UDC 33

Efficiency and Evolution Analysis of the Accommodation Industry in Belarus (2017-2022)

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Abstract

Efficiency is a method for studying the effective allocation of resources. Investigating the efficiency of the accommodation industry in Belarus contributes to the development of both the Belarusian accommodation sector and the tourism industry. This paper employs the DEA method and the Malmquist Index to study the efficiency and its changes in the Belarusian accommodation industry. The conclusions are as follows: (1) The total efficiency values of the Belarusian accommodation industry are all greater than 0.9, indicating a favorable utilization of accommodation industry resources. (2) There are regional differences in the efficiency values of the Belarusian accommodation industry, and various regions exhibit variations in technical efficiency, scale efficiency, and overall efficiency. (3) Over time, the efficiency of the Belarusian accommodation industry also undergoes certain differences, categorizable as technology-driven improvement, scale efficiency constraints, and mutual constraints from multiple factors. Based on these results, this paper proposes strategies to enhance regional efficiency in the accommodation industry.

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Keywords

Accommodation Industry, Total Factor Productivity, DEA, Belarus.

Introduction

Efficiency has always been a method for studying the utilization and effective allocation of resources. Currently, there are various methods and approaches to efficiency analysis, among which Total Factor Productivity (TFP) is considered significant. TFP is directly related to achieving higher quality, greater efficiency, more fairness, sustainable development, and the establishment of a modern economic system. Economists argue that TFP is not only an indicator of the quality of production factors and the efficiency of production factor allocation but also a core indicator for assessing the quality of economic growth. Therefore, it serves as a primary tool for exploring the sources of economic growth and a crucial method for judging the quality of economic growth. International institutions such as the World Bank and the OECD commonly consider changes in TFP as a crucial aspect when studying economic growth quality.

The accommodation industry is a crucial component of the service sector, reflecting the hospitality and service capabilities of a country or region. Furthermore, the accommodation industry is one of the three pillars of modern tourism, serving as a metric for assessing the competitiveness of a country or region in the tourism sector. The Total Factor Productivity (TFP) of the accommodation industry reflects the resource allocation, technological level, changes in production objectives, organizational and managerial proficiency, the enthusiasm of workers in production and operational activities, and the impact of economic systems and various social factors on production activities. Therefore, scientifically and reasonably measuring and evaluating the efficiency of the accommodation industry has become an important focus for both operators and researchers.

Internationally, research on the efficiency of the accommodation industry often starts with hotel efficiency. Hotel efficiency evaluation has become one of the hot topics in international academic research, with the use of Data Envelopment Analysis (DEA) models for assessing hotel performance beginning in the 1990s.

In order to enhance the competitiveness of the hotel industry, Shiuh-Nan Hwang and Te-Yi Chang utilized DEA to study industry efficiency. The results revealed that customer sources and management methods impact efficiency. They proposed corresponding policies based on different clusters of hotels. Ali Ashrafi et al. used the Super-Efficiency-Based SBM-DEA model to calculate the efficiency of Singapore's hotel industry from 1995 to 2010, concluding that 2008 was the year with the highest efficiency in Singapore. Hazar Guetat et al. employed a stochastic frontier function to evaluate the efficiency of 63 hotels in the Tunisian hotel industry in 2011-2012. The study found a significant positive correlation between corporate governance measures and hotel performance. Chin-wei Huang et al. optimized the research method, using a non-homogeneous front two-stage DEA model to assess cost utilization and operational efficiency in Taiwan's hotel industry. The study found that standalone hotels had higher cost utilization efficiency, while chain hotels had higher operational efficiency. Tourism hotels could achieve best practices through mutual learning strategies. Zhenshan Yang et al. used the Super-Efficiency-Based Slack Measure in DEA to study the regional operational efficiency of the hotel industry in mainland China. They found various efficiencies in different segmented markets, suggesting measures to improve the decision-making process for hotel managers. Ritu Singh et al used a two-stage evaluation model with panel data, considering both efficiency and effectiveness to measure the performance of hotels in India. The results indicated no significant correlation between effectiveness scores and efficiency. However, there seemed to be a strong positive correlation with the

overall performance of the hotels themselves.

Through a comparative analysis of relevant studies, it has been identified that Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA) are the primary methods employed for efficiency research, with DEA being more widely applied. Research in the efficiency of the hotel industry (accommodation sector) is predominantly focused on areas such as efficiency evaluation, influencing factors, and strategies for enhancing efficiency. However, a review of literature from World of Science and domestic Belarusian research indicates a relatively limited amount of research on the efficiency of the accommodation industry in Belarus.

Belarus possesses a wealth of tourism resources, including vibrant ethnic cultures and unique natural landscapes. This suggests that the country has significant potential for tourism development. Investigating the Total Factor Productivity of the Belarusian accommodation industry holds substantial importance for enhancing the quality of service industry development and the capability for hosting tourism.

Methodology, Indicators, and Data DEA Model

Data Envelopment Analysis (DEA) is a non-parametric technique for efficiency analysis that facilitates comparisons among researched entities. It was initially introduced in 1978 by scholars such as Charnes, Cooper, and Rhodes. Renowned for its simplicity and broad applicability, DEA has found utility across diverse domains, including education, agriculture, public transportation, tourism, and environmental ecology. Over the years, the DEA methodology has undergone continuous refinement. In this study, we employ the DEA-BCC model with variable returns to scale and leverage the Malmquist Index (MI) to scrutinize the TFP of the Belarusian accommodation industry.

Assuming the existence of K Decision Making Units (DMUs), denoted as DMU_K, where k=1,2...K. The variables X_{mk} and Y_{nk} represent the mth input and nth output of the Kth decision unit, respectively. U_m and V_n are weights assigned to each DMU, with m and n taking values ranging from 1 to M and 1 to N, respectively.

Within the DEA-BCC framework, the formula is articulated as follows:

$$\begin{aligned} &Min_{\theta} - \varepsilon \left(\sum_{m=1}^{M} S_m^- + \sum_{n=1}^{N} S_n^+\right) \\ &S.T.\begin{cases} \sum_{k=1}^{K} \lambda_\kappa X_{mk} + S_m^- = \theta X_{m0}, m = 1 \cdots M \\ \sum_{k=1}^{K} Y_{nk} - S_n^+ = Y_{n0} \\ \sum_{k=1}^{K} \lambda_k = 1 \\ \lambda_k \geq 0, S_m^- \geq 0, S_n^+ \geq 0, k = 1 \cdots K \end{cases} \end{aligned} \quad (1)$$

The concept of the Malmquist Index (MI) was initially introduced by Malmquist in 1953. It is specifically applicable when assessing panel data that includes multiple observations at different time points for the evaluated Decision Making Unit (DMU). The MI analysis allows for an examination of changes in productivity, the respective impacts of technological efficiency, and technological progress on productivity changes. As a result, it is also referred to as Malmquist Total Factor Productivity (TFP) Index analysis.

Total Factor Productivity (TFPCH), after decomposition, generally includes two components: technological progress (TECHCH) and technological efficiency change (EFFCH). Assuming constant returns to scale, efficiency progress can be further decomposed into pure technical efficiency change (PECH) and scale efficiency change (SECH). This is expressed as TFPCH = EFFCH × TECHCH = PECH × SECH × TECHCH. TFPCH>1 indicates an improvement in productivity compared to the previous period, TFPCH=1 signifies no change, and TFPCH<1 suggests a decrease in productivity compared to the previous year.

The formula for calculating the MI Index is:

$$\left.\begin{aligned} M_0(x^{t+1},y^{t+1},x^t,y^t) &= \left\{\left[\frac{D_0^t(x^{t+1},y^{t+1})}{D_0^t(x^t,y^t)}\right]\right. \\ &\left[\frac{D_0^{t+1}(x^{t+1},y^{t+1})}{D_0^{t+1}(x^t,y^t)}\right]\Bigg\}^{\frac{1}{2}} = \left[\frac{D_0^{t+1}(x^{t+1},y^{t+1})}{D_0^t(x^t,y^t)}\right] \\ &\left\{\left[\frac{D_0^t(x^{t+1},y^{t+1})}{D_0^{t+1}(x^{t+1},y^{t+1})}\right]\left[\frac{D_0^t(x^t,y^t)}{D_0^{t+1}(x^t,y^t)}\right]\right\}^{\frac{1}{2}} \\ &= EC(x^{t+1},y^{t+1},x^t,y^t) * TC(x^{t+1},y^{t+1},x^t,y^t) \end{aligned}\right| \quad (2)$$

Indicator Selection and Data Sources

Guided by the principles of scientific rigor, feasibility, representativeness, and consistency, this paper has selected a total of 2 input and 2 output indicators to construct the evaluation index system.

Input Indicators: In terms of inputs, this study has chosen the employment population in the catering and accommodation industry and the number of accommodation rooms. These indicators represent the human, physical, and financial resources invested in the development of the Belarusian accommodation industry. The employment population in the catering and accommodation industry serves as a labor input indicator, reflecting the scale of services the target city can provide. Meanwhile, the number of rooms in the accommodation industry is selected as an indicator of the destination's service reception facilities, representing the city's service reception capacity.

Output Indicators: For output indicators, the evaluation of accommodation industry development in a region can be measured by the number of accommodated individuals and accommodation industry revenue. Therefore, this paper has chosen the number of accommodated individuals, representing the number of hosted tourists, and accommodation industry revenue as output indicators.

Table 1 - Evaluation Index System for Accommodation Industry Efficiency in Various Regions of Belarus

Indicator Type	Primary Indicator	Secondary Indicator
Input Indicators	Labor Input	Employment Population in Catering and Accommodation Industry / Person
	Capital Input	Number of Accommodation Rooms in the Accommodation Industry / numbers of Room
Output Indicators	Service Scale	Number of Accommodated Individuals in the Accommodation Industry / Person
	Economic Benefits	Accommodation Industry Revenue / Unit

Data Accessibility and Source

For this study, data has been sourced in accordance with the principle of data accessibility. The data has been retrieved from the official statistics website of Belarus, encompassing statistical yearbooks for each region and specialized statistical tables related to tourism. Relevant data for the years 2017-2022 has been extracted from these sources to ensure the accuracy and reliability of the information.

Results Analysis

Static Analysis of Accommodation Industry Efficiency in Various Regions of Belarus. Based on the results obtained from the DEAP2.1 software, the comprehensive efficiency of the accommodation industry in different regions of Belarus for the year 2022 is presented in Table 2.

Table 2 - Total Efficiency(TE), Pure Efficiency(PE), and Scale Efficiency(SE) in Various Regions of Belarus (2019, 2022)

Region	2019			2022			
	TE	PE	SE	TE	PE	SE	
Minsk	1	1	1	1	1	1	-
Minsk Oblast	1	1	1	1	1	1	-
Brest Region	1	1	1	1	1	1	-
Vitebsk Region	0.803	0.905	0.888	0.906	0.959	0.945	irs
Gomel Region	0.743	0.835	0.89	0.738	0.801	0.921	irs
Grodno Region	0.894	1	0.894	0.954	1	0.954	irs
Mogilev Region	0.689	1	0.689	0.743	1	0.743	irs
mean	0.876	0.963	0.909	0.906	0.966	0.938	

Note: "-" indicates constant returns to scale, and "irs" indicates increasing returns to scale.

By calculating the static efficiency of the Belarusian accommodation industry from 2017 to 2022, it is observed that there is little change in efficiency between the years. This paper chooses to showcase the panel values for the years 2019 and 2022, as presented in Table 2. Overall, the mean values of Total Efficiency (TE) for the seven regions exceed 0.9, approaching the optimal value of 1. This indicates that the overall efficiency of the Belarusian accommodation industry is good and is in a relatively ideal state. Specifically, for the years 2019 and 2022, the Pure Efficiency (PE) values are higher than the Scale Efficiency (SE) values, indicating that PE contributes more to the overall efficiency of the accommodation industry than SE.

In detail, among the seven regions, Minsk, Minsk Oblast, and Brest Region exhibit TE, PE, and SE values of 1 in the horizontal comparison. This signifies that these three regions have achieved optimal efficiency and are in a state of constant returns to scale. Additionally, Hrodna Region and Mahilyow Region have PE values of 1, indicating that the contribution of PE to TE is greater than that of SE. These two regions are in a phase of increasing returns to scale, suggesting that their efficiency is primarily influenced by the input into the accommodation industry.

Finally, Vitebsk Region and Homiel Region have TE values in a suboptimal state (values less than 1). As these regions are in a phase of increasing returns to scale, and the difference between SE and PE values is not significant, it suggests that both technological development and input into the accommodation industry contribute closely to their TE values.

Dynamic Analysis. Total Factor Productivity (TFP). Analysis of the Evolutionary Characteristics

of Accommodation Industry Tourism Efficiency.

An analysis of Total Factor Productivity (TFP) for the accommodation industry based on the Malmquist Index (MI) reveals the following results (see Table 3). From Table 3, it can be observed that the average TFP of the accommodation industry in the seven regions is 1.032. This indicates a 3.2% annual increase in the Belarusian accommodation industry, reflecting continuous improvement in its development. This improvement is primarily attributed to significant increases in the annual average values of EFFCH, TECHCH, PECH, and SECH in the accommodation industry, with TECHCH showing an average increase of 2.3%, playing a major role in driving TFP improvement.

Over the period from 2017 to 2022, the TFP of the accommodation industry exhibits a turning point in 2019-2020, showing a trend of initial decline followed by an increase. In 2020-2021, EFFCH, PECH, and SECH decreased by 1.9%, 1%, and 0.9% respectively, while TFP increased by 39.5%. This can be attributed to a significant increase of 42.2% in the TECHCH index during this period, reaching its highest value in years. Similarly, in 2021-2022, EFFCH, PECH, and SECH decreased by 3.5%, 0.3%, and 3.2% respectively, but with a 23.7% growth in the TECHCH index, resulting in a TFP of 19.5% for that year.

In 2019-2020, there was a substantial increase in EFFCH, PECH, and SECH, but the TECHCH index dropped to its lowest level, with a growth rate of -43.9%, leading to a negative TFP of -39.5% for that year. From 2017 to 2019, there were significant differences in the changes of EFFCH, TECHCH, and SECH indices, especially a noticeable decline from 2017 to 2020. The TFP index of the accommodation industry generally decreased but showed a converging trend, indicating the need for a rational adjustment of the industry's input-output structure ratio.

Table 3 - Results of Belarusian Accommodation Industry Total Factor Productivity (TFP) (2017-2022)

year	effch	techch	pech	sech	tfpch
2018	1.015	1.106	1.007	1.008	1.122
2019	0.991	1.026	1.003	0.989	1.017
2019- 2020	1.095	0.561	1.015	1.079	0.615
2021	0.981	1.422	0.99	0.991	1.395
2022	0.965	1.237	0.997	0.968	1.195
mean	1.008	1.023	1.002	1.006	1.032

Table 4 - Calculated Results of TFP for Various Regions in Belarus

firm	effch	techch	pech	sech	tfpch
Minsk	1	1.024	1	1	1.024
Minsk Oblast	1	1.034	1	1	1.034
Brest	1	1.022	1	1	1.022
Vitebsk	1.028	1.022	1.017	1.011	1.051
Gomel	0.997	1.022	1	0.998	1.019
Grodno	1.009	1.018	1	1.009	1.027
Mogilev	1.025	1.02	1	1.025	1.046
mean	1.008	1.023	1.002	1.006	1.032

Analysis of Belarusian Accommodation Industry Efficiency: A Dynamic Perspective. By examining Table 4, it is evident that the TFP, EFFCH, TECHCH, PECH, and SECH of the accommodation industry in various regions of Belarus have all improved during the development process. The TFP shows an average annual growth of 3.2%, indicating a positive development status

in the accommodation industry across all regions. Notably, Vitebsk has demonstrated the most significant progress in accommodation industry development, with an average annual TFP growth of 5.1%, leading among all regions.

In terms of TECHCH, all seven regions show a general upward trend with some variations. Mogilev region exhibits a 2% average annual growth in TECHCH, while Minsk Oblast experiences a higher average growth of 3.4%. The overall average for TECHCH across regions is 2.3%, suggesting relatively consistent technological development levels among regions. Minsk City, Minsk Oblast, Brest, and other areas rely heavily on TECHCH to drive TFP growth. Vitebsk stands out with a 2.2% growth rate in TECHCH, contributing to its highest TFP.

Vitebsk is distinctive in its PECH, SECH, and TECHCH growth rates of 1.7%, 1.1%, and 2.2%, respectively, resulting in the highest TFP. Conversely, Gomel, Grodno, and Mogilev regions all have PECH values of 1. In terms of SECH, Mogilev has the highest value at 1.025, while Gomel's SECH is 0.998. The average SECH across all regions is 0.6%, indicating minimal differences among regions.

Considering the static efficiency results, Vitebsk, Gomel, Grodno, Mogilev, and other regions are in the stage of increasing scale efficiency, while the remaining regions are in the stage of constant scale efficiency. Each region should actively seek the optimal scale for developing its accommodation industry based on its own conditions.

Analysis of Accommodation Industry Efficiency Morphological Categories in Various Regions of Belarus

Analysis of Accommodation Industry Efficiency Evolution Models:

A study of tourism efficiency and TFP variations in different regions of Belarus from 2017 to 2022 reveals that the efficiency status of a given region is not static over the study period. According to Table 1, in terms of static efficiency, Minsk, Minsk Oblast, and Brest achieve optimal values, with PE and SE indices both equal to 1. Among the remaining four regions, Grodno and Mogilev achieve optimal PE values, while Vitebsk and Gomel face constraints from both PE and SE. The evolution of TFP in the accommodation industry across all seven regions follows a trend of initial decrease followed by an increase. Based on the characteristics and development trends of static and dynamic efficiency in each region, three types are identified: technology-driven, scale efficiency-constrained, and jointly determined by multiple factors.

Efficiency Evolution Types:

Technology-Driven Type: Minsk, Minsk Oblast, and Brest region exhibit optimal static efficiency, driven by consistent technological progress and achieving the highest TFP growth.

Scale Efficiency-Constrained Type: Grodno region and Mogilev region, despite achieving optimal PE in static efficiency, face limitations in both PE and SE, leading to a unique efficiency evolution. Jointly Determined Type: Vitebsk region and Gomel region fall into this category, experiencing constraints from both PE and SE, resulting in a dynamic efficiency evolution characterized by fluctuations in TFP. Understanding these efficiency evolution types can guide policymakers and industry stakeholders in tailoring strategies to enhance the overall efficiency and sustainability of the accommodation industry in each region.

Table 5 - Efficiency Evolution Types in Belarus

Types	region	Static efficiency index and characteristics	FP=techch*pech*sech		
			TECHCH	SECH	PECH
Technology-Driven Type	Minsk, Minsk Oblast, and Brest	TE=1, Constant returns to scale	>1, positive growth	1	1

Types	region	Static efficiency index and characteristics	FP=techch*pech*sech		
			TECHCH	SECH	PECH
Scale Restriction Type	Grodno and Mogilev	Te<1,increasing returns to scale	>1, mostly	obvious changes	1
Multi-Factor Joint Determination Type	Vitebsk and Gomel	Te<1,increasing returns to scale	positive and negative growth	positive and neg-ative	positive and neg-ative

Technology-Driven Type:

In regions characterized as technology-driven, the static efficiency index is 1, indicating optimal output achievement, and the accommodation industry in these areas operates under constant returns to scale. Moreover, from 2017 to 2022, the Total Factor Productivity (TFP) exhibits pure technical efficiency and scale efficiency indices both equal to 1. The technology progress index exceeds 1, signifying that TFP is primarily driven by technological advancements. Representative regions falling into this category include Minsk, Minsk Oblast, and Brest.

Scale Restriction Type: Regions classified as scale restriction types exhibit relatively lower static efficiency indices compared to other areas, indicating that the development of the accommodation industry in these regions is less favorable. Simultaneously, these areas experience increasing returns to scale in the development of the accommodation industry. From 2017 to 2022, the Total Factor Productivity (TFP) shows that technological progress is mostly positive, pure technical efficiency index is 1, but the scale efficiency index undergoes significant changes. This suggests that the development of the accommodation industry in these regions is primarily constrained by the scale of the industry. Representative regions of this type include Grodno and Mogilev.

Multi-Factor Joint Determination Type: In regions classified as multi-factor joint determination types, the static efficiency index falls in the middle range among all regions and is associated with increasing returns to scale. Additionally, the Total Factor Productivity (TFP) in these regions shows notable variations in technological progress and scale efficiency. Particularly, pure technical efficiency exhibits a distinct negative growth phase unlike the previous two types. Consequently, the overall factor productivity in this type is jointly determined by technological progress, pure technical efficiency, and scale efficiency. Representative regions of this type include Vitebsk and Gomel.

Conclusion and Policy Recommendations

DEA Model for Static Efficiency and Malmquist Productivity Index for Efficiency Dynamics

This study employs the Data Envelopment Analysis (DEA) model to compute the static efficiency values of the accommodation industry across various regions in Belarus. Subsequently, the Malmquist Productivity Index is utilized to measure efficiency change indices, providing evidence of the industry's efficiency evolution.

Research Conclusions:

(1) Comprehensive Efficiency Assessment:

Minsk, Minsk Region, and Brest lead the nation in overall efficiency, maintaining scale efficiency stability. Other regions experience scale efficiency expansion, with Vitebsk and Gomel regions positioned at a moderate efficiency level. Grodno and Mogilev regions record the lowest overall efficiency averages nationwide.Regarding pure technical efficiency, all regions, excluding Vitebsk and Gomel, achieve optimal states.Scale efficiency averages for all regions surpass 0.9, indicating a high level of efficiency.

(2) Malmquist Index Analysis:Belarus' accommodation industry demonstrates an annual average efficiency growth of 3.2% based on the Malmquist Index. Classification based on static efficiency

development and total factor productivity changes yields three types: technological progress-driven, scale efficiency-constrained, and multiple determinants-constrained.

(3) Total Factor Productivity Trend (2017-2022):The accommodation industry's total factor productivity in Belarus shows an initial decline followed by an upward trend from 2017 to 2022.

These findings contribute valuable insights into the dynamics and efficiency of Belarus' accommodation industry, guiding future policy decisions and strategic planning for sustainable development.

Policy Recommendations

Technological Progress-Driven Regions (Minsk, Minsk Region, Brest):

Enhance Technological Research Investment: Increase funding and resource allocation for technological research in the accommodation industry, elevating technological proficiency and continuously propelling industry advancements. Promote Innovative Collaboration: Establish public-private collaboration mechanisms, encouraging partnerships between enterprises and research institutions to expedite the conversion of innovative outcomes into tangible productivity.

Optimize Industry Structure: Encourage enterprises to undergo industrial upgrades, emphasizing the development of high-value-added services and distinctive accommodations to enhance overall comprehensive efficiency.

Scale Efficiency-Constrained Regions (Vitebsk, Gomel):

Scale Expansion Strategy: Explore opportunities for expanding the accommodation industry, moderately increasing production capacity to enhance overall output, reduce costs, and boost scale efficiency. Guide Financial Support: Utilize policy guidance to provide greater fiscal and financial support to regions constrained by scale efficiency, reducing operational costs and promoting efficiency enhancement.

Multiple Determinants-Constrained Regions (Vitebsk, Gomel):

Comprehensive Measures: Addressing the joint influence of technological progress, pure technical efficiency, and scale efficiency, implement comprehensive policies and measures to achieve multifaceted efficiency improvement. Industrial Synergy Development: Establish mechanisms for industrial synergy development, fostering collaboration between the accommodation industry and related sectors, facilitating organic cooperation along the entire industry chain for increased overall efficiency.

National-Level Recommendations:

Data Monitoring System: Establish a robust monitoring and assessment system for accommodation industry efficiency, regularly collecting and updating relevant data to provide decision-making references for both the government and enterprises. Policy Support: Develop differentiated policies based on regional efficiency disparities, providing targeted support and incentives to promote balanced development of the accommodation industry nationwide. These recommendations aim to further enhance accommodation industry efficiency and foster sustainable industry development.

Discussion

Limitations. While our study sheds light on the efficiency and productivity dynamics of Belarus' accommodation industry, several limitations warrant consideration:

Data Limitations: The accuracy and reliability of our findings heavily rely on the availability and accuracy of data from official sources. Any inaccuracies or gaps in the data may impact the robustness of our conclusions.

Temporal Scope: Our analysis covers the period from 2017 to 2022. A more extended timeframe could provide a more comprehensive understanding of long-term trends and factors influencing the accommodation industry.

External Factors: External variables, such as global economic conditions, geopolitical events, or public health crises, could significantly influence the industry's performance. These factors are not extensively explored in our study.

Future Directions: To enhance the depth and applicability of our research, future studies could consider the following aspects:

Dynamic Analysis: A more granular examination of yearly fluctuations in efficiency indices could provide nuanced insights into the industry's response to changing circumstances and policies.

Qualitative Analysis: Incorporating qualitative data, such as customer reviews, industry expert opinions, and regulatory changes, would enrich our understanding of the factors impacting the accommodation sector's efficiency.

External Factors Consideration: Future studies should delve into the influence of external factors, including economic, political, and environmental variables, to create a more holistic analysis.

Comparative Studies: Comparative analyses with other countries or regions could offer benchmarks for the Belarusian accommodation industry, identifying areas for improvement or best practices.

Conclusion

In conclusion, while our study contributes valuable insights into Belarus' accommodation industry, acknowledging its limitations is crucial. Addressing these limitations in future research endeavors will refine our understanding and provide a more comprehensive basis for strategic decision-making in the dynamic hospitality sector.

Reference

1. Hwang S-N, Chang T-Y. Using data envelopment analysis to measure hotel managerial efficiency change in Taiwan[J]. Tourism Management, 2003, 24(4): 357–369.
2. Ashrafi A, Seow H-V, Lee L S,et al. The efficiency of the hotel industry in Singapore[J]. Tourism Management, 2013, 37: 31–34.
3. Guetat H, Jarboui S, Boujelbene Y. Evaluation of hotel industry performance and corporate governance: A stochastic frontier analysis[J]. Tourism Management Perspectives, 2015, 15: 128–136.
4. Huang C, Chiu Y, Tu C, et al. Using the nonhomogeneous frontier two-stage DEA model to assess the efficiencies of expense utilization and operation of the Taiwanese hotel industry[J]. International Transactions in Operational Research, 2016, 23(6): 1067–1087.
5. Yang Z, Xia L, Cheng Z. Performance of Chinese hotel segment markets: Efficiencies measure based on both endogenous and exogenous factors[J]. Journal of Hospitality and Tourism Management, 2017, 32: 12–23.
6. Singh R, Charan P, Chattopadhyay M. Evaluating the Hotel Industry Performance Using Efficiency and Effectiveness Measures[J]. International Journal of Hospitality & Tourism Administration, 2022, 23(2): 408–431.
7. Dogru T. et al. The impact of business models and state regulations on the accommodation sector: theory and empirical evidence from the recent pandemic //International Journal of Contemporary Hospitality Management. – 2024. – Т. 36. – №. 6. – С. 1713-1743.
8. Pintassilgo P., Silva J. A. 'Tragedy of the commons' in the tourism accommodation industry //Tourism Economics. – 2007. – Т. 13. – №. 2. – С. 209-224.
9. Ritchie B. W. et al. Proactive crisis planning: Lessons for the accommodation industry //Scandinavian Journal of Hospitality and Tourism. – 2011. – Т. 11. – №. 3. – С. 367-386.
10. Camilleri M. A., Camilleri M. A. The tourism industry: An overview. – Springer International Publishing, 2018. – С. 3-27.

Анализ эффективности и эволюции индустрии размещения в Беларуси (2017-2022 гг.)

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Аннотация

Эффективность – это метод изучения эффективного распределения ресурсов. Исследование эффективности индустрии размещения в Беларуси способствует развитию как белорусского сектора размещения, так и индустрии туризма. В данной статье используется метод DEA и индекс Мальмквиста для изучения эффективности и ее изменений в белорусской индустрии размещения. Выводы заключаются в следующем: (1) Все показатели общей эффективности гостиничной индустрии Беларуси превышают 0,9, что указывает на благоприятное использование ресурсов гостиничной индустрии. (2) Существуют региональные различия в показателях эффективности белорусской гостиничной индустрии, и в разных регионах наблюдаются различия в технической эффективности, эффективности масштаба и общей результативности. (3) С течением времени эффективность гостиничной индустрии Беларуси также претерпевает определенные изменения, которые можно классифицировать как технологические улучшения, ограничения эффективности за счет масштаба и взаимные ограничения, обусловленные множеством факторов. На основе этих результатов в данной статье предлагаются стратегии повышения региональной эффективности в гостиничной индустрии.

Для цитирования в научных исследованиях

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Ключевые слова

Индустрия размещения, Общая факторная производительность, DEA, Беларусь.

Библиография

1. Hwang S-N, Chang T-Y. Using data envelopment analysis to measure hotel managerial efficiency change in Taiwan[J]. Tourism Management, 2003, 24(4): 357–369.
2. Ashrafi A, Seow H-V, Lee L S,et al. The efficiency of the hotel industry in Singapore[J]. Tourism Management, 2013, 37: 31–34.
3. Guetat H, Jarboui S, Boujelbene Y. Evaluation of hotel industry performance and corporate governance: A stochastic frontier analysis[J]. Tourism Management Perspectives, 2015, 15: 128–136.
4. Huang C, Chiu Y, Tu C, et al. Using the nonhomogeneous frontier two-stage DEA model to assess the efficiencies of expense utilization and operation of the Taiwanese hotel industry[J]. International Transactions in Operational Research, 2016, 23(6): 1067–1087.
5. Yang Z, Xia L, Cheng Z. Performance of Chinese hotel segment markets: Efficiencies measure based on both endogenous and exogenous factors[J]. Journal of Hospitality and Tourism Management, 2017, 32: 12–23.
6. Singh R, Charan P, Chattopadhyay M. Evaluating the Hotel Industry Performance Using Efficiency and Effectiveness

Measures[J]. International Journal of Hospitality & Tourism Administration, 2022, 23(2): 408–431.
7. Dogru T. et al. The impact of business models and state regulations on the accommodation sector: theory and empirical evidence from the recent pandemic //International Journal of Contemporary Hospitality Management. – 2024. – Т. 36. – №. 6. – С. 1713-1743.
8. Pintassilgo P., Silva J. A. 'Tragedy of the commons' in the tourism accommodation industry //Tourism Economics. – 2007. – Т. 13. – №. 2. – С. 209-224.
9. Ritchie B. W. et al. Proactive crisis planning: Lessons for the accommodation industry //Scandinavian Journal of Hospitality and Tourism. – 2011. – Т. 11. – №. 3. – С. 367-386.
10. Camilleri M. A., Camilleri M. A. The tourism industry: An overview. – Springer International Publishing, 2018. – С. 3-27.