



# ANALYSIS OF LABOR PRODUCTIVITY IN THE HOTEL INDUSTRY OF SERBIA

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## Abstract:

Productivity, as a basic indicator of the success of a company's operations, shows the efficient use of labor in the work process. The subject of the research is labor productivity in the hotel industry of Serbia. The work aims to analyze the productivity of work in hotels from a natural and value aspect in 2022 and 2023. The analysis included hotels according to categorization (number of stars), size, and type of hotels. The research included 31 hotels, according to the categorization with three, four, and five stars. The financial data used in this analysis were taken from the financial reports of the observed business entities, on the website of the Agency for Business Registers. The results show the growth of business income per employee in 2023 in nominal terms, and, at the same time, a decrease in real terms. Labor productivity shows an increase in hotels of the five-star category, as well as in small and large hotels.

## Keywords:

hotel industry, labor productivity, number of employees, business income.

## INTRODUCTION

The main goal of every company, regardless of economic activity, is business success, i.e. achieving maximum profit. Starting from the mathematical reality that profit is the difference between realized income and total expenses in an accepted time interval, it is clear that income and expenses inversely influence the business result. This fact determines the importance of the basic economic principles of business (productivity, economy, profitability).

Productivity, as a basic economic principle of business, can be viewed in a narrower and broader sense. Productivity, in a broader sense, gives equal importance to every input (labor, capital, and land) in the creation of a product (Spasić and Čerović, 2019). In a narrower sense, productivity is equated with labor productivity. Labor productivity represents the relationship between the realized production and the labor invested in that production. The goal of the company is to become as efficient as possible, that is, with as little input (spent workforce) as possible to achieve the greatest possible output (volume of production, volume of turnover, or volume of performed services). Bearing in mind that a large part of the business process in the hotel business depends on engagement and the number of employees, the analysis of productivity in the hotel industry is reduced to the analysis

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of work productivity. According to Spasić and Čerović (2019), numerous factors related to the workforce affect productivity: work experience, employee qualifications, courtesy, motivation, relationships within the collective, teamwork, training, etc., and it is necessary to determine their intensity and measures that will encourage positive and eliminate negative influences. Frequent labor turnover, a lack of quality hospitality staff, a lack of interest in work, and wages that are below average can reduce productivity. It is necessary to determine the intensity of all factors and to propose measures that encourage the growth of labor productivity.

In this regard, the subject of this work is a review of productivity indicators and an analysis of work productivity in hotels in Serbia. Based on the results of measuring productivity of the hotel employees, the optimal number of employees per department can be determined.

## LITERATURE REVIEW

One of the biggest challenges in business operations is increasing employee productivity. Numerous authors have dealt with this topic. Stanišić and Radović (2023) indicate that the satisfaction of basic psychological needs and a working environment that creates favorable conditions for work have a positive effect on the work outcomes of employees in the hotel industry. Ognjanović (2016) examined the interdependence of business activities that contribute to the creation of value and business financial and non-financial performance of hotels. The results obtained show that the business activities of human resources management, marketing activities aimed at the efficient use of hotel capacities, and the possibility of innovating basic and additional hotel activities contribute to the growth of employee productivity. Ognjanović *et al.* (2022), investigated the relationship between the productivity of managers in hotels and intellectual capital, as part of the hotel's intangible assets. The results of the research show that investing in human, structural, and consumer capital positively contributes to the productivity of managers. Also, the results indicate that there are no big differences in the level of realized productivity of managers of three-, four-, or five-star hotels. Holjevac *et al.* (2012), examined long-term natural indicators (average number of nights per employee) and value indicators of productivity (total income/operating income/net profit per employee). The results indicate mainly a drop in productivity, which implies the introduction of measures to increase productivity. The same authors emphasize investing in training and education and giving more authority to employees. Since the research showed that hotels with the ISO 9000 certificate have higher productivity than hotels without the certificate, it was pointed out that hotels could contribute to work productivity by implementing a quality management system.

## METHODOLOGY

Data from the website of the Agency for Economic Registers (<https://fin.apr.gov.rs/JavnaPretraga>) were taken for the analysis of labor productivity. There are two criteria for choosing a hotel facility: continuity in business in 2022 and 2023, and the fact that their main and only activity is hotel management (activity code 5510 hotels and similar accommodation). In this research, the location/destination is not important, and it can be taken into consideration for some new research.

The previous two years were not taken into consideration because, due to limited movement, health measures, and recommendations during the pandemic, the hotel's business results are devastating, it can even be said that there was no business at all. (Radić *et al.*, 2021). In the defined sample of 31 hotels, the most represented are four-star hotels (61.29%), while the fewest are five-star hotels (9.68%). Hotels categorized with three stars participate with 29.03% in the structure of all hotels. Observed by type, the division of hotels into three spa hotels, six mountain hotels, and twenty-two city hotels was analyzed. Six small, sixteen medium, seven large, and two very large hotel facilities were analyzed (division based on hotel size classification according to Đoković, 2018). To avoid the pitfalls if hotels of different sizes and different numbers of employees have the same influence on the average value, a weighted average was practically determined by giving the cumulative number of employees, cumulative business income, and cumulative net profit. To get a more realistic insight into the movement of productivity, we took into consideration the inflation rate to eliminate the effect of price growth on the results obtained. According to data from the National Bank of Serbia, the average inflation for 2023 was 12.1%. The values of productivity indicators (business income and net profit) were converted into constant prices, 2022 = 100, using the consumer price index as a deflator, according to the following formula:



$$Xi^{SC2022} = \frac{Xi^{TC}}{IPCi^B} \times 100$$

Where  $Xi^{SC2022}$  – is the value of the indicator in constant prices from 2022,  $[[Xi]]^{(TC)}$  is the value of the indicator in current prices, and  $[[IPCi]]^B$  is the consumer price index for that year (Mašić, 2024). Then, the base productivity indices in 2023 compared to 2022 were calculated, according to the following formula:

$$I2023^B = \frac{Xi2023}{X2022} \times 100$$

Where  $I2023^B$  is the base productivity indices in 2023,  $Xi2023$  is the value of the indicators of that year in constant prices, and  $X2022$  the value of indicators in the base period (Mašić, 2024).

## RESULTS

In the paper, we will look at the labor productivity in the hotel by calculating the ratio of output and input values, from a natural and value aspect. The structural indicators we took into consideration are the number of accommodation units, the number of employees, business income, and net profit. The number of employees of all analyzed hotels in 2023 is higher by 14% compared to the previous year. The total revenues generated in 2023 increased by about 8.35% compared to 2022. Net profit increased by 4.83% in 2023 compared to the previous year. Natural indicators (number of accommodation units per employee) show a tendency to decrease in productivity, as a result of the increase in the number of employees and lower efficiency in 2023. However, one should be careful when interpreting the results, because physical indicators do not give the right picture if other factors are not taken into account. For example, in hotels of lower categories, one worker serves more guests, so we can draw the wrong conclusion that labor productivity is higher in these categories (Čačić, 2013).

**Table 1.** Indicators of labor productivity of employees in the hotel industry

| Years | Total revenue  | Total number of employees | Net gain      | The revenue per employee | Profit per employee |
|-------|----------------|---------------------------|---------------|--------------------------|---------------------|
| 2022  | 13,046,155,000 | 2,537                     | 1,361,346,000 | 5,142,355.14             | 536,596.77          |
| 2023  | 15,846,221,000 | 2,841                     | 1,427,084,000 | 5,577,691.31             | 502,317.49          |

Source: Author's calculation

Value indicators (total business income per employee and net profit per employee) show an increase in productivity by 8.47%, i.e. a decrease in productivity by 6.37% successively. The results show that the total number of employees grew slower than the growth of total business income and contributed to the growth of productivity, but faster than the growth of net profit, thus exerting pressure on productivity reduction (Table 1).

On the other hand, in the work, we had to take into account the instability of prices as an external factor that was expressed in the observed period. The situation changes when we take into account the effects of inflation. Then we note that there was a drop in productivity from the aspect of total business income at the level of the entire analyzed sample of 3.24% in 2023 compared to the previous year. The net profit in 2023 is higher by 4.83%, but a decrease in productivity by 16% compared to 2022 was recorded. The results obtained at the level of the defined sample for the observed period are shown in Table 2.



**Table 2.** Indicators of labor productivity of employees in the hotel industry

| Year                                                  | 2022.        | 2023.        |
|-------------------------------------------------------|--------------|--------------|
| Number of accommodation units per employee            | 1,66         | 1,48         |
| Base index                                            | 100          | 89           |
| Total business income per employee in constant prices | 5,142,355.14 | 4,975,638.99 |
| Base index                                            | 100          | 97           |
| Net profit per employee in constant prices            | 536,596.77   | 448,097.68   |
| Base index                                            | 100          | 84           |

Source: Author's calculation

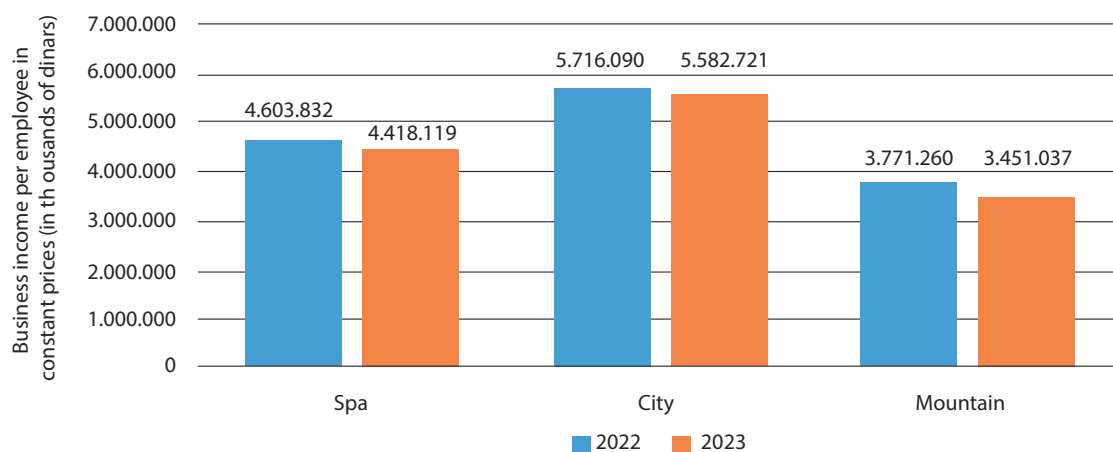
The factors that could contribute to the increase in productivity can be divided into two groups:

- 1) External factors: socio-political system, degree of development of the economy, the growth rate of the social product, state, and development of infrastructure, economic policy, labor legislation, personnel education system, etc.
- 2) Internal factors: Compliance with world hotel standards, modern organization, and planning of work, quality of products and services (TQM), standard hotel system for monitoring work results and business statistics, investment in modern equipment and technology, interpersonal relations, continuous education of managers and hotel staff, internal regulations and rules on rewards, salaries and other personal income, motivation and skills of staff, qualification structure of employees, working conditions, guest satisfaction, staff information system, etc.

Today, artificial intelligence stands out as one of the tools whose use can improve work productivity and business. According to McKinsey Global Institute research, generative artificial intelligence could increase labor productivity by 0.1 to 0.6 percent globally by 2040. (Čačić, 2013)

Čerović and Čomić (2013) acquire three necessary factors for the success of any hotel: location, location, and location. Analyzing the productivity of hotel facilities by type, a negative trend in labor productivity was recorded in 2023 compared to the previous year. The productivity of hotel facilities located in the spa decreased by 4.03 percentage points, while the productivity of hotels located on the mountain decreased by 8.49 percentage points. The highest labor productivity was achieved by hotel facilities located in the city, although it is 2.33 percentage points lower than in 2022. (Figure 1).

**Figure 1.** Labor productivity observed in relation to the division of hotels by type



Source: Author's calculation

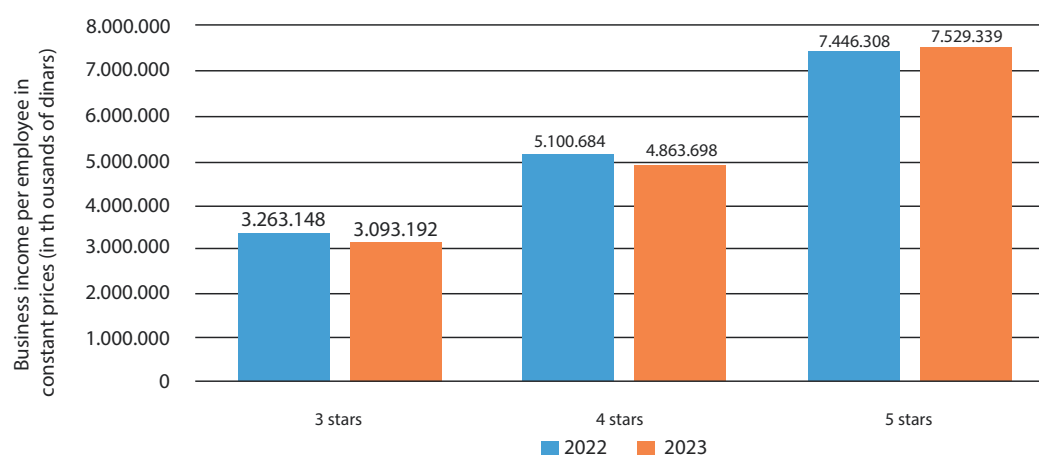


Benchmarking analysis in tourism and hospitality in recent years shows an increased trend in the development of urban tourism. This is especially contributed by the progress of congress tourism, which is mostly realized in cities due to the developed tourist infrastructure. The increasing popularity of Serbia as a destination as a result of destination management and political circumstances in the world has led to an increase in the number of tourists throughout the country, especially in the capital and all major cities of the country.

By researching a sample of 31 hotels about the category to which it belongs, it was determined that three-star hotels experienced the largest drop in business income per employee in 2023 compared to 2022, *i.e.*, 5.21%. The productivity of four-star hotels shows a decrease of 4.65%. Only five-star hotels saw an increase in labor productivity of 1.12% in 2023 compared to the previous year. Observing the analyzed hotels of all categories, the work productivity of hotels categorized with five stars in the same year reaches a value that is half higher than the average. The labor productivity of three-star hotel facilities ranges from 63% to 62% of the average, while the labor productivity of four-star hotels has slightly decreased from 99% to 98% of the average (Figure 2).

Hotels of higher categories have a high level of service quality, are equipped with modern technologies, and require high norms and standards regarding employees. The management of the hotel company must plan the required number and structure of employees in each department by the category of the facility. Greater investment in employee education as an important factor in the success of a hotel facility leads to more productive workers, and Serbia spends below the average of European Union countries. (According to a report by the World Bank and UNICEF, 3.9% of GDP was allocated for education in 2018 from the state budget, which is below the EU average of 4.6%). Aleksić (2024), states that some jobs in hotels will be low-productivity regardless of whether they are performed by a highly qualified person or a person without qualifications (e.g. maid jobs).

Figure 2. Labor productivity observed in relation to the division of hotels by category

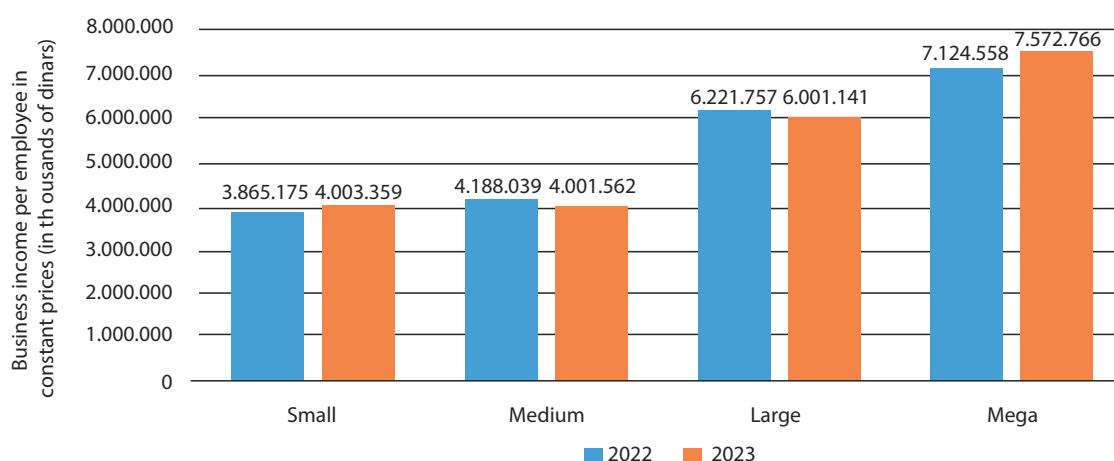


Source: Author's calculation

If we look at hotels according to their size, *i.e.*, hotel capacity, we notice that only small and very large hotels recorded an increase in productivity in 2023 compared to the previous year (Figure 3). In relation to the average of the defined sample in the observed period, business income per employee in small hotels goes from 75.16% to 80.46% of the average, medium-sized hotels recorded a drop from 81.44% to 80.42% of the average, large hotels go from 120.99% to 120.61% of the average, and very large hotels recorded an increase from 138.55% to 152.20% of the average.



Figure 3. Labor productivity in relation to the division of hotels by size



Source: Author's calculation

## CONCLUSIONS AND DISCUSSION

The results show that labor productivity measured by total income per employee is nominally higher by 8.47% in 2023 compared to 2022, while the real decrease was 3.24%. It can be seen that five-star hotels recorded an increase in productivity, as well as small and very large hotels. Hotels located in the city show the highest productivity. It is recommended that the management of spa and mountain hotels focus on controlling labor costs, which grew faster than business income, in order to positively affect labor productivity. One of the important internal factors for increasing work productivity is employee training. To increase work productivity and be competitive in the market, the recommendation for the hotel industry is to invest in the development and actively integrate artificial intelligence into its business functions.

The research had several limitations, one of them being the sample size. It was done in April 2024, when financial reports for 2023 were not available for some hotels on the website of the Agency for Economic Registers, and therefore could not be the subject of analysis. Monitoring work productivity is very important for determining the optimal number of employees per department, to increase the success of the hotel business. Data on the number of employees do not distinguish full-time employees from part-time employees, employees by length of service, job department, professional work experience, and level of education. Work productivity depends on numerous financial and non-financial indicators that were not taken into consideration, and which would give a more complete insight into the operations of the observed hotel facilities.

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