

Development strategy for the regional services market

Oksana Pirogova^{1*}, *Mikhail Pirogov*², and *Nikolay Pogorelov*³

¹ Peter the Great St. Petersburg Polytechnic University, 29 Polytechnicheskaya str., 195251, St. Petersburg, Russia

² Baltic State Technical University, 1st Krasnoarmeyskaya str., 119005, Saint Petersburg, Russia

³ The Russian Presidential Academy of National Economy and Public Administration (Institute of management, RANEPА St. Petersburg), 57/43, Sredny prospect VO, 199178, Saint Petersburg, Russia

Abstract. The hospitality industry is influenced by an increasing number of factors every year. For successful hotel business, it is necessary not only to know exactly the market, its potential guests and be able to prevent all unforeseen risks, but also to introduce new modern, including energy-saving technologies. In modern conditions of growth of the hospitality market, the introduction of energy-saving technologies can become not only a factor of saving, but also a factor of increasing attractiveness in the eyes of potential consumers of hospitality industry services. The purpose of the study is to identify key factors, including energy conservation, and to assess the growth rate of the hospitality industry market. The objectives of the study involve identifying and analyzing the relationship of factors with indicators of revenue and net profit in the hospitality market, conducting regression analysis, as well as determining the forecast values of the main economic indicators. Research methods: factor analysis, regression analysis, construction of own hypotheses. As a result of the study, forecast estimates of the growth rates of the hospitality market in the post-pandemic period were obtained. **Keywords:** hotel business, energy-saving technologies, tourist flow, regression analysis, room rate, forecasting

1 Introduction

The stable operation of the hotel business enterprises has been significantly shaken in 2020. The emergence of the Covid-19 pandemic, restrictions on movement, updated sanitary standards - all this has affected the work of the sphere. The decrease in the number of visitors was also reflected in the decrease in the number of accommodation facilities. About 30% of collective accommodation facilities were closed during this period [1]. In addition to closing and reducing the number of guests for each hotel business, new requirements have appeared [2]:

- install sanitizers with skin antiseptics in common areas;

* Corresponding author: kafedra17@rambler.ru

- keep a social distance (1.5–2 meters) and minimize the possible accumulation of people in the reception area using special markings;
- ventilate the rooms at least once every two hours;
- if possible, refuse to use decorative pillows and bedspreads;
- organize meals for guests mainly on the menu or offer individual room service;
- extend breakfast time;
- ensure the work of physical culture (including spas, baths and pools) in accordance with current recommendations.

Thus, a new era in the operation of hospitality enterprises began after the pandemic period, in the so-called post-pandemic period. The crisis was an impetus, and examining performance in comparison to pre- and post-pandemic values can pinpoint exactly what progress has been in this area.

One of the most popular and stable travel destinations in Russia is St. Petersburg. It is annually included in the first 5 directions, although its values significantly changing due to environmental conditions. Comparative data is presented in Figure 1.

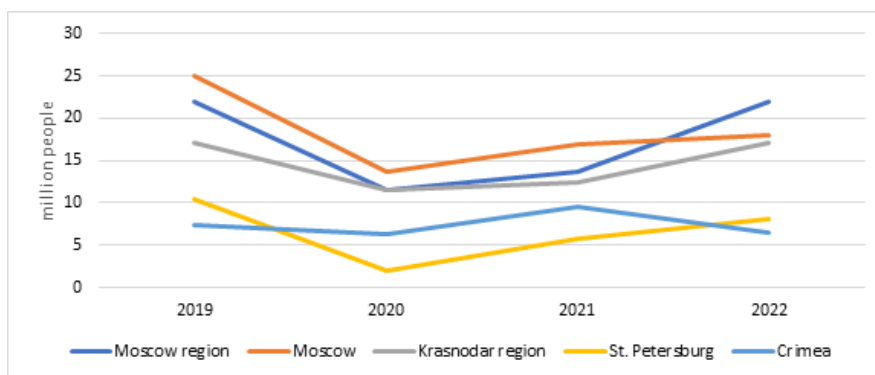


Fig. 1. Dynamics of the tourist flow in 5 popular destinations in Russia, million people.

Figure 1 shows the dynamics of the tourist flow for 4 years. In 2020, there was a decrease in the flow in many tourist destinations, but further progress and work on the problems that have arisen are noticeable. Let us study in more detail the state of the hospitality industry market using the example of St. Petersburg. The dynamics of the tourist flow in St. Petersburg is shown in Figure 2[3].

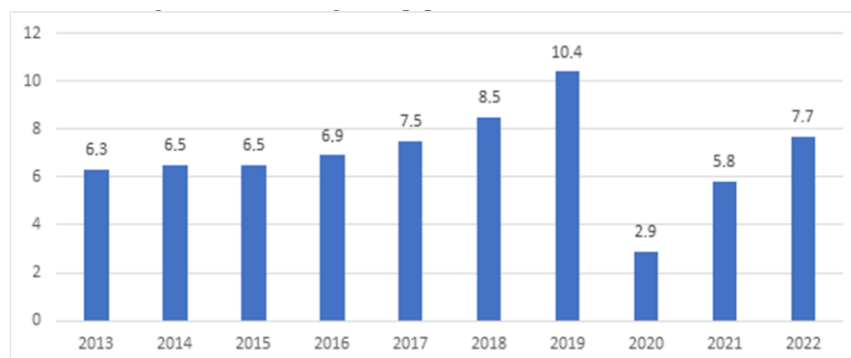


Fig. 2. Dynamics of the tourist flow in St. Petersburg, million people.

The tourist flow in the observed period shows a sharp decline in 2020, but already in 2021 and 2022 it has a positive trend, which indicates the return of positive dynamics in the

market. Given the market for 2020 in the analytics, we are talking about an extremely pessimistic scenario that has affected most of the collective accommodation facilities. That is why, when considering the situation in the forecast, it is necessary to use and rely on data immediately before and the post-pandemic season, i.e. for 2019 and 2022, respectively. This factor directly influenced the formation of hotel occupancy and tariffs.

So let's take a look at each of these factors. The dynamics of hotel occupancy in St. Petersburg is shown in Figure 3 [4].

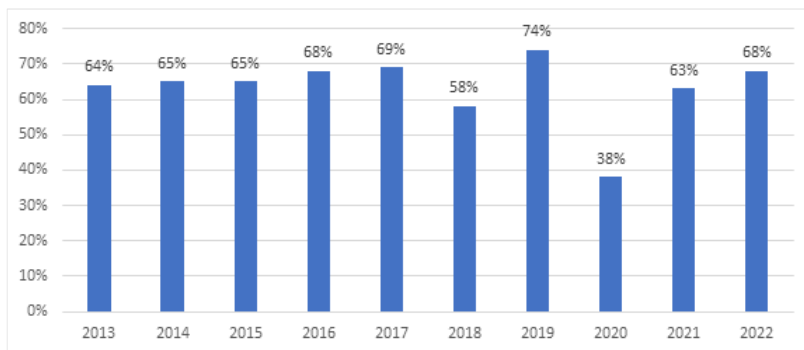


Fig. 3. Dynamics of the tourist flow in St. Petersburg, million people.

In 2020, the average occupancy of hotels in St. Petersburg decreased compared to the rest due to the spread of the pandemic. Most hotels have remained on the brink of extinction and for many the main goal has become survival in the market. At the same time, 2021, which follows severe restrictions on attendance at events and the mask regime, shows pretty good results. In 2022, the situation reached the level of 2016, with the majority of the tourist flow being domestic clients. To classify collective accommodation facilities of a hotel type, it is necessary to refer to the global classification of the star category of hotels (Table 1).

Table 1. Hotel stars categories and service level.

Star category	Description
Without stars	This category assumes a minimum set of functionality, with the most necessary for accommodation: a sleeping place, hot water, heating, one toilet for 10 people, etc. The area of a single room is at least 9 sq. m.
One star (D category)	Inexpensive accommodation option with modest service: housekeeping (not necessarily daily)
Two stars (C category)	Low budget type, providing one or two room options. In an institution with two stars, an indispensable condition is the daily cleaning of the rooms.
Three stars (B category)	Mid-range hotel. The rooms of hotels of this class are cleaned daily, include a bathroom, TV, personal refrigerator. In a three-star hotel, accommodation includes a set of additional services to choose from: laundry, gym, dining room or cafe, parking space, etc.
Four stars (A category)	The requirements for such hotels are similar to three-star hotels, but in this case, bed linen is changed every day, there is usually air conditioning, personal body and hair care products are required every day. Rooms in a 4 * hotel are much more expensive, however, for the convenience of guests, a lot of services are offered for an additional fee: from ironing clothes to individual excursions.
Five stars (Luxury)	Luxe class rooms as a whole comply with the requirements of 4 * hotels, but design decoration, exclusive hotel services, such as servants separately assigned to the guest, a large area of rooms, premium-class furniture and interior items, own restaurants, etc. are welcome.

The change and structure of the supply of collective accommodation facilities in St. Petersburg are shown in Figure 4.

The structure of the supply of hotels in St. Petersburg by class is shown in Figure 4 [5].

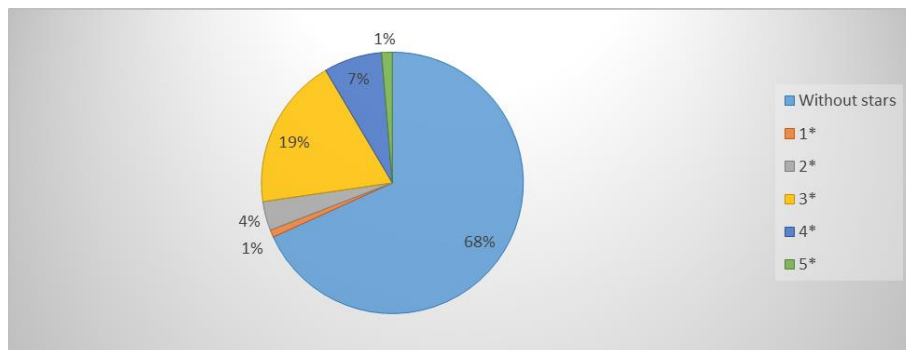


Fig. 4. Distribution of the hospitality market by star category in St. Petersburg.

It should be noted that according to Figure 4, the largest share in the structure of hotel supply is occupied by accommodation facilities without a star category. But considering the market of offers that can be evaluated, we will take hotels above 3 * for research. The largest percentage among the proposals is occupied by hotels with a 3 * category. Their number is 19% of the entire market of St. Petersburg. Hotels with 4 * occupy 7%, and hotels with 5 * only 1%.

To conduct the study, we choose the average cost of each of the categories under consideration.

2 Materials and Methods

Let's take a look at the top 3 hotels in each category and analyze their performance in 2019 and 2022. The data are presented in tables 2–4.

Table 2. Dynamics of data in the pre- and post-pandemic period of the 3* Okhtinskaya hotel operation

	At the beginning of 2019	At the beginning of 2022	Deviation
Revenue, thousand rubles	232603	60	-232543
Load factor, %	53	45	-8
Average cost of a room, rub.	2350	2200	-150

Compared to 2019, the hotel values in the 3* category have decreased, which indicates the still unstable work of the organization and the desire to restore work to the previous level.

Table 3. Dynamics of data in the pre- and post-pandemic period of the 4 * Azimut St. Petersburg hotel

	At the beginning of 2019	At the beginning of 2022	Deviation
Revenue, thousand rubles	920021	675221	-244800
Load factor, %	54	53	-1
Average cost of a room, rub.	3650	3800	150

Comparison of indicators in the pre- and post-pandemic period in the 4 * hotel category indicates a decrease in the volume of services sold, a decrease in occupancy, but an increase

in prices relative to previous years. Hotels in this category also suffered difficulties, but it is clear that the company is developing steadily.

Table 4. Dynamics of data in the pre-pandemic and post-pandemic period of the 5 * "Lotte" hotel operation

	At the beginning of 2019	At the beginning of 2022	Deviation
Revenue, thousand rubles	920021	675221	-244800
Load factor, %	54	53	-1
Average cost of a room, rub.	3650	3800	150

For hotels in the 5* category, the pandemic period passed with the least losses and an increase in each of the factors. The influence of factors such as the increase in domestic tourist flow, the departure of global hotel chain brands and the overall low number of hotels in this category helped hotels to withstand the difficulties.

3 Results and Discussion

To predict hotel rates, we will build a linear regression model [6-9]. First of all, it is necessary to check the relationship between the factor and the resulting indicator. To determine the level of connection between the tourist flow and tariffs in hotels, we will construct correlation matrices for hotels of 3, 4 and 5 stars according to the data from Table 5.

Table 5. Data to determine the level of connection between tariffs and tourist flow

Year	Tourist flow (million people)	Rate for room 3*** (rub./day)	Rate for room 4*** (rub./day)	Rate for room 5*** (rub./day)
2016	6.9	2250	3550	16500
2017	7.5	2300	3600	16950
2018	8.5	2350	3650	17430
2019	10.4	2450	3680	21500
2020	2.9	2100	3350	14500
2021	5.8	2150	3300	15900
2022	7.7	2200	3800	22000

Based on the data in Table 6, we will construct correlation matrices, where y is the tariff per room rub./day, x is the tourist flow of St. Petersburg, million people.

Table 6. Correlation matrix of the factor and the resulting indicator

3***		
	Y	X
Y	1	
X	0.92	1
4****		
	Y	x
Y	1	
X	0.76	1
5*****		
	Y	x
Y	1	
X	0.77	1

The data from Table 6 indicates a high relationship between hotel rates and tourist flow, so this factor can be used to build a linear regression model. Accordingly, the equation of the resulting indicator will have the following form [10]:

$$Y=b_0+b_1 x_1, \tag{1}$$

where Y – resulting indicator (rate per room, rub./day);

b_0 – free member;

b_1 – regression coefficient;

x_1 – factor determining the resulting indicator (tourist flow, million people)

According to table 6, the required coefficients were calculated. Table 7 presents the found values.

Table 7. Linear regression equation coefficients

3***	
b_0	1921.01
b_1	47.34
4****	
b_0	3148.53
b_1	58.16
5*****	
b_0	11219.72
b_1	930.42

To predict the tariffs of hotels in St. Petersburg, we calculate the value of the influencing factor, namely the tourist flow, using the existing trend, and also use expert opinion [11-13]. According to expert forecasts, the volume of foreign tourists will increase to 13.9 million people [14]. Table 8 presents the forecast values of tariffs for 3, 4 and 5-star hotels in St. Petersburg for 2023 using the forecast tourist flow.

Table 8. Forecast values of hotel tariffs by tourist flow

Year	Tourist flow (million people)	Rate for room 3*** (rub./day)	Rate for room 4**** (rub./day)	Rate for room 5**** (rub./day)
2022	7.7	2200	3800	22000
2023(f)	13.9	2536.43	3904.61	23315.18

For the calculation, the occupancy of hotels and the number of rooms as of 2022 will be used, namely, the occupancy, the number of rooms – 10432 (3*), 9318 (4*), 3039 (5*) (Table 9).

Table 9. Calculation of annual revenue of 3-5 star hotels for 2023 using predicted rates

	3***	4****	5*****
Number of rooms	10432	3039	3039
Tariff, rub./day	2536.43	3904.61	23315.18
Load factor, %	45%	53%	52%
Revenue, rubles per year	4286526117	3364053748	13264024554
Total revenue, rubles per year	20914604419		

Thus, taking into account this trend, the revenue of 3-5 star hotels from renting rooms will amount to 20.9 billion rubles. It is worth considering that most hotels will catch up in 2023 with the level of pre-pandemic sales. Unlike the 5-star category, where the number of hotels in the city of St. Petersburg is only 1% of the total list of hotels, 3- and 4-star hotels have suffered significantly from unforeseen circumstances. The omissions identified as a

result of the analysis and the decrease in numbers compared to 2019 before the onset of the pandemic showed the market 3-4 * not in the best shape [15]. However, an increase in indicators is visible, which means that the sphere is rapidly changing to new conditions.

4 Conclusion

The study showed that in order to achieve and restore the pace that the hotel business was gaining before the events of 2020, enterprises still need to work and develop. Changes and positive jumps in the domestic tourist flow are visible, but due to the low occupancy of collective accommodation facilities and the insufficient growth of average tariffs, this has an insignificant impact on the revenue of enterprises. It is necessary to work on these factors for the constant and stable functioning of hotel business enterprises in the market.

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