https://doi.org/10.38104/vadyba.2025.1.06

Vadyba
Journal of Management
2025, № 1 (41)
ISSN 1648-7974

THE BLUE ECONOMY IN EU COASTAL REGIONS: SECTORAL COMPOSITION AND STRUCTURAL CHALLENGES

Oleksandra Ovchynnykova[1], Valentinas Navickas[2]
[1]Klaipeda University, [2]Lithuania Business College

Abstract
The Blue Economy is becoming an increasingly vital component of regional development strategies, offering the potential to decouple economic growth from environmental degradation. It is viewed not only as a source of employment and value creation, but also as a platform for long-term environmental sustainability and innovation. While the Blue Economy integrates social, environmental, and economic dimensions, this study focuses on its contribution to regional economic development in EU coastal countries. Although coastal regions benefit from direct access to marine resources, the scale, structure, and effectiveness of Blue Economy contributions vary significantly across Member States. Acknowledging this heterogeneity, the study examines whether countries with different structural profiles exhibit signs of balanced or at-risk Blue Economies. The analysis draws on secondary data from the European Commission's Blue Indicators Tool for the period 2009–2021, focusing on gross value added (GVA) and employment. These indicators are used to calculate growth rates and structural indices, including the Herfindahl–Hirschman Index (HHI), Labour Intensity in Manufacturing Index (LIMI), and Relative Regional Specialization Index (RRSI). Using quartile thresholds and quadrant analysis, countries are classified according to their sectoral concentration, labour intensity, and regional advantages. Findings show that the Blue Economy has a divergent impact on regional development. Countries with labour-intensive, tourism-dominated economies—such as Bulgaria, Spain, Italy, Greece, and France—demonstrate declining trends in both GVA and employment. These at-risk economies are highly exposed to demand fluctuations and structural inefficiencies. Moreover, even where economic performance improves, labour involvement is declining due to the automation of services such as tourism. In contrast, balanced economies such as Latvia, the Netherlands, Slovenia, Lithuania, Romania, and Belgium show more diversified sectoral structures, lower labour intensity, and stronger regional advantages. Their Blue Economies are more resilient to shocks and better aligned with digital and innovation-driven transformation. Capital-intensive sectors like shipbuilding, maritime transport, and ocean energy are particularly associated with employment stability and productivity growth. Importantly, the analysis confirms that recent changes in employment dynamics are not directly linked to the COVID-19 crisis or its recovery phase. Instead, the underlying driver is the acceleration of automation and digitalization, which the pandemic only reinforced, particularly in labour-intensive service sectors. While this study is limited to the economic dimension, it acknowledges the crucial role of social and environmental aspects, such as wellbeing, inclusion, and the ecological health of marine and coastal ecosystems. These will be addressed in the subsequent phase of the research.
KEY WORDS: Blue Economy, Coastal Regions, Regional Resilience, Regional Development.
JEL classification: Q01, Q56, R11, J21

Introduction

The concept of the Blue Economy represents a major paradigm shift from the traditional linear model of natural resource exploitation, which has historically led to environmental degradation and resource depletion (Djoric, 2022). In contrast, the Blue Economy seeks to decouple economic development from ecological harm, promoting growth while preserving marine ecosystems and supporting long-term human well-being (Spalding, 2016). As noted by Elegbede et al. (2023), the Blue Economy is inherently multidisciplinary, encompassing economic, social, and environmental objectives through the sustainable use of ocean and coastal resources.

Although references to maritime economic activities such as port infrastructure, shipping, and coastal tourism can be traced back to the late 20th century (Leszczycki, 1979; Martínez-Vázquez et al., 2021), the interdependence between human settlements and aquatic ecosystems is deeply historical. Following the stabilization of sea levels after the last ice age, coastal zones became centres of human activity. Technological progress subsequently enabled more efficient exploitation of marine resources, fostering the emergence of global maritime trade (Griggs, 2017).

Today, the spatial importance of coastal proximity remains significant: approximately 70% of the global population lives within 5 km of a water body, and over 40% within 100 km of a coastline (Kummu et al., 2011; Barragán & De Andrés, 2015). This spatial distribution underlines the critical role of marine spaces in shaping socio-economic development.

In scholarly literature, the terms Blue Economy, ocean economy, and marine economy are often used interchangeably. However, as Martínez-Vázquez et al. (2021) observe, they differ in scope and emphasis—particularly regarding the balance between economic objectives and environmental sustainability. This conceptual ambiguity reflects an underlying tension between economic expansion and ecosystem protection, a tension that has real implications for policy and regional development strategies.

Nevertheless, the Blue Economy is increasingly recognized as a catalyst for regional economic growth, especially in coastal areas. It contributes directly through job creation and gross value added (GVA) in maritime sectors, and indirectly through value chains that also benefit inland regions (OECD, 2024; Mohyla et al., 2024).

These effects position the Blue Economy not only as a growth engine, but also as a framework for sustainable transformation at national and supranational levels.

Despite its growing relevance, the Blue Economy remains unevenly researched in terms of its economic structure, sectoral performance, and spatial implications, particularly at the subnational level. While numerous studies address specific sectors or environmental effects, few comprehensively assess how different configurations of Blue Economy activity influence regional development outcomes across the EU.

Accordingly, the object of this study is the Blue Economy of EU coastal countries, and its purpose is to evaluate how sectoral composition and structural features affect regional economic development. The central research question is: To what extent does the sectoral structure of the Blue Economy determine regional performance in terms of GVA and employment.

The study focuses on two core objectives:

(1) to analyse the economic contribution of the Blue Economy to coastal regions using gross value added and employment as key indicators;
(2) to assess whether countries with different structural profiles (e.g. labour intensity, specialization, regional advantage) exhibit different patterns of development.

To address these objectives, the study uses secondary statistical data from the European Commission's Blue Indicators Tool (2009–2021), and applies quantitative methods, including growth rate analysis, index-based classification (HHI, LIMI, RRSI), quartile thresholding, and quadrant mapping. This methodological framework enables the identification of countries with balanced or at-risk blue economies, thereby offering new insights into the relationship between structure and sustainability in the context of maritime-driven regional development.

Literature Review

The concept of the Blue Economy has emerged as a central theme in contemporary discussions on sustainable development, regional policy, and marine-driven economic transformation. It is widely understood as an integrated model that seeks to reconcile economic growth with environmental stewardship (Spalding, 2016; Djoric, 2022). Within this framework, Spalding (2016) emphasizes innovation, social inclusivity, and ecosystem preservation as core principles of blue growth, while Djoric (2022) analyses institutional strategies in the European Union, outlining policy instruments and governance mechanisms that facilitate sustainable marine development. Elegbede et al. (2023) further reinforce the multidisciplinary nature of the Blue Economy, highlighting its intersection across ecological, social, and economic dimensions.

This conceptual grounding has led scholars to focus increasingly on the measurement and evaluation of the Blue Economy's economic impact. A key area of inquiry concerns how specific sectors—such as shipping, fisheries, coastal tourism, and ocean energy—contribute to gross value added (GVA) and employment. Martínez-Vázquez et al. (2021, 2023) provide significant methodological insights by employing panel data models, correlation analysis, and causality testing to capture sectoral interdependencies. Their approach builds on earlier foundational work, including Leszczycki's (1979) recognition of maritime infrastructure as a key driver of regional economic integration.

Parallel to this, spatial and demographic analyses offer crucial context for understanding regional variations in Blue Economy performance. Studies by Kummu et al. (2011) and Barragán & De Andrés (2015) reveal that a significant share of the global population resides in close proximity to coastlines, underscoring both the economic potential and vulnerability of coastal zones. Griggs (2017) elaborates on this vulnerability, linking coastal urbanization and climate change to increasing socio-ecological risks—an important consideration for long-term Blue Economy planning.

To quantify the economic contributions of Blue Economy sectors, scholars frequently rely on GVA and employment metrics (Anda et al., 2020; Cai & Leung, 2020; Andreescu, 2021). These indicators enable cross-sectoral and cross-country comparisons, particularly when complemented by techniques such as data normalization and logarithmic transformation (Lütkepohl & Xu, 2012; Ogun, 2021). However, as Casler (2015) notes, the accurate measurement of growth trends remains a methodological challenge. National institutions, such as the UK Office for National Statistics (ONS, 2023), have developed practical tools to enhance the reliability of economic impact assessments.

Another important research stream investigates the structural characteristics that condition Blue Economy performance. Scholars such as Kaivo-oja et al. (2017, 2020) and Haukioja et al. (2018) explore how labour intensity, sectoral specialization, and regional resilience interact, applying indices like the Herfindahl-Hirschman Index (HHI), Relative Regional Specialization Index (RRSI), and Labour Intensity and Market Integration Index (LIMI). These indices help to identify the extent to which regional economies depend on specific sectors and how this affects their adaptability to economic shocks.

Technological advancement, particularly in the form of automation and digitalization, introduces further complexity to the Blue Economy's labour dynamics. Studies by Vermeulen et al. (2018) and Theotokas et al. (2024) warn that sectors characterized by high labour intensity—especially tourism and fisheries—are vulnerable to job displacement as technology substitutes for human labour. The COVID-19 pandemic further accelerated these trends, prompting widespread adoption of contactless technologies and remote service delivery, as shown by Rahimizhian & Irani (2021) and SAGE Publishing (2024).

Finally, spatial inequalities within the Blue Economy have drawn increasing attention. McCann (2020) and Filenta & Kydros (2022) advocate for regionally disaggregated analysis, employing quantitative and network-based approaches to detect economic asymmetries and map interregional spillover effects. This perspective reinforces the need for policy frameworks that account for the territorial diversity of the Blue Economy across the EU.

Taken together, this body of literature provides a comprehensive theoretical and methodological foundation for examining the Blue Economy. It not only informs the selection of analytical tools and indicators but also emphasizes the importance of sectoral structure, labour

dynamics, spatial proximity, and institutional context in shaping regional development outcomes. This review underpins the present study's goal of assessing how the structure and performance of the Blue Economy influence economic development in the coastal regions of the European Union.

Methodology

This study evaluates the Blue Economy at the national level, with regions defined according to the Nomenclature of Territorial Units for Statistics (NUTS) as major socio-economic territories. The analysis is based on two widely accepted macroeconomic indicators of regional development: gross value added (GVA) and employment. The selection of these indicators is supported by previous empirical research (McCann, 2020; Filenta & Kydros, 2022), as they capture both the output and labour market dimensions of economic activity. While GDP and GVA are commonly used to measure overall economic performance, sectoral disaggregation enables a more nuanced understanding of structural economic transformation by identifying key growth sectors and assessing regional economic specialization (Anda et al., 2020; Cai & Leung, 2020; Andreescu, 2021).

To enhance comparability across countries and regions, all data were normalized. In cases where variance heterogeneity or extreme values were observed, logarithmic transformations were applied to stabilize dispersion and minimize the impact of outliers (Lütkepohl & Xu, 2012; Ogun, 2021).

To capture temporal trends in the development of the Blue Economy and to distinguish between regions experiencing growth and those in decline, a longitudinal analysis was conducted. Specifically, two types of growth rate calculations were employed: the simple (arithmetic) growth rate and the logarithmic (continuous) growth rate, in accordance with the methodological recommendations of Casler (2015) and the UK Office for National Statistics (Measuring the Economy, 2023). The corresponding formulas are presented below (Formulas 1–2).

$$\text{Growth Rate} = \frac{(Y_{i,t} - Y_{i,t-1})}{Y_{i,t-1}}, \quad (1)$$

$$\text{Log Growth Rate} = ln\left(\frac{Y_{i,t}}{Y_{i,\,t-1}}\right) = \ln(Y_{i,t}) - \ln(Y_{i,\,t-1}); \quad (2)$$

where $Y_{i,t}$ is Gross Value Added for country i at time t.

To analyse local specialization within coastal regions, the Herfindahl–Hirschman Index (HHI) was employed to evaluate the degree of sectoral concentration within each country's Blue Economy. This index serves as a proxy for local specialization, indicating whether economic activity is broadly distributed across sectors or heavily concentrated in a few. To complement this, the Relative Regional Specialization Index (RRSI) was used to assess regional specialization, taking into account the presence of comparative advantages of an individual country in a specific Blue Economy sector relative to other studied countries.

To further classify countries based on the structural features of their Blue Economies, a quadrant analysis was conducted using two key indicators: the Labour Intensity in Manufacturing Index (LIMI) and the RRSI (Formulas 3–6). These metrics are particularly relevant for assessing the labour intensity of Blue Economy sectors and for identifying regional competitive advantages (Kaivo-oja et al., 2017; Haukioja et al., 2018; Kaivo-oja et al., 2020).

$$HHI = \sum s_i^2, \quad (3)$$

$$\text{RRSI}_c = \left[\sqrt{\sum (1-\text{BHI}_i)^2}\right]_c, \quad (4)$$

$$\text{BHI}_i = \frac{x_{c,i}/x_c}{x_c/x}, \quad (5)$$

$$LIMI_c = \frac{EMP_c}{EMP}; \quad (6)$$

where i – is sector, s – is the share of the sector i, c – country.

The combined application of these indices enabled a more comprehensive evaluation of the resilience or vulnerability of national Blue Economies. This approach facilitated a deeper understanding of the interaction between employment dynamics and value creation (GVA), helping to explain the underlying drivers of employment growth or decline in individual countries. Moreover, it allowed for the assessment of whether the presence of a Blue Economy sector in a given region genuinely contributes to job creation and economic activation, or whether structural limitations hinder its potential impact.

To identify vulnerable and resilient Blue Economies, a comparative analysis was conducted based on the values of the Herfindahl–Hirschman Index (HHI), the Relative Regional Specialization Index (RRSI), and the Labour Intensity in Manufacturing Index (LIMI). A quartile-based classification method was applied, whereby countries with indicator values in the upper quartile were categorized as "high," and those in the lower quartile as "low." This classification framework enabled the identification of economies exhibiting increased vulnerability—characterized by high specialization, high labour intensity, and a lack of regional advantages—as well as those demonstrating strong adaptive capacity and structural resilience in the face of economic transformation.

Data Sources and Processing

The study is based on secondary statistical data retrieved from the European Commission's Blue Economy Observatory and the Blue Indicators Tool. The primary indicators selected for analysis were gross value added (GVA) and employment, disaggregated across the key sectors of the Blue Economy.

The dataset spans the period 2009–2021 and is aggregated at the level of European Union Member States. Data were processed using Microsoft Excel for initial cleaning and organization, and further analysed using statistical software to implement regression modelling and index-based assessments, including transformations and quadrant analysis. The methodological approach ensures consistency and comparability across countries and over time, providing a robust basis for evaluating sectoral performance and structural differentiation within the Blue Economy.

Research Limitations

This study is subject to several important limitations, primarily related to the availability and consistency of data on Blue Economy activities across the European Union. The analysis relies predominantly on secondary data obtained from the European Commission's Blue Indicators Tool, which provides information on gross value added (GVA) and employment for the period 2009–2021. However, the dataset includes only seven sectors, excluding a range of emerging and innovative sectors—such as marine biotechnology, offshore renewable energy innovations, or digital marine services—which are increasingly relevant in the evolving Blue Economy landscape. As a result, the study may underestimate the full scope of the Blue Economy and fails to account for recent structural shifts, including those driven by the COVID-19 pandemic, the war in Ukraine, and related business redistributions or supply chain adjustments.

Another significant limitation concerns the territorial granularity of the data. Due to the unavailability of sufficiently disaggregated data, the analysis is conducted at the NUTS 1 level. This restricts the ability to examine regional heterogeneity within countries, particularly in Member States with diverse coastal geographies and substantial intra-national variation in Blue Economy activities. The lack of NUTS 2 or NUTS 3 level data limits the precision of spatial analysis and prevents a deeper understanding of localized development dynamics.

These limitations should be carefully considered when interpreting the study's findings. They underscore the urgent need for more detailed, sector-specific, and regionally disaggregated datasets to support future research and inform evidence-based policymaking in the field of Blue Economy development.

Results and discussion

According to the NUTS classification, 22 of the 27 European Union Member States (81.5%) are classified as coastal, while the remaining five — Austria, Czechia, Hungary, Slovakia, and Luxembourg — are landlocked, comprising 18.5% of Member States and lacking direct access to marine resources.

In these landlocked countries, the gross value added (GVA) generated by Blue Economy sectors remains limited, ranging from €69.17 million in Luxembourg to €479.6 million in Austria. These modest outputs reflect structural constraints on the development of marine-related industries. In contrast, even the smallest coastal economies perform more strongly. For instance, Slovenia, though the lowest among coastal countries in terms of Blue GVA, still outperforms all landlocked Member States, highlighting the spatial-economic advantage of coastal access.

The Blue Economy's share in national GDP is also significantly lower in landlocked countries (0.14%–0.42%), whereas coastal countries range from 0.6% in Romania to 7.16% in Croatia. In absolute terms, Germany leads in total Blue Economy output. In terms of employment, Cyprus stands out, with approximately 11% of the national workforce engaged in Blue Economy sectors.

A longitudinal analysis of GVA and employment growth (2009–2021) revealed pronounced disparities across Member States (Figure 1). Bulgaria experienced the sharpest decline in both indicators, indicating structural fragility. In contrast, Lithuania reported the highest GVA growth, while Poland led in employment expansion, demonstrating differing development trajectories and strategic sectoral choices.

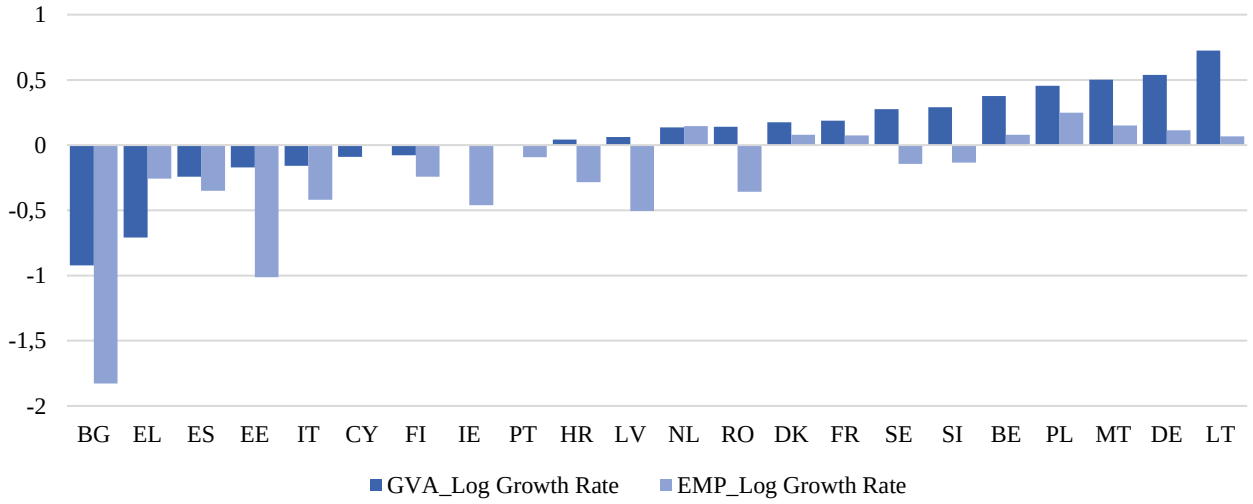

Fig. 1. Logarithmic Growth Rates of GVA and Employment in the Blue Economy by EU Member State (2009–2021)

To assess structural positioning, three indices were employed: the Herfindahl–Hirschman Index (HHI), the Relative Regional Specialization Index (RRSI), and the Labour Intensity in Manufacturing Index (LIMI). A quadrant analysis based on LIMI and RRSI (Fig. 1) identified that countries with high labour intensity and low regional advantage (Quadrant II) — including Bulgaria, Greece, and Spain — face structural disadvantages. In contrast, countries in Quadrant IV — such as Lithuania, Slovenia, and the Netherlands — exhibit both low labour intensity and strong regional advantages, suggesting higher capacity for sustainable development.

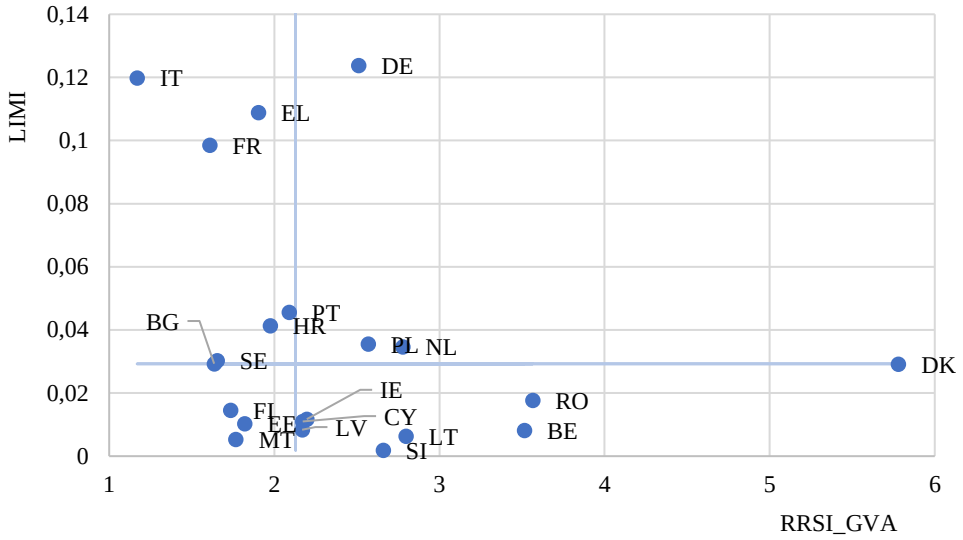

Fig. 2. Quadrant Classification of EU Blue Economies Based on Labour Intensity (LIMI) and Regional Specialization (RRSI)

To assess the structural positioning of national Blue Economies, this study applied a three-criterion classification framework (**Klaida! Nerastas nuorodos šaltinis.**) based on labour intensity (LIMI), sectoral concentration (HHI), and regional specialization (RRSI). Countries were assigned to either the at-risk or balanced category based on the presence of at least one structural condition associated with vulnerability or resilience.

Table 1. Classification Criteria for At-Risk and Balanced Blue Economies

	Criteria of At-Risk Blue Economies	Criteria of Balanced Blue Economies
1	high LIMI & high HHI	low LIMI & low HHI
2	high LIMI & low RRSI	low LIMI & high RRSI
3	high HHI & low RRSI	low HHI & high RRSI

Bulgaria, Greece, Spain, Italy, and France met one or more at-risk criteria, reflecting structural constraints in their Blue Economies. These economies are heavily reliant on coastal tourism, a sector that accounts for up to 66% of GVA and 74% of employment, and is both labour-intensive and highly cyclical, making them particularly sensitive to external shocks and demand fluctuations.

In contrast, Latvia, the Netherlands, Romania, Slovenia, Belgium, and Lithuania met at least one balanced economy criterion. Their Blue Economies are characterized by greater sectoral diversification, lower labour intensity, and stronger regional specialization advantages, making them less dependent on any single sector and better positioned for sustainable growth through technological advancement and structural adaptability.

The correlation analysis between GVA and employment across the EU Blue Economy revealed important trends (Table 2). At the aggregate level, a very strong positive correlation was observed ($r = 0.99$; $R^2 = 0.98$), indicating that in general, increases in value added are accompanied by proportional increases in employment. However, in living and non-living marine resource sectors, the relationship was not statistically significant (Das & Das, 2023), suggesting low labour productivity or structural inefficiencies.

Table 2. Regression Results: Relationship Between Employment and Gross Value Added (GVA) in Blue Economy Sectors

Sector	R	R^2	Beta	St. Error	t-stat	p-value	95% CL
BE $_{EMP \leftrightarrow GVA}$	0.99	0.98	0.735	0.010	74.613	0.000	[0.716; 0.755]
S1 $_{EMP \leftrightarrow GVA}$	0.77	0.593	0.476	0.088	5.396	0.000	[0.292; 0.660]
S2 $_{EMP \leftrightarrow GVA}$	0.09	0.008	-0.003	0.007	-0.401	0.693	[-0.017; 0.012]
S3 $_{EMP \leftrightarrow GVA}$	0.44	0.195	0.219	0.100	2.198	0.040	[0.011; 0.427]
S4 $_{EMP \leftrightarrow GVA}$	0.06	0.004	0.015	0.063	0.240	0.814	[-0.120; 0.150]
S5 $_{EMP \leftrightarrow GVA}$	0.99	0.992	0.734	0.047	15.647	0.004	[0.533; 0.936]
S6 $_{EMP \leftrightarrow GVA}$	0.77	0.596	0.630	0.116	5.435	0.000	[0.388; 0.872]
S7 $_{EMP \leftrightarrow GVA}$	0.99	0.983	0.718	0.021	34.133	0.000	[0.675; 0.762]
S3 $_{EMP \leftrightarrow S7GVA}$	0.50	0.253	-5.474	2.100	-2.607	0.017	[-9.854; -1.094]
S3 $_{EMP \leftrightarrow S7EMP}$	0.50	0.255	-3.98	1.520	-2.62	0.016	[-7.151; -0.811]

At the sectoral level, ocean energy and shipbuilding and repair exhibited the strongest correlation between employment and GVA, with beta coefficients near 0.7 and high R^2 values. These sectors demonstrate stable output-to-labour dynamics and appear better suited for long-term investment and sustainable development.

Interestingly, a negative beta coefficient was observed between maritime transport and shipbuilding and repair, possibly indicating intra-sectoral competition or labour reallocation. Nonetheless, the co-location of these sectors within the same regional ecosystems can still foster job creation through infrastructure development, value chain expansion, and industrial synergy.

Conclusions

The results of this study highlight the importance of understanding the structural composition of national Blue Economies when assessing their contribution to regional development. The classification of EU coastal countries into balanced and at-risk economies, based on the dimensions of labour intensity, sectoral specialization, and regional advantage, provides a useful analytical framework for identifying divergent development trajectories.

In particular, the findings suggest that countries with labour-intensive, tourism-dominated Blue Economies are more exposed to volatility, especially when these sectors lack regional competitiveness or technological upgrading. These structural profiles are associated with declining or stagnant GVA and employment, even in the absence of external shocks.

By contrast, countries with more diversified sectoral structures, lower labour intensity, and clear regional advantages are better positioned to sustain economic growth while maintaining employment stability. The presence of capital-intensive and innovation-driven sectors such as shipbuilding, ocean energy, and maritime transport appears to offer a more robust foundation for long-term development.

Importantly, the analysis reveals that employment dynamics in the Blue Economy do not follow GVA trends uniformly across sectors. In labour-intensive service sectors—particularly coastal tourism—increases in value added do not translate into proportional employment growth. This divergence is largely explained by structural shifts toward automation and digitalization, which reduce labour input requirements even under positive economic conditions. Consequently, the intensity of labour demand declines, limiting the capacity of these sectors to generate inclusive employment despite rising output.

References

Anda, M. I., Ioana, M. I., Tiberiu, I., Elena, P., & Eugenia, T. (2020). Tourism contribution to Gross Domestic Product (GDP) and Gross Value Added (GVA). Global Journal of Business, Economics and Management: Current Issues, 10(3), 176–182. https://doi.org/10.18844/gjbem.v10i3.4686

Andreescu, F. D. (2021). On the linkage between Gross Value Added by Economic Activities and the Overall Gross Value Added in EU-27. Proceedings of the International Conference on Business Excellence, 15(1), 1197–1207. https://doi.org/10.2478/picbe-2021-0111

Barragán, J. M., & De Andrés, M. (2015). Analysis and trends of the world's coastal cities and agglomerations. Ocean & Coastal Management, 114, 11–20. https://doi.org/10.1016/j.ocecoaman.2015.06.004

Cai, J., & Leung, P. (2020). A note on linkage between gross value added and final use at the industry level. Economic Systems Research, 32(3), 428–437. https://doi.org/10.1080/09535314.2020.1718617

Casler, S. D. (2015). Why Growth Rates? Which Growth Rate? Specification and Measurement Issues in Estimating Elasticity Values. The American Economist, 60(2), 142–161. https://doi.org/10.1177/056943451506000205

Das, D., & Das, T. (2023). The 'P'-Value: The Primary Alphabet of Research Revisited. International Journal of Preventive Medicine, 14(1). https://doi.org/10.4103/ijpvm.ijpvm_200_22

Djoric, Z. (2022). Blue economy: Concept research and review of the European Union. Zbornik Matice Srpske Za Drustvene Nauke, 182, 233–256. https://doi.org/10.2298/ZMSDN2282233D

Elegbede, I. O., Akintola, S. L., Jimoh, A. A.-A., Jolaosho, T. L., Smith-Godfrey, S., Oliveira, A., Oladosu, A. O., Ramalho, D. C., Moruf, R. O., Afolabi, S., & Oloko, A. (2023). Blue Economy (Sustainability). In S. Idowu, R. Schmidpeter, N. Capaldi, L. Zu, M. Del Baldo, & R. Abreu (Eds.), Encyclopedia of Sustainable Management (pp. 1–9). Springer International Publishing. https://doi.org/10.1007/978-3-030-02006-4_401-1

Filenta, P., & Kydros, D. (2022). Literature Review of Economic and Regional Development through Quantitative Methods and Social Network Analysis. European Journal of Interdisciplinary Studies, 14(1), 188–206. https://doi.org/10.24818/ejis.2022.11

Griggs, G. (2017). Coasts in Crisis. In A Global Challenge (pp. 1–20). University of California Press. https://doi.org/10.1525/9780520966857-003

Haukioja, T., Kaivo-oja, J., Karppinen, A., & Vähäsantanen, S. (2018). Identification of Smart Regions with Resilience, Specialisation and Labour Intensity of globally Competitive Sector – The Examination of the LAU-1 Regions in Finland. European Integration Studies, 0(12), 50–62. https://doi.org/10.5755/j01.eis.0.12.21872

Kaivo-oja, J., Knudsen, M. S., & Lauraeus, T. (2020). Coping with Technological Changes: Regional and National Preparedness in Face of Technical Change. In M. Collan & K.-E. Michelsen (Eds.), Technical, Economic and Societal Effects of Manufacturing 4.0 (pp. 233–258). Springer International Publishing. https://doi.org/10.1007/978-3-030-46103-4_12

Kaivo-oja, J., Vähäsantanen, S., Karppinen, A., & Haukioja, T. (2017). Smart Specialization Strategy and its Operationalization in the Regional Policy: Case Finland. Business, Management and Education, 15(1), 28–41. https://doi.org/10.3846/bme.2017.362

Kummu, M., De Moel, H., Ward, P. J., & Varis, O. (2011). How Close Do We Live to Water? A Global Analysis of Population Distance to Freshwater Bodies. PLoS ONE, 6(6), e20578. https://doi.org/10.1371/journal.pone.0020578

Leszczycki, S. (1979). Marine Economy of Poland 1945-1975. Mitteilungen Der Osterreichischen Geographischen Gesellschaft, 121(2), 256–270.

Lütkepohl, H., & Xu, F. (2012). The role of the log transformation in forecasting economic variables. Empirical Economics, 42(3), 619–638. https://doi.org/10.1007/s00181-010-0440-1

Martínez-Vázquez, R. M., Milán-García, J., & de Pablo Valenciano, J. (2021). Challenges of the Blue Economy: Evidence and research trends. Environmental Sciences

Europe, 33(1), 61. https://doi.org/10.1186/s12302-021-00502-1

Martínez-Vázquez, R. M., Milán-García, J., Pires Manso, J. R., & De Pablo Valenciano, J. (2023). Impact of blue economy sectors using causality, correlation and panel data models. Frontiers in Marine Science, 10, 1034054. https://doi.org/10.3389/fmars.2023.1034054

McCann, P. (2020). Perceptions of regional inequality and the geography of discontent: Insights from the UK. Regional Studies, 54(2), 256–267. https://doi.org/10.1080/00343404.2019.1619928

Ogun, O. D. (2021). Two Observations in the Application of Logarithm Theory and their Implications for Economic Modeling and Analysis. Mathematics and Statistics, 9(3), 218–224. https://doi.org/10.13189/ms.2021.090302

Rahimizhian, S., & Irani, F. (2021). Contactless hospitality in a post-Covid-19 world. International Hospitality Review, 35(2), 293–304. https://doi.org/10.1108/IHR-08-2020-0041

SAGE Publishing. (2024, November 22). COVID-19's impact on the tourism and hospitality industry. SAGE Perspectives. https://www.sagepub.com/explore-our-content/blogs/posts/asia-pacific-insights/2024/11/22/covid-19s-impact-on-the-tourism-and-hospitality-industry

Spalding, M. J. (2016). The New Blue Economy: The Future of Sustainability. Journal of Ocean and Coastal Economics, 2(2). https://doi.org/10.15351/2373-8456.1052

Theotokas, I. N., Lagoudis, I. N., & Raftopoulou, K. (2024). Challenges of maritime human resource management for the transition to shipping digitalization. Journal of Shipping and Trade, 9(1), 6. https://doi.org/10.1186/s41072-024-00165-0

UK Office for National Statistics. (2023). Measuring the Economy. Retrieved from https://measuringtheeconomy.uk/book/text/50-02-appendix-02-b.html

Vermeulen, B., Kesselhut, J., Pyka, A., & Saviotti, P. P. (2018). The Impact of Automation on Employment: Just the Usual Structural Change? Sustainability, 10(5), 1661. https://doi.org/10.3390/su10051661

RECEIVED: September 2024 ACCEPTED: 02 December 2024 PUBLISHED: 05 March 2025

Oleksandra Ovchynnykova, doctoral student, Klaipeda university, Department of Economics, Faculty of Social and Humanities, S. Neries St. 5, Klaipeda, 92227, Lithuania. E-mail: oleksandra.ovchynnykova@ku.lt. ORCID ID: 0000-0002-0624-5549

Prof., dr. Valentinas Navickas, Lithuania Business College, Turgaus St. 21, Klaipeda, 91249, Lithuania. E-mail: valentinas.navickas@ktu.lt. ORCID ID: 0000-0002-7210-4410