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THE INFLUENCE OF PERSONNEL COSTS ON THE PROFITABILITY OF THE CROATIAN ¬¬ HOTEL INDUSTRY

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ABSTRACT

In the 1980s, Croatia recorded about 8 million arrivals and 53 million overnight stays, which dropped to 2.5 million arrivals and 10-11 million overnight stays in the 1990s. Since then, tourism has steadily increased, reaching 17.78 million arrivals and 90 million overnight stays in 2022. Tourism's contribution to GDP more than doubled, spurring investments and improving accommodations. However, competition has pressured revenues, while costs have risen due to higher wages, interest rates, private accommodation growth, emigration, and inflation.

This paper investigates the impact of personnel costs on hotel industry profitability from 1993 to 2022, focusing on the recent exponential rise in personnel costs. These rising costs threaten profitability due to labour shortages, continuous labour imports, declining productivity, and increasing input prices. Using data from 6,127 hotel companies obtained from FINA, analyzed with the two-step system robust GMM method, the study found that a 1% increase in net salary costs results in a 3.7% decrease in gross profit margin.

The analysis highlights the dual impact of increased tourism demand: while it boosts economic growth and investments, it also creates significant cost pressures. Understanding these dynamics is crucial for formulating strategies to maintain profitability in Croatia's hotel industry amidst growing competition and economic challenges.

Key words: *personnel costs, profit margin, hotel industry, tourism, Croatia*

1. INTRODUCTION

Despite high seasonality in the past decade, the hotel industry in Croatia has achieved significant revenues and a high rate of profitability. Thus far, the strengthening of competition, especially in the segment of micro-enterprises and small renters, is putting a pressure on existing hotels. In order to maintain their market shares, hotel companies have launched significant investment cycles and raised the quality of their offerings, requiring substantial financial resources. Consequently, borrowing costs in their balance sheets have continuously increased.

Before the onset of the COVID pandemic, Croatian hoteliers were faced with a growing demand, which continued even after the pandemic, and in spite of a rise in a domestic and foreign competition. On the other hand, challenges for profit management are evident in the inflationary pressures present from 2020 onwards, labour shortages, the high share of labour costs in total costs, and rising capital costs on the financial market.

The aim of this research is to provide the empirical evidence on the impact of labour costs on the performance of companies in the hotel and accommodation industry classified as I5510 in the European Tourism Industry classification. Specifically, the goal is to examine the impact of labour costs on company profitability from 1993 to 2022 to identify the significance of these costs on the profitability of the hotel industry in Croatia over the past thirty years.

After the introductory part, the remaining parts of the paper are structured as follows. The second section provides an overview of existing theories and a literature review. The third section contains an assessment of trends in the competitiveness of Croatian hoteliers. The fourth section details the data and methodology used in the research, including the GMM model and empirical findings. The final section presents the conclusion.

2. THEORETICAL BACKGROUND OF DETERMINANTS OF PROFITABILITY IN THE HOTEL INDUSTRY

According to neoclassical economic theory, profit is the difference between total revenues and total costs. Profit growth can be achieved either by reducing costs while maintaining revenues, by increasing revenues with constant costs, or by ensuring revenue growth outpaces cost increases. Revenues can be increased by either boosting the number of nights at a constant price, maintaining the number of nights but raising the price, or a combination of both, as revenue is the product of price and service quantity. Given the high seasonality of Croatia's hotel industry, revenues can be increased by extending hotel occupancy days.

The demand for tourism depends on tourists' income levels, the business cycle phase of their home countries, their preferences, the price of the tourist product in Croatia and competitor countries (including substitute prices and exchange rates), domestic price levels (relevant for out-of-board consumption), and marketing activities. Other factors include the cleanliness of the sea, climate, historical sites, and other attractions.

Profitability determinants can be divided into macro and micro factors. Macro factors include the country's attractiveness as a tourist destination, domestic price levels, exchange rates, substitute prices, and international price levels. Micro factors include accommodation quality and entity costs. Key determinants of firm costs are workforce availability and quality, labour market flexibility, capital costs, tax policy, domestic and international price levels (particularly if input dependence is high), among others. Tourism has a high multiplier effect, including the export market for domestic agriculture, furniture, construction, textiles, and other industries. Croatian tourism, highly dependent on imports, is increasingly involving the local community, particularly in reducing import dependence on agricultural products.

Dritsakis (2004) found that tourism significantly contributes to long-term economic growth in Greece and that greater economic growth fosters tourism industry development. Quality improvements can increase tourist product prices, depending on competition levels. Denny and Van Reenan (1993) found that market share and concentration positively affect UK firms' profit margins, indicating that greater monopoly power

leads to higher profit margins. The entry of private accommodation and small renters reduces hoteliers' profit margins. Investment levels, tourist product quality, price levels, liquidity, and labour productivity are key profitability determinants. Company size is a minor determinant, while sector competition and participant numbers are more influential (Škuflić & Mlinarić, 2015).

Business costs include personnel, material, capital, and other costs. These costs tend to remain stable or decrease if output is unchanged or increases more slowly than output. Labour shortages and increased demand result in higher wages, while importing less productive labour increases personnel costs and reduces profits. Inflationary pressures post-COVID have driven wage growth. Banks' variable interest rate loans impact capital costs, especially when interest rates rise to curb inflation and due to expansion and maintenance costs.

The debt-to-assets ratio (total liabilities divided by total assets) yields mixed results. Higher borrowing during investment cycles can improve competitive positioning and revenue growth, indicating a positive relationship. Conversely, a higher debt share increases financial and total costs, reducing profit, suggesting a negative relationship. Various studies have reported differing results regarding this debt relationship (Burja, 2011; El-Sayed Ebaid, 2009; Dimitrič et al., 2019; Goddard et al., 2015).

The relationship between a company's capital structure and profitability has been widely studied. Some experts found a positive relationship (Margaritis & Psillaki, 2007), while others reported a negative relationship (Alarussi & Alhaderi, 2018; Habibniya et al., 2022). Tobin's q, the ratio of the market value of a company's shares to the net replacement cost of its capital after taxation, relates to capital costs. A low q value suggests insufficient profitability to encourage capital investment, while a high q value incentivises new capital accumulation (Sargent, 1987).

In recent years, input costs have risen due to inflationary pressures. FINA data for the hotel industry (55.10) from 1992 to 2022 show that personnel costs have fluctuated, increasing significantly by 24.4% in 2021 and 36.6% in 2022, a substantial shock for businesses. Material costs increased even more during these years, by 52.2% and 47.7%, respectively. Personnel costs' share of total expenditures ranged from 0.2 in 1993 to 0.29 in 1999, falling below 0.2 from 2000 onwards and rising to 1.8 in 2021. Material costs' share averaged 0.45 to 0.5 from 1996 until the COVID pandemic, increasing to 1.1 and 5.6 in 2021 and 2022, respectively. Depreciation varied from 0.13 to 0.15. Cost shocks are evident.

This paper investigates the impact of personnel costs on hotel industry profitability to establish future profit trends under continued inflationary pressures. The relationship between labour costs and profitability varies by industry and company type. Higher labour usage does not necessarily reduce profitability. Sethuraman (2000) found that increased employee workloads can lead to errors and quality issues. Ton (2009) determined that workforce growth positively impacts profit margins, while labour costs significantly affect profitability. In manufacturing, personnel costs have a long-term relationship with productivity, and increased personnel costs do not necessarily lower profitability, as shown in European Union companies (Stundziene & Baliute, 2022). Anderson et al. (1997) found that higher customer satisfaction is associated with higher labour productivity for goods-producing firms but lower productivity for service firms, indicating a trade-off between customer satisfaction and productivity in services. Rust et al. (2002) showed that companies focusing on revenue growth outperform those

focusing on cost reduction. Additionally, the theories of the firm state that goals can include increasing company value or manager benefits, not just profit growth, which this paper does not consider.

3. ANALYSIS OF THE COMPETITIVENESS OF CROATIAN TOURIST HOTEL COMPANIES IN THE CONTEXT OF DEVELOPMENT TRENDS IN EUROPE AND THE WORLD

Tourism has seen continuous global growth with minor declines (e.g., in 1995 and 2009) for over seven decades. This growth persisted until the COVID-19 pandemic in 2020, which caused a drastic drop in overnight stays from 1.462 billion to 406.6 million, reverting to 1989 levels. In the decade preceding the pandemic, global tourism growth averaged 3-7% annually, though growth rates varied by region. Post-pandemic, as economies reopened and normalcy resumed, travel, considered a luxury good, regained popularity, with numbers gradually returning to pre-crisis levels. By 2023, 88% of 2019 levels had been reached (UNWTO, 2024).

The restrictions imposed to curb the virus's spread severely impacted tourism and related activities, highlighting the vulnerability of economies heavily dependent on this sector. In 2019, before the pandemic, tourism contributed significantly to the GDP of several countries: Croatia (11%), Portugal (8%), Spain (7%), Italy (6%), and Austria (5%), while the EU average was around 4.5% (Eurostat, 2024). In terms of employment, Croatia's tourism sector accounted for 6% of total employment in 2021, placing it mid-range among OECD countries, and lower than Italy (8.8%) and Spain (12%) (OECD, 2024).

As a country highly dependent on tourism, Croatia must maintain and ideally increase its market share in a competitive environment. Despite growing travel demand, competition has intensified, with tourist companies investing in accommodation capacities and improving quality, while lower air transport prices have made destinations more competitive.

By 2022, the world had approximately 115 million accommodation units, with EU countries accounting for 28.9 million beds (Eurostat, 2024). Key EU tourist destinations include Italy and France (35% of all available units), followed by Spain and Germany. Croatia represents about 3.9% of European tourism. Focusing on beds in hotels, resorts, and campsites, Croatia's share increased from 12% in 2011 to 17% in 2022, indicating enhanced accommodation capacity and competitiveness. Croatia's market share in terms of overnight stays grew from 12.4% in 2012 to 18.4% in 2019, slightly declining to around 17.8% in 2022 (author's calculation based on Eurostat data). This slower post-pandemic recovery may signal a potential loss of competitive position, pending a full tourism sector recovery to pre-crisis levels.

Since 2000, Croatia's tourism revenue has surged from approximately 3 billion euros to nearly 15 billion euros in 2023, with revenue per tourist increasing from 445 to 749 euros. Compared to the EU average of 670 euros per capita in 2023, Croatia's revenue indicates its competitive stature in the EU market, with nearly 20 million tourist arrivals and over 90 million overnight stays.

Tourism's high multiplier effect benefits Croatia's agriculture and supporting industries such as construction, wood, and furniture production, essential for hotel investments and renovations. However, this positive impact might diminish if these supporting industries are underdeveloped or lack international competitiveness. Additionally,

tourism brings challenges such as traffic congestion, inadequate infrastructure, and environmental pollution, necessitating a sustainable development model for the sector.

4. RESEARCH METHODOLOGY AND RESULTS

This analysis uses annual data of 6,127 companies from the hotel industry that operated in the period from 1993 to 2021 in the Republic of Croatia. The data was obtained from the database of the Financial Agency (FINA), which collects company's business information, enabling detailed insights into the performance and financial position of companies. Companies are required to submit financial reports such as profit and loss account and balance of payments to FINA. In order to examine the influence of the cost of net wages on the profitability of the company, the statistical software STATA 17 was used. The dependent variable is the gross profit margin, which represents the ratio of profit before interest and tax to the total revenue of the company. We measured staff costs with the net salary variable. Net wages represent the cost of the company's staff, which does not include income tax or other contributions to wages. According to the literature review, the following variables were used as control variables: cost of materials, indebtedness factor, total asset turnover and labour productivity. Most variables are in logarithmic form to ensure their stationarity. The variables cost of net salaries and cost of materials were first deflated with the producer price index, and then logarithmized. The producer price index has been available since 1995 on the website of the Central Bureau of Statistics. Due to the impossibility of viewing the producer price index before 1995, the time series was reduced to data available after 1995. The results of the descriptive statistics of the variables are available in Table 1.

Table 1. Descriptive statistics

Variable	Number of observations	Arithmetic mean	Standard deviation	Minimum value	Maximum value
Gross profit margin	35,456	2.238	0.282	-6,089	2,398
Cost of net salaries	46,095	7,399	5.120	2.303	19,512
Cost of materials	46,095	10.602	3,921	2.303	20,059
Indebtedness	32,743	2,771	1.301	-5,811	14.184
Labour productivity	23,268	10,310	1,395	2.303	15,632
Total asset turnover	46,380	2.394	0.415	2.303	16,037

Source: FINA. Author's calculation

Data in Table 1 indicate an unbalanced panel of data, which is a limitation of this analysis. The results of the autocorrelation analysis of the variables in the model indicate the presence of first-order autocorrelation. The bi-variate correlation analysis of the variables in the model is given in Table 2.

Table 2. Correlation coefficients

	1	2	3	4	5	6
1. Gross profit margin	1					
2. Cost of net salaries	0.134*	1				
3. Cost of materials	0.103*	0.709*	1			
4. Indebtedness	0.095*	0.049*	0.083*	1		
5. Work productivity	0.066*	0.042*	0.427*	-0.042*	1	
6. Total asset turnover	0.038*	0.738*	0.027*	-0.041*	-0.079	1

Source: FINA. Author's calculation

Note: Statistical significance: *<0.05

After the correlation analysis of the variables was conducted, the multicollinearity of the variables in the model was tested using the centered VIF. The VIF analysis showed that the centered VIF of the variable is less than 5, which indicates the absence of multicollinearity. Heteroskedasticity of squared residual deviations was tested with the Breusch-Pagan-Godfrey test. The analysis indicated the existence of heteroskedasticity. The data were primarily analyzed using the panel analysis model of fixed and random effects, whereby the Hausman test proved that the model of panel analysis of fixed effects is adequate.

The parameter estimates of this model include the assumption of weak exogeneity of the variables, the dependent variable with a time lag is used in the analysis (Sarafidis & Wansbeek, 2012). Models that include a time lag, such as a fixed-effects panel analysis model, can give inconsistent parameter estimates in cases where N $\rightarrow \infty$ and T is defined and smaller than N, as in the case of the data that is the subject of this analysis (N = 6,127 , T = 29). One of the most commonly used estimation approaches is the use of a dynamic model that includes instrumental variables and the generalized method of moments, as described in works such as Arellano and Bond (1991). This method replaces the expected sample value with the mean value and minimizes the squared distance function to achieve consistent parameter estimates in the model. The generalized method of moments (GMM) further differentiates the dependent variable (Arellano and Bover, 1995; Blundell and Bond, 1998). Systemic GMM estimation can be biased due to the transformation of variables, the number of instrumental variables and the weighting matrix. The Hansen restriction test is used to accurately specify the model. The model also assumes that errors are not correlated between firms, but are within firms in the observed time period. In order to solve the latter problem, time *dummy* variables are included in the estimation. In this paper, in addition to the analysis of the panel model of fixed effects, the system robust two-phase GMM model (Roodman, 2009) given by the following equations is used:

$$y_{it} = \alpha y_{i,t-1} + x'^{i,t-1}\beta + \varepsilon_{it}$$

$$\varepsilon_{it} = \mu_i + \nu_{it}$$

$$E(\mu_i)=E(\nu_{it}) = E(\mu_i \nu_{it}) = 0$$

$$i = 1,2,\ldots N \quad t=1,2,\ldots T \qquad (1)$$

where the model is estimated in log-linear form:

$$\log y_{it} = \beta_1 + \alpha log\, y_{it-1} + \beta_2\, log\, x'_{i,t-1} + \varepsilon_{it}$$

$$i = 1,2,\ldots N \quad t=1,2,\ldots T \qquad (2)$$

where is the value of the dependent variable, the value of the dependent variable with a time lag of a year, is the vector of independent variables, β is the vector of the estimated parameters of the independent variables, is the indicator of an individual company in the year , where the error of residual deviations has two orthogonal components, the one with the fixed effect , those idiosyncratic shocks,

This paper analyzes data on the impact of net salary costs on company profitability measured by gross margin for companies in the hotel industry in the period from 1993 to 2021. years. Table 3 provides an insight into a systemic two-phase GMM model.

Table 3. Dynamic panel regression

Variable	(SE)
Gross margin $_{t-1}$	0.000 † (0.000)
Cost of net salaries	-0.037** (0.009)
Cost of materials	0.028** (0.006)
Indebtedness	0.008** (0.002)
Labour productivity	0.031** (0.008)
Constant	YES
Dummy variable for age	YES
Number of observations	11,952
Number of companies (group)	2,055
Probability > F	0.000
Number of instruments	224
Hansen test of exceeding restrictions (p-value)	0.189
AR (1) p-value	0.000
AR (2) p-value	0.187

Source: FINA. Author's calculation.

Note: The standard error of the estimator is in parentheses. Statistical significance: † <0.10; *<0.05; **<0.01. All variables are logarithmic values of the original variables. The Arellano-Bond test of the average autocovariance of order 1 residuals is zero (0). (H0: no autocorrelation). The Arellano-Bond test of the average autocovariance of order 2 residuals is zero (0). (H0: no autocorrelation). Source: author's calculation.

Table 3 shows the results of the panel analysis of the robust two-level systemic GMM panel regression model. Endogenous variables in the model are with the time lag of 1 to 3 year, and include gross margin and net salary costs. Instrumental variables are the variables found in the model without a time lag, the labour productivity variable, with a time lag of two at most, the cost of materials and the indebtedness, and an additional instrumental variable is the total asset turnover with a time lag of up to 1 because it explains the profitability of the company associated with income. The results indicate a significant negative impact of the cost of net salaries on the gross margin. Moreover, the analysis indicates that, on average, a 1 percent increase in net salary costs will result in a 3.7 percent decrease in gross margin.

5. CONCLUSION

Tourism, with its high multiplier effect on a country's economy, is significant for both developed and less developed economies. It contributes to employment growth and increases export revenues, which is crucial for countries like Croatia with low export propulsivity in the goods sector. This sector has unique structural characteristics, making it specific and very sensitive. The hotel and accommodation industry is capital-intensive, requiring significant investment in hotels, real estate, land, and equipment, leading to high fixed costs. Many companies borrow financial capital to obtain necessary funds, resulting in high levels of indebtedness and high capital costs. The assets owned by companies are often used as collateral to raise capital, leading to high liabilities and leverage ratios, making them vulnerable to environmental turbulence.

This industry is particularly sensitive to external changes such as financial crises, income drops, and climate change. The recent health crisis highlighted its vulnerability. In recent decades, larger companies and increased competition have exerted pressure to decrease prices. The relatively easy entry into the accommodation sector, except for hotel chains and branded hotels, leads to high price competition, high fixed costs, and interchangeable services, making the hospitality and tourism industry more competitive than others. Significant competition has also emerged from private accommodation.

Given these challenges, firms must manage costs effectively and differentiate their products (e.g., joining global hotel chains, improving hotel and service quality, location) to command higher prices and increase revenues. However, price increases are limited by high competition both domestically and internationally, which restricts income, time, and profit growth. Therefore, this paper focuses on the cost segment.

This paper examined the impact of personnel costs, measured by net salary costs, on the profitability of hotel industry companies, measured by gross margin. Using annual financial data from FINA for 6,127 companies from 1993 to 2021, the analysis employs the two-step system robust GMM method. The results show that a 1% increase in net salary costs results in a 3.7% decrease in gross margin, demonstrating the negative impact of rising labour costs on profitability.

Labour costs typically represent about 20% of total costs, while material costs account for about 50%. We investigated the impact of rising staff costs on business profitability. Recent emigration trends from Croatia and neighbouring countries have led to labour shortages, necessitating wage increases and/or importing workers from distant countries with lower productivity. This has significantly increased personnel costs in 2021 and 2022 compared to previous years. Hence, the significance of this paper is twofold. Firstly, it delivers practical insight into the effect of the labour costs on gross profit margin. Secondly, following the importance of the labour costs in the hotel industry in Croatia this paper enables a foundation for argumentative discussion about the current trends and developments in tourism and with it related tourism policy.

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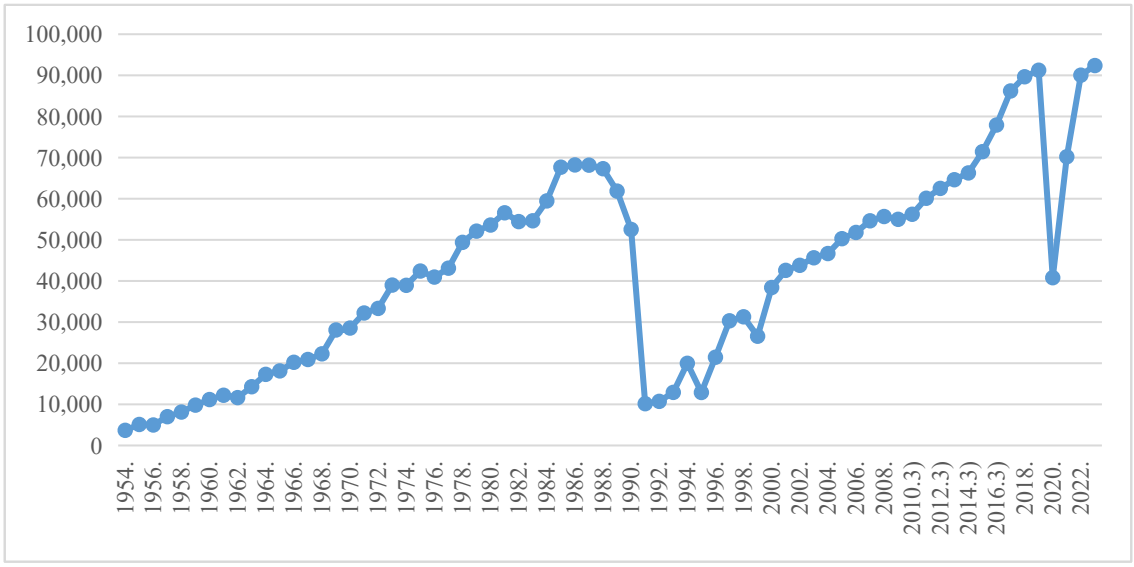
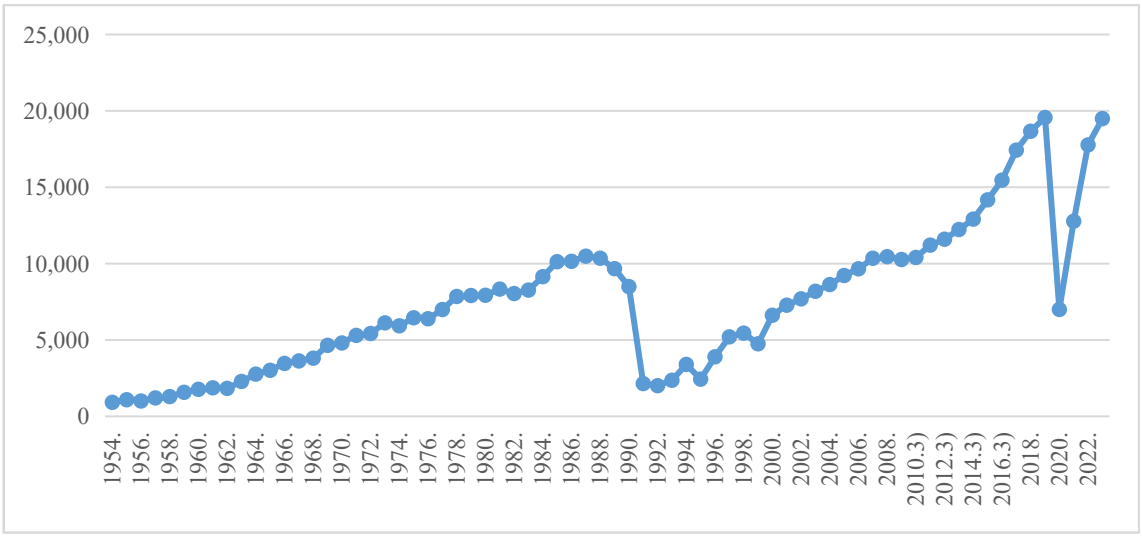
APPENDIX

Figure 1. Number of overnight stays in the Republic of Croatia, 1954 - 2023



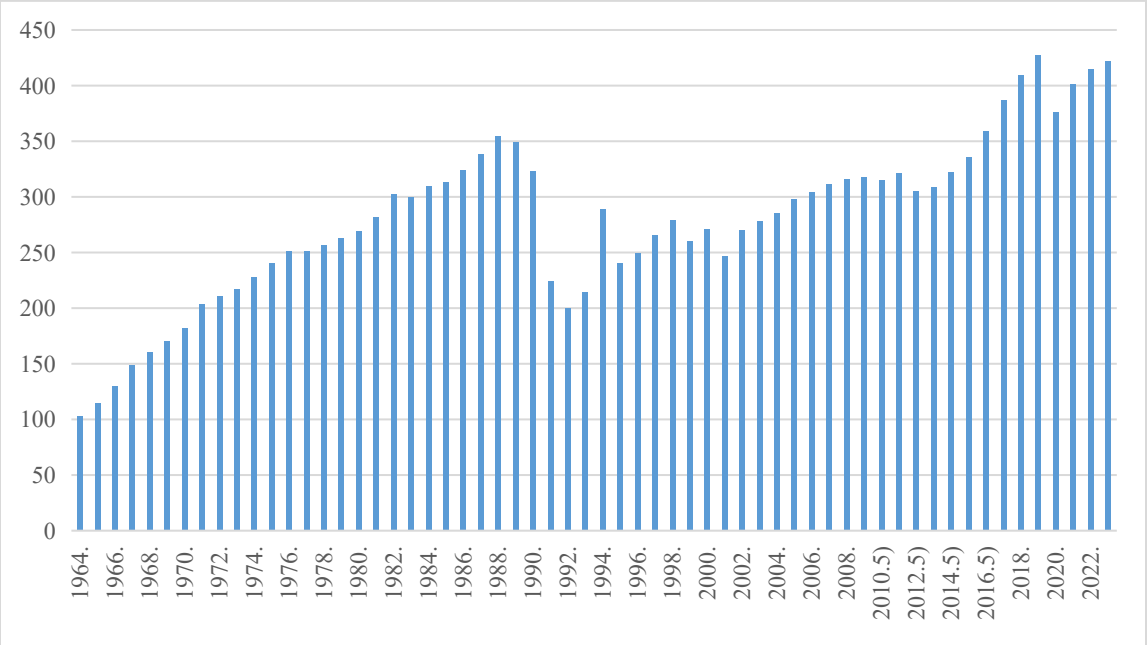
Source: Croatian Bureau of Statistics (2024). Tourism data (online). https://podaci.dzs.hr/hr/podaci/turizam/

Figure 2. Number of arrivals in the Republic of Croatia, 1954-2023



Source: Croatian Bureau of Statistics (2024). Tourism data (online). https://podaci.dzs.hr/hr/podaci/turizam/

Figure 3. Number of beds in the Republic of Croatia,1964-2023



Source: Croatian Bureau of Statistics (2024). Tourism data (online). https://podaci.dzs.hr/hr/podaci/turizam/ (1 April 2024)