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Blue economy and economic analysis

The role of quantitative research in the process of creating the blue economy scenarios

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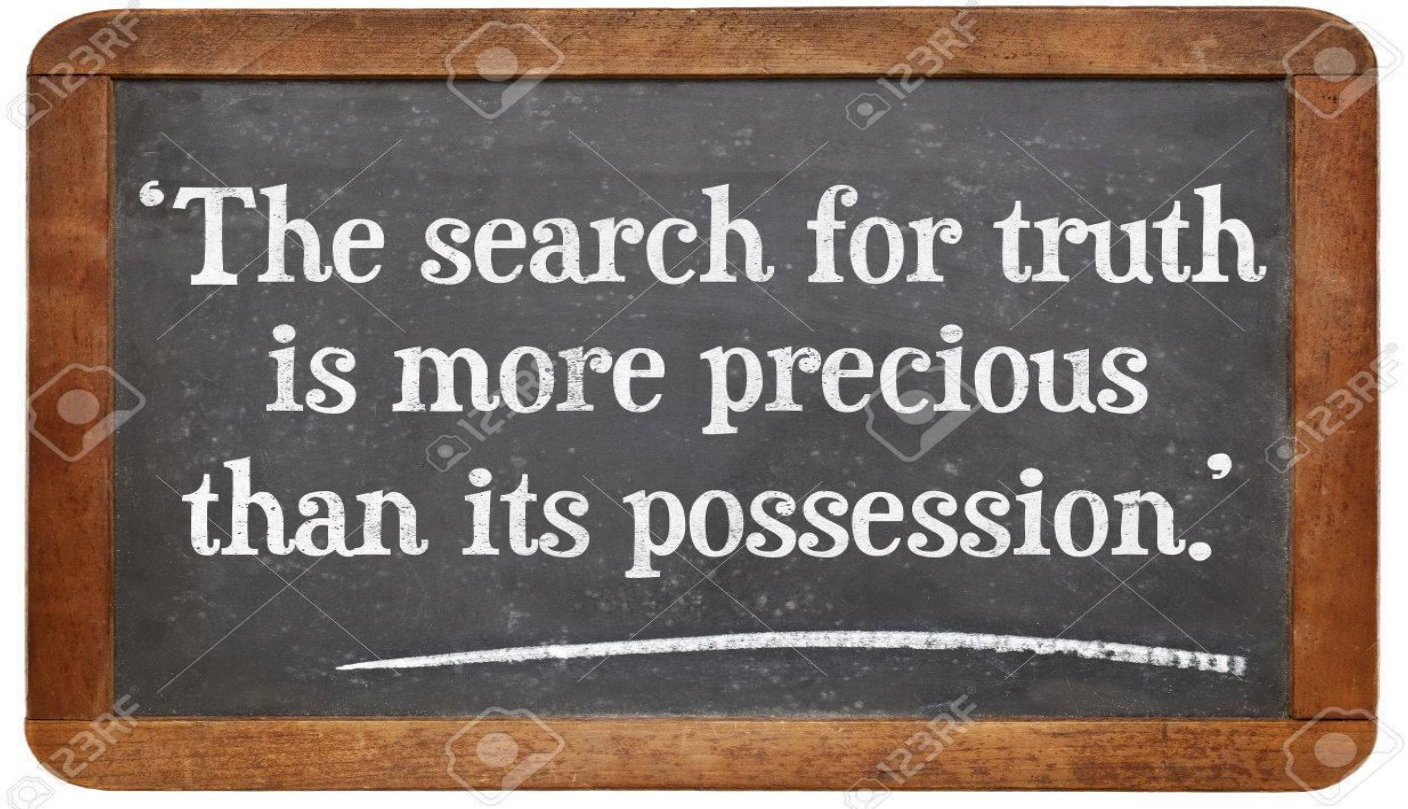
Quantitative *versus* qualitative research: wise decision – mixed approach: https://www.youtube.com/watch?v=MlU22hTyIs4

Smart advice from Albert Einstein….



The aim of the study:

Background information for the elaboration of blue regions' development scenarios relying on quantitative analysis of blue sectors' economic performance in selected coastal regions of Estonia and Finland.

We also tried to follow wise advice....

Data and Methodology

Data source: **Amadeus database: enterprise's microdata on resources (current and fixed assets, labour) and outputs (turnover, profit).**

Economic potential analysis

1. Productivity analysis

How much output is produced per unit of input (resource)?

Method: crude partial productivity measures (single output w.r.t. single output; no benchmark comparison)

2. Efficiency analysis

How efficiently resources are utilized? Efficiency refers to maximization of output given inputs

Method: Data Envelopment Analysis (multiple inputs w.r.t. multiple outputs; benchmark comparison)

3. Sensitivity analysis

How variation in input quantity affects output? What will happen to output if to increase input(s) by 1 unit?

Method: regression analysis (single output w.r.t. multiple inputs and related factors potentially affecting output)

Effective and efficient

Being **effective is** about doing the right things.

Being **efficient is** about doing things right.

Efficiency – (simply) a ratio between inputs (resources) and outputs (results in monetary or physical terms)

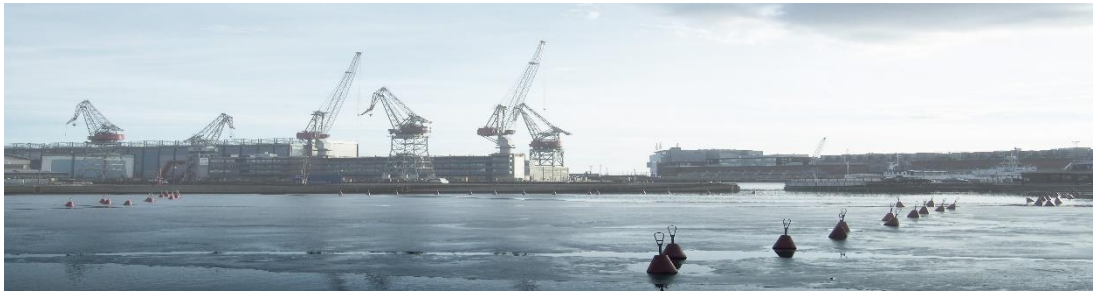
Effective business – achieves the greatest possible output per unit of inputs.

Limitations of the Amadeus database

- **Companies' location:** Companies' location implies a registration address of an enterprise. However, an address of company's location may differ from a place where company is actually operating.
- **Companies industry classification:** Amadeus relies on NACE Rev. 2 classification of activities, which does not allow to distinguish specific types of blue economy activities (e.g. wind vs. water energy).
- **Cross-country linkages:** the data fails to provide a reliable measure for a cross-country linkages analysis.

NB! the empirical results based on Amadeus data need to be considered with some caution.

Blue industries

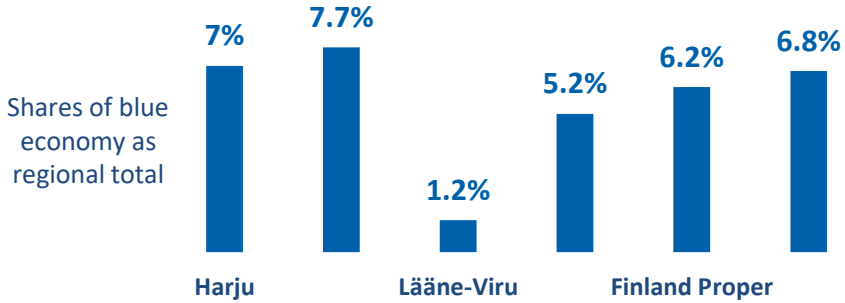


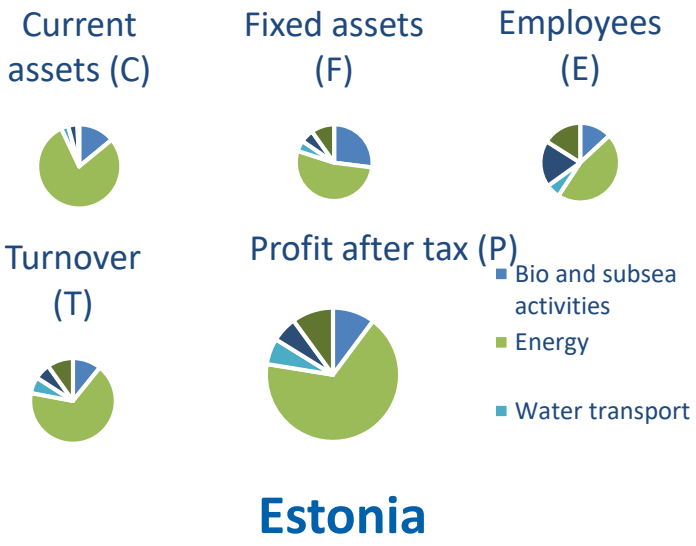
Industries (NACE Rev. 2)

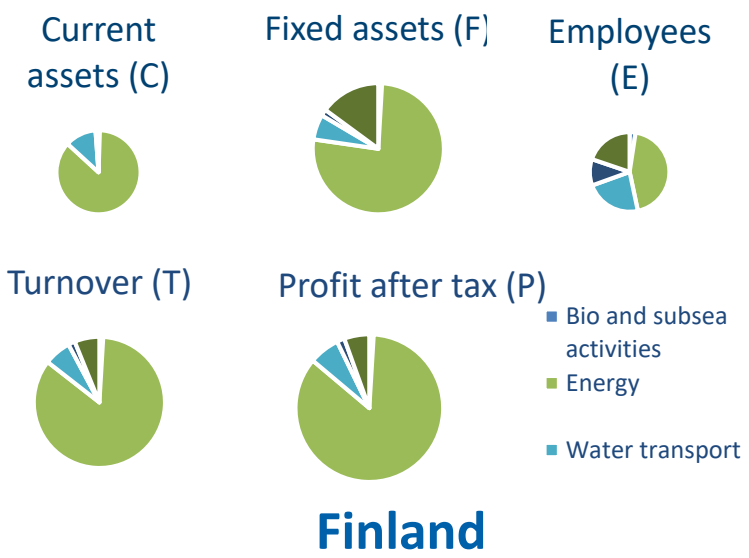
- **Maritime fishing and aquaculture** (0311 - Marine fishing, 0321 - Marine aquaculture)
- **Energy** (06 - Extraction of crude petroleum and natural gas, 091 - Support activities for petroleum and natural gas extraction, 19 - Manufacture of coke and refined petroleum products, 2011 - Manufacture of industrial gases, 351 - Electric power generation, transmission and distribution, 3513 - Distribution of electricity, 352 - Manufacture of gas; distribution of gaseous fuels through mains, 3522 - Distribution of gaseous fuels through mains, 4671 - Wholesale of solid, liquid and gaseous fuels and related products)
- **Shipping** (501 - Sea and coastal passenger water transport, 502 - Sea and coastal freight water transport)
- **Maritime tourism** (551 - Hotels and similar accommodation, 552 - Holiday and other short-stay accommodation, 553 - Camping grounds, recreational vehicle parks and trailer parks, 559 - Other accommodation, 561 - Restaurants and mobile food service activities, 563 - Beverage serving activities, 79 - Travel agency, tour operator reservation service and related activities, 932 - Amusement and recreation activities)
- **Maritime construction** (301 - Building of ships and boats, 3011 - Building of ships and floating structures, 3012 - Building of pleasure and sporting boats, 3315 - Repair and maintenance of ships and boats, 4291 - Construction of water projects).

Descriptive profile

Overall blue economy's indicators







Note: Estimates based on Amadeus database for year 2015. Only companies, which reported all indicators are included.

Blue sectors are performing well in Estonia and Finland

The results of blue sectors' economic performance (productivity, efficiency, sensitivity analysis) based on Amadeus database show:

- Blue sectors' labour and current assets **productivity are on average higher comparing to non-blue sectors;**

- **Efficiency of blue sectors is as rule high** suggesting that **resources are on average efectively used** and produce high economic returns.

But….

In some cases there seems to be an excess of fixed assets

Particularly

- **in bio & subsea activities and tourism in Estonia**
- **and marine (cargo) transportation in Finland.**

- **Thus, there is still space for the improvement of economic performance of blue sectors without employing additional resources and thereby decreasing environmental pressure.**

NB! Further analysis (including case studies) is also necessary!

- **Cross-border cooperation** including sharing “good practice” and developing and using joint infrastructure can open new possibilities for more efficient use of resources (particularly fixed assets)**,** and possible **declining environmental pressure**.

- The system of **cross-border statistics** should be remarkable improved. The generalization level of present statistical information is often too high and do not follow the needs of spatial planners and local authorities of border areas.

Proposals for development of cross-border statistics (as the side product of our economic analysis)

Problems:

- **The national-level data sources** (e.g administrative registry data) are substantially different across EU countries, due to different reporting procedures, metric systems, content of specific indicators ➔ **no fully harmonized registry data**.
- **European or international level data** are harmonized across countries, but the generalisation is too high ➔ **lack of sufficiently disaggregated information.**

What has to be addressed in the future: **A harmonized and detailed cross border statistics**

- Cross-country unified data collection and processing procedures
- Sufficient data disaggregation in terms of NUTS regions, enterprise-level financial indicators
- Recorded cross-border operations and financial flows
- ....

Dissemination of the research results

- **Final Report "Assessment of the role of marine industries in the region" (Deliverable T.1.8.1; 2019); (Assessment of the role of marine industries in the region)**

Working Papers

- **Ashyrov, G., Paas, T., Tverdostup M. The Input-Output Analysis of Blue Industries: Comparative study of Estonia and Finland. *Working Papers of the School of Economics and Business Administration*, N0 109, University of Tartu, 2018, 25 p https://majandus.ut.ee/sites/default/files/mtk/dokumendid/febawb109.pdf**
- **Tverdostup M., Paas, T. Economic Performance Analysis of Selected Blue Economy Sectors in Estonia and Finland, *Working Papers of the School of Economics and Business Administration*, N0 115, University of Tartu, 2019, 24 p. https://majandus.ut.ee/sites/default/files/mtk/dokumendid/febawb115.pdf**

Many thanks for your attention and efficient cooperation!