MICAT

Multiple Impacts Calculation Tool

Empirical Basis of Economic Impacts Turnover of Energy Efficiency Goods

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Scope of MI Indicator

Definition

The turnover of energy efficiency (EE) goods is an economic indicator that captures the amount of capital generated associated with the implementation/utilization of EE goods. The latter are products that contribute to the improvement of energy efficiency in general, be it of the product itself or of the whole network/system.

Relevance of EU, national and/or local level

The multiple effects resulting from the turnover of EE goods affect the collective value of companies and firms of a given industry. The effect that EE goods and their development will have on a determined field, such as the residential sector, can be represented at a European, national, and local level. Indeed, depending on the purpose of the analysis, the impact of EE goods could be calculated on a country level and thus considering the economic development of the latter, but also on a local or European level. This depends on the purpose of the study and, perhaps most importantly, on the data available.

Impact pathway figure

In Figure 1 the various impacts that follow from an improvement of the turnover of EE goods is illustrated. The figure summarises in a graphical manner the findings explained above. It differentiates between impacts at an industry level and societal level.

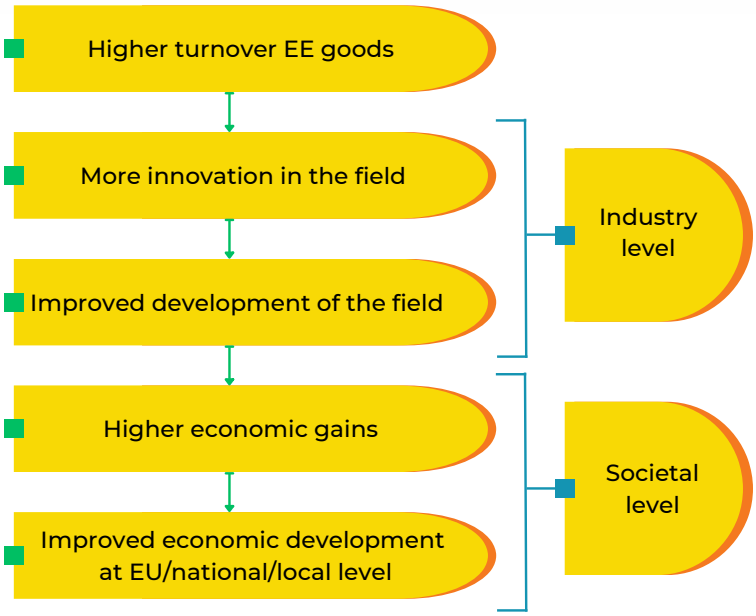

Figure 1: Impact pathway for the turnover of energy efficiency goods

Overlaps with other MI Indicators and potential risk of double counting

Whereas the turnover of EE goods will depend on the final energy savings, the latter are usually represented in scientific terms (GJ) and not in economic terms. Therefore, the risk of double counting in this case is rather low, as it is an economic indicator that depends on technical measurements.

In the literature there have been found two main quantification methods regarding the turnover of EE goods. According to Reuter et al. (2020), the latter can be quantified utilising the following formula:

Where *TO* is the turnover of EE goods, *ES* is the energy savings, is the share of space heating in final energy consumption of country *i* , is the share of savings due to insulation and efficient heating systems and the investments per unit of energy saved. Thereafter, the turnover of EE goods is measured in billion EUR. Such measurement applies strictly to the residential sector.

This indicator is mostly based on average calculations. As an improvement, such indicator should consider temporal and spatial changes occurring in the system being considered (Reuter et al., 2020). Other limitations include the lack of control data on where and how many investments are devoted to different types of technologies promoting energy efficiency, and annual fluctuations that may be occurring due to structural changes being insufficiently separated from savings in energy end-uses (Eichhammer et al., 2018). Essentially, such indicator is highly dependent on the available data. For example, Reuter et al. (2020) utilised data from the Netherlands to infer data for other European countries assuming a similar split of costs. The lack of availability of such data in other European countries may indeed hinder the importance of the discussed indicator.

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Monetisation

As previously explained, turnover of EE goods can potentially have an impact on the country's economic performance and development. Additionally, the economic indicator is measured in billion EUR. Therefore, it is possible to monetise this indicator.

Aggregation

Turnover of EE goods could be potentially aggregated with an indicator calculating the impact of EE measures on GDP. Reuter et al. (2020), consider such an indicator in their study and quantify it as a percentage of GDP. This can be easily converted in billion EUR to make it match with the chosen unit of measure for the turnover of EE goods. Since it was previously explained how the considered indicator can potentially improve the national economic development, it could be also calculated how much of the increase in GDP resulted from EE goods. This would allow to thereafter aggregate the two indicators. Additionally, many EE measures aim at enhancing investments in EE goods, ultimately having a positive impact on the GDP, hence justifying the suggested correlation and aggregation of indicators.

Conclusion

After performing an extensive literature review, it was found that the main challenges related to analysing and calculating the turnover of EE goods are related to the availability of data. Indeed, data describing the investments performed in EE goods are rarely available at a national scale, whereas at a European level are not available at all. Nonetheless, data related to annual energy savings per country in the residential sector are available. Therefore, the challenge is rather in understanding the number of investments in EE goods and representing its trend. Indeed, the mathematical formulas to quantify the latter are available and are not technically demanding. Additionally, the impact such investments have on the GDP and the national economic trend in general could also be obtained. It is suggested to focus on the national level where possible, as local level involves various ramifications and is rather case-specific. Essentially, the local turnover of EE goods per given municipality/region would not provide the same impactful insights as at a national scale. Additionally, the availability of such data at a local level is also deemed to be another possible unknown.

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