Domestic Value Added as an Indicator for Sustainability Assessment – a Case Study on Alternative Drivetrains in the Passenger Car Sector

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Research Article

Keywords: Sustainability assessment, domestic value added, drivetrain technology, Input Output analysis, Life Cycle Sustainability Assessment, passenger car

Posted Date: January 19th, 2022

DOI: https://doi.org/10.21203/rs.3.rs-1211251/v1

Abstract

In order to broaden the economic pillar in sustainability assessment the indicator ‘domestic value added’ is introduced. ‘Domestic value added’ aims at comparing technologies with regards to their prospective influence on the added value of a country. This is done by classifying a technology’s value added to the developed categories domestic, potential domestic and non-domestic. Within this paper methods for estimating this indicator are introduced. Two methods are proposed, presented and assessed especially considering their applicability in a sustainability assessment context. Both methods are tested on a case study comparing two alternative drivetrain technologies for the passenger car sector (battery and fuel cell electric vehicle) to the conventionally used internal combustion engine. The first method is based on a classic economic assessment whereas the second is based on Input Output analysis. The results show, that from a ‘domestic value added’ perspective the battery electric vehicle is already more advantageous than the conventionally used internal combustion engine in percentage and absolute numbers. Fuel cell electric vehicles have the highest potential to increase their ‘domestic value added’ share in the future. This paper gives practical information on how to prospectively assess ‘domestic value added’ due to substituting existing with less developed technologies or innovation.

Full Text

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