Journal of Cleaner Production xxx (2015) 1–10

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro

Sustainable Value creation of nine countries of the Baltic region. Value, changes and drivers

Siarhei Manzhynski [a, *], Frank Figge [b, 1], Lars Hassel [c, 2]

[a] Belarussian State Technological University, Department of Economics and Plant Management, 220006 Minsk, Sverdlov Street 13a, Belarus
[b] KEDGE Business School, Domaine de Luminy, 13288 Marseille Cedex 9, France
[c] Umeå School of Business and Economics, Umeå University, 901 87 Umeå, Handelshögskolan Biblioteksgränd 6, Sweden

ARTICLE INFO

Article history:
Received 22 December 2014
Received in revised form
2 July 2015
Accepted 5 July 2015
Available online xxx

Keywords:
Sustainable Value
Baltic region
Sustainability
Sustainability assessment

ABSTRACT

The Baltic region comprises countries of great diversity. They have in common that they all face the challenge to combine a sound economic development with the stewardship for their environmental, social and economic resources. Using the Sustainable Value approach we first analyze their overall sustainability performance. We then further develop the value drivers of Sustainable Value to enhance the explanatory power of our analysis. We find that there are significant differences between countries. We show both conceptually and using our examples that there is no unambiguous link between economic growth, environmental and social stewardship and the efficient use of resources.

1. Introduction

The countries of the Baltic region are arguably one of the most interesting regions to look at in terms of sustainability performance. The region includes highly developed, economic heavy weights like Germany and Sweden, fast-developing new European Union (EU) countries likes Estonia and Latvia and emerging countries like Russia and Belarus. With the different histories come different sustainability challenges. All countries need to balance the need for economic growth and development, usually considered to be positive, with the use of environmental and social resources, usually considered to be a burden and therefore negative. This is particularly challenging for lesser developed countries. They face the challenge to grow economically to catch up with more developed countries, while having to manage their footprints in order not to repeat the mistakes of the past of the more developed countries. Different strategies have been formulated how this tension can be solved. Some argue that countries can grow themselves out of their environmental and social problems. The environmental Kuznet's curve (Panayotou, 1993) hypothesizes a development where a higher economic development can be linked to a lower environmental burden. Based on this some argue optimistically that concentrating on a higher economic development will also deliver automatically a lower environmental and social footprint (Beckerman, 1992; Bhagwati, 1993). Others argue that the footprint must be actively managed regardless of the state of economic development (Goodland et al., 1993).

This article provides an in-depth analysis of the sustainability performance of 9 countries of the Baltic region between 2005 and 2010 in monetary terms using the Sustainable Value (Figge, 2001; Figge and Hahn, 2004a) approach. The Sustainable Value approach was chosen as it is the only value-based assessment approach of sustainability performance. Sustainable Value combines economic return with the use of economic, environmental and social burdens and therefore relates the challenge of economic growth to the challenges of environmental and social stewardship. All other existing assessment approaches are burden-based. Sustainable Value is based on the assumption that value is created when a resource is used more efficiently than by an alternative use. Put differently, the approach transfers the concept of the opportunity cost of capital from financial economics to sustainability at large. Going beyond existing research in the field (e.g. Ang et al., 2011) the article conducts a driver analysis of sustainability performance of countries. This driver analysis allows distinguishing between the effects of (1) catching up with other countries, (2)

* Corresponding author. Tel.: +375 445197601.
E-mail addresses: siarhei.manzhynski@belstu.by (S. Manzhynski), frank.figge@kedgebs.com (F. Figge), lars.hassel@usbe.umu.se (L. Hassel).
[1] Tel.: +33 7 61 52 52 18.
[2] Tel.: +46 073 735 78 00.

http://dx.doi.org/10.1016/j.jclepro.2015.07.027
0959-6526/

increased economic growth and (3) better environmental and social stewardship on sustainability performance. In addition the article develops a classification that distinguishes between different kinds of contribution to Sustainable Development that countries can make. Among others this classification allows to show that the overall contribution to a more sustainable use of economic, environmental and social resources can be positive even if more resources are being used or less economic return is generated.

The article is structured as follows. The next chapter introduces the Sustainable Value approach. Chapter 3 analyses the sustainability performance of 9 countries of the Baltic Sea region during the period 2005–2010. The fourth chapter conducts a driver analysis that allows distinguishing between three drivers of Sustainable Value generation. Chapter 5 discusses the main findings and concludes the article.

2. The Sustainable Value approach to measure sustainability performance

The Sustainable Value (SV) approach was developed by Figge and Hahn (Figge, 2001; Figge and Hahn, 2004a) and used both widely on a corporate level (e.g. Hahn et al., 2007; Hahn et al., 2013) as well as cited widely academically. In the meantime the approach has also been used on a macro level. Ang et al. (2011) assess for example the EU-15 economies in terms of Sustainable Value added for the 1995–2006 timespan.

SV distinguishes itself from other assessment approaches by being value-based rather than burden-based (Figge and Hahn, 2004b). While other approaches assess the use of resources based on the burden (for example the environmental damage) they create (e.g. Heijungs et al., 1992; Wackernagel and Rees, 1996), SV uses the return that is created with a resource as the basis for sustainability assessment.

There are a range of assessment approaches that can be used to assess the sustainability performance of countries. Different assessment approaches have different explanatory powers (Figge et al., 2014a). The goal of this research was among others to find out how well countries balance economic growth and environmental and social stewardship and whether lesser developed countries are able to catch up with more developed countries. This called for a value-based approach to performance measurement.

One important additional criterion was that the approach must cover all three dimensions of sustainability. Therefore methods such as Ecological Footprint (Wackernagel and Rees, 1996), Material Flow Accounts (Dietz and Neumayer, 2007), and Hybrid Indicators (Hueting, 1980) were not considered. A further criterion was that the assessment result should be measured in a monetary unit. This ruled out approaches like the Human Development Index (Sagar and Najam, 1998) or the Environmental Performance Index (Hsu et al., 2014). Data on the use of environmental and social resource use in the Baltic Sea region is notoriously difficult to obtain. The data requirement of the assessment approaches needed to match the data availability for the Baltic Sea countries. This criterion excluded for example the Genuine Progress Indicator, which is a variant of the Index of Sustainable Economic Welfare (ISEW) (Daly and Cobb, 1989). While being very comprehensive and balanced in terms of adjusting components for GDP corrections GPI is quite demanding in terms of data requirements. In addition this data is typically not available in monetary but only in physical units. This rules out approaches that require monetary input figures such as Adjusted Net Savings (Pearce and Atkinson, 1993). SV was therefore chosen as a value-based assessment that measures contributions to sustainability in monetary terms while being able to use non-monetary environmental and social input variables.

The underlying idea of the Sustainable Value approach is to apply the way financial capital is assessed to natural and social scarcities. This has already been proposed in principle more than 100 years ago (Green, 1894). SV assumes that a return, such as a profit, is not only created by a single resource, e.g. economic capital, but rather a bundle of resources all of which are scarce. Because they are scarce they need to be used efficiently. A more efficient use of a resource is linked to more value creation. To create positive Sustainable Value a resource must earn its opportunity cost, i.e. it must at least match the return of an alternative use. There has been an intensive debate on what constitutes the opportunity cost of resource use in the context of environmental and social resources (Figge and Hahn, 2009; Kuosmanen and Kuosmanen, 2009). In the following we follow the tradition of financial economics that uses the average of the return on a resource by a market as its opportunity cost. This can be assumed to reflect rational behavior in a situation where the return of a single resource user is subject to risk (cf. analogously Modigliani and Miller, 1958).

SV can take into account all kinds of resources as long as they are necessary for production, scarce and can be measured in absolute quantitative terms. In practice the choice of indicators is limited by availability. For a macro-level analysis the following indicators can be found: carbon dioxide (CO_2), nitrogen oxides (NO_x), sulfur oxides (SO_x) emissions, waste generation (environmental dimension); number of employees and work accidents, absolute levels of voluntary and involuntary unemployment (social dimension); gross capital stock (economic dimension) (cf. e.g. Ang et al., 2011). Expressing the economic and environmental side of sustainability as scarcities appears rather evident. All other things being equal the use of less is typically preferred to more. This is not necessarily the case of the social side where more is sometimes preferred to less. This is for example the case of employment where, especially in regions of high unemployment, more is preferred to less. However, this is not a major concern in this context. Firstly, most would agree that while employment is considered positive the aim would still be to use the production factor labor in an efficient way, i.e. to treat it like a scarcity. Secondly, a factor that is defined in a way where more is preferred to less can usually be redefined in a way that less is preferred to more. Employment is for example a positive description for the lack of unemployment. Thirdly, one must carefully distinguish between means and ends. Social resources that are necessary for production are a means that are used to achieve ends that can themselves also have a social dimension. While the ends are to be maximized, a high return is preferred to a low return, the means are to be minimized, a lower resource use is preferred to a higher resource use.

SV can be custom-tailored to assess sustainability performance from different perspectives. Five questions help to define the individual SV application (The ADVANCE Project, 2006).

(1) Which object?

This first decision question covers what the assessment objects are, i.e. what is being assessed. In our study these are nine countries of the Baltic Sea region.

(2) Which benchmark?

SV is created when the assessment object, as defined in the previous step, earns its opportunity cost, i.e. has a higher efficiency than the benchmark. This decision defines the benchmark that the assessment objects are compared to. We use the average efficiency of all nine countries as the benchmark.

Please cite this article in press as: Manzhynski, S., et al., Sustainable Value creation of nine countries of the Baltic region. Value, changes and drivers, Journal of Cleaner Production (2015), http://dx.doi.org/10.1016/j.jclepro.2015.07.027