian Version:

<https://daneshyari.com/article/7494499>

[Daneshyari.com](https://daneshyari.com)