



Original Article

Labor Productivity in Hotel Service: Empirical Evidence from Vietnam

Nguyen Khanh Huy^{1,*}, Nguyen Khanh Linh²

¹VNU University of Economics and Business, 144 Xuan Thuy Road, Cau Giay District, Hanoi, Vietnam

²International School - Vietnam National University Hanoi,
G7 & G8 Building, 144 Xuan Thuy Road, Cau Giay District, Hanoi, Vietnam

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Abstract: Service industries in emerging economies are facing the problem of underrated labor productivity due to difficulties in precise measurement and effective management. Therefore, it is necessary to find solutions to such issues. This study concentrates on popular hotel services in Vietnam which are also encountering challenges in labor productivity management. The data is obtained from the General Statistics Office of Vietnam national census in 2018 on the performance of 1,400 enterprises operating in Vietnam hotel services and presents findings on the determinants of labor productivity. Specifically, labor cost, total capital, before-tax profit, number of rooms, number of room days, and accommodation revenue are among the most-affecting factors. These findings pave the way for further studies to represent a brand-new and more advance measurement for labor productivity, not only for hotel service but also for the service sector in general.

Keywords: Labor productivity, hotel service, hotel efficiency, hotels, Vietnam.

1. Introduction

Emerging economies can be considered a necessary impetus for global development with fast-growing dominance of commercial firms [1, 2]. Economic liberalization, which has transformed an economy from low income, less developed, and less industrial to a modern one

with high living standards, is the recipe for success for emerging countries and this leads to increased firm development [3, 4]. Emerging economies, following the current global economy trend, highly concentrate on the service sector [5]. The service sector has gradually grown throughout the decades and become crucial for the stability of a national economy

* Corresponding author

E-mail address: huynk@vnu.edu.vn

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[6]. The reality of accommodation service or more particularly, hotel service, is similar to the service sector. Before the COVID-19 pandemic Global tourism had developed to its peak and hotel service has consequently increased in importance in the national economy. Emerging economies would be benefitted by the development of hotel services so that there needs to be reasonable measurements for ensuring hotel service growth [7].

Nevertheless, the problematic question of sustainable growth should be answered in the dominant sector of hotel service. Scholars have indicated that efficiency is the initial issue to be handled. The fact that many hotels and accommodations are emerging brings about the problem of efficiency [8]. Besides, labor productivity is a typical representative measure of hotel efficiency and an important benchmark for comparison in the market [9, 10]. Moreover, labor productivity also has a strong impact on the quality management of the hotel sector particularly and the service sector generally: The higher the quality at the management level, the higher the labor productivity of the company [11]. Therefore, measuring labor productivity through identifying its determinants and the level of affect should be prioritized in the hotel management process.

Following similar trends of international emerging economies, Vietnam has directed the economic development policy from the industry and construction sector to the service sector. Nevertheless, Vietnam's service sector, in general, has witnessed low labor productivity throughout the years [12-14]. Hotel service is no exception. Although there is striking progress in labor productivity enhancement, labor productivity is still below its potential in Vietnam [15]. It is assumed that hotel service in Vietnam has inadequately managed human resources and methods should be revolutionized to solve the problem.

Due to the fact that labor productivity varies in hotels, there is no systematic measurement for this dimension [16]. The process of determining a labor productivity index relies primarily on

either published productivity data or an individual's experience [17]. Scholars have different ideas about labor productivity, which leads to the range of determinant selection. However, it is nearly compulsory for researchers to find out the determinants of labor productivity. Referring to the determinants, possible solutions for dealing with the problem of maximizing labor productivity would be provided. In order to assert the labor productivity influencing factors in the context of Vietnamese hotel service, an important question must be answered in research: How do the finance and operation related activities of hotels affect their labor productivity?

The remainder of this paper is organized as follows: the second section briefly reviews empirical literature on hotel labor productivity. Next, the third section presents the theoretical considerations and develops hypotheses. The fourth and fifth sections present the results of data analysis. Implications are presented in Section 5. Finally, Section 6 gives the overall conclusion of the research.

2. Literature review

Labor productivity is considered an essential indicator of hotel efficiency which relates significantly to hotel competitive advantage. By definition, labor productivity represents a hotel's ability to obtain maximum outputs from a given set of labor inputs or minimize its labor inputs to reach an expected level of output [18]. As mentioned above, in a human-based service, efficiency can be impacted mainly by labor productivity. In other words, a hotel relies on its labor productivity for creating better efficiency, quality, and performance. The hotel's performance is the aggregated efforts of different departments, involving both the front and back of the house [19]. As a consequence, labor productivity enhancement contributes to the overall performance of hotels. This is an imminent concern due to harsh competition in the market. The competitive environment encourages firms to innovate, reduce costs and

become more efficient or productive [20]. Generally, as the number of hotels expands continuously, every hotel must produce better efficiency in order to maintain the guest count.

Scholars have indicated that labor productivity differs in various hotels due to the wide range of its determinants [11, 14]. Depending on the purpose and the researchers' point of view, there are plenty of methods for selection. Labor productivity is important in hotel service; however, a systematic measurement has not been applied. Jorge and Suarez [20] argued that the methods used in calculating labor productivity for hotel service and the service sector in general should change due to market advancements. The gap in research methods hinders the establishment of industry-wide measurement for labor productivity. The nature of labor productivity includes determinants and reasonable measurement.

Overall, labor productivity can be defined as the relationship between input and output factors which measures how efficiently and effectively hotels manage human capital in order to create economic values.

Determinants of labor productivity in hotel service

Determinants of labor productivity in the service sector remarkably change due to a chosen variety of inputs and outputs. It is no different in hotel service, whereas labor productivity depends heavily on numerous determinants and environments. Every hotel has its own factor of influences on labor productivity. According to Singala et al. [16], there is a clear relationship between inputs and outputs of a productive system.

More particularly, Singala et al. [16] identified that there are several categories of determinants of labor productivity in a hotel, namely: (1) Number of rooms, (2) Payroll, (3) Demand variability (4) Hotel design and brand, and (5) Management. In a deeper consideration, it can be inferred that hotel design, management arrangement and ownership structure significantly affect productivity levels.

However, research faces the problem of measuring inputs when the exact number is obtained from questionnaires and there is little authentication. Hsieh et al. [19] constructed a model to analyze the efficiency and effectiveness of international tourist hotels (ITHs) in Taiwan. The findings indicate that there are 5 main determinants of labor productivity in hotels: (1) Number of rooms, (2) number of employees, (3) facilities expenses, (3) management expenses, (4) occupied room rate, and (5) total revenue. From that, methods are suggested for hotels to enhance labor productivity through increasing the number of rooms, the size of catering floors, and the number of service personnel. The number of rooms is considered the most important determinant. Jorge and Suarez [9], Poldrugovac et al. [14] and Assaf and Tsionas [20] shared their opinions. Hotel size, which can be referred to the number of rooms, the number of beds and total capital, contributes remarkably to hotel performance in general and labor productivity enhancement in particular. Hotel size greatly impacts labor productivity whereas the occupancy rate contributes to the financial summary of hotels [9, 20]. Occupancy rates of hotels can be broken into several indexes, such as: the average daily rate (ADR - equals to accommodation revenue divided by the number of rooms available), the number of room days, the number of bed days (representing the use of a room/bed per day by guests). Assaf and Tsionas [14] stated that the total room revenue, total revenue, occupancy, room expenses, and number of rooms are labor productivity determinants. The findings concluded that there is a close relationship between labor productivity and hotel efficiency; or in other words, the above five determinants have strong impacts on hotel performance through hotel efficiency and especially on hotel labor productivity. However, the study omitted the price factor and did not consider the effect of price changes over time.

It can be inferred that the studies for labor productivity provided distinct results depending

on purposes. Therefore, further considerations and comprehensive evaluations on the indicators and measurements of market competition amongst hotels are needed.

3. Measurement of labor productivity

By using the database of the General Statistics Office of Vietnam, the author also implements labor productivity calculation from organizations, as follows:

In the national context, the General Statistics Office of Vietnam specifies a value-added approach with the calculation of value-added as follows:

Value-added = Before-tax profit + Labor cost + Depreciation

Labor productivity = Value-added/Number of labor

Moreover, value-added is considered an effective and more consistent dimension to labor productivity. It is apparent that the productivity measures are linked with value-added [21]. It is more meaningful in the context of service development and is generally favorable for estimating labor productivity [22]. In this study, a value-added approach is utilized and measurement is based on the database of the General Statistics Office of Vietnam in the 2018 national census.

4. Empirical studies on labor productivity in Vietnam hotel service

Vietnam hotel service has witnessed a remarkable development since the beginning of the 21st century. In 2000, the number of hotels was only 3.267 with a total of 55.000 rooms. After 20 years, this figure has risen to 19.000 hotels (6 times higher) with 72.200 rooms available (1.3 times higher). Besides, the tourism industry is also on the brink of becoming Vietnam's leading industry with the number of international tourists reaching 14 million annually. In 2017, Vietnam ranked 6/10 in the

fastest-growing destinations in the world and ranked 1/12 in the ASEAN countries [23]. Before the Covid-19 pandemic, Vietnam's hotel service had maintained a steady rate of development of more than 10% annually [24]. Generally, Vietnamese hotel service has sufficiently been potential towards prosperity in the near future.

5. Analytical framework

5.1. Hypotheses

Labor cost

Labor cost is one of the most striking factors affecting labor productivity. It is proven that labor productivity or labor efficiency can be increased/decreased due to labor compensation or labor cost from the business point of view [8]. Particularly, Jorge and Suarez [20] reveal that in order to increase productivity, it is essential to press for the smallest cost structure, which can be attained by utilizing human resources correctly or creating maximum output. Moreover, according to Jorge and Suarez (2014), labor costs can be measured by the summing of all wages paid to employees, as well as the cost of employee benefits and payroll taxes paid by an employer [20]. In reality, labor costs are presented on the balance sheet of a hotel researched. The first hypothesis in this study is proposed as below:

H1: Labor cost has a positive relationship with labor productivity in the Vietnamese hotel service

Total capital

Total capital refers to all interest-bearing debt plus shareholders' equity [25]. It is the index that shows the financial capacity of a hotel in a given period of time. Among others, total capital is usually taken as one of the most important aspects influencing hotel productivity [13]. Particularly, this factor is traditionally defined as the main input of labor productivity, in which a positive total capital investment results in good hotel productivity [25]. In other words, when productivity goes up, the competitiveness of the tourism industry in capital also increases as well.

Thus, there is a direct link between productivity and profitability. In this study, the hypothesis of total capital is stated as follows:

H2: Total capital has a positive relationship with labor productivity in the Vietnamese hotel service

Before-tax profit

Before-tax profit is an important financial index to measure hotel performance [26]. Conceptually, it is a measure that looks at a company's profits before it has to pay corporate income tax. In this study, before-tax profit is surveyed and recorded via questionnaires.

H3: Average daily rate has a positive relationship with labor productivity in the Vietnamese hotel service

Total revenue

Total revenue in a hotel is the amount of money that a company earns by selling its goods and/or services during a period of time [19]. Revenue of a hotel can be collected from many sources such as accommodation, event hosting, restaurants, etc. Moreover, it is proven that the total revenue target is different between branded hotels and independent hotels. If branded hotels pay special attention to increasing their revenue, independent hotels only focus on pushing overnight stays [27]. In this Vietnamese specific context, total revenue strongly affects hotel efficiency in terms of better labor performance [8, 9, 14]. Therefore, the fourth hypothesis is defined as:

H4: Total revenue has a positive relationship with labor productivity in the Vietnamese hotel service

The number of rooms and the number of room days

The number of rooms can be defined as the accommodation capacity of renting a room in a hotel [16]. It is one of the indexes representing hotel size or facilities offered by the hotel. Particularly, the number of rooms is divided into three categories based on the hotel size, namely small hotels (less than 151 rooms), medium-size hotels (151 to 400 rooms) and large hotels (more than 400 rooms). However, the number of rooms is always ranked among the most popular

determinants of labor productivity in hotel service, thus, numerous prior papers consider the number of rooms as the main input when defining the output of tourism productivity [9, 14, 19].

In other words, the number of room days is the communal living days in a residential institution such as a hotel [26]. It has a strong relationship with the occupancy rate and is utilized in the formula for calculating the occupancy rate. Furthermore, the average number of room days also represents the hotel occupancy rate; which assumes that the higher the occupancy rate, the better the labor productivity [18]. Therefore, these next hypotheses are recorded as follows:

H5: The number of rooms has a positive relationship with labor productivity in the Vietnamese hotel service.

H6: The number of room days has a positive relationship with labor productivity in the Vietnamese hotel service

The number of beds and bed days

The number of beds is largely similar to the number of rooms in studying hotel labor productivity. However, beds can be differentiated from rooms because one room in a hotel includes one or more beds [26]. In this study, the number of beds and rooms are considered as two separate variables. Generally, the number of beds, by concept, is the maximum number of beds which can be installed or set up in an assisted renting facility in a hotel, which can decide the hotel size with the aim to capture the operation scale [20, 27]. Many prior researches prove the important role of the number of beds available in analyzing hotel productivity [26]. On the other hand, largely similar to the number of room days, the number of bed days is related to the communal usage of beds in hotels [9]. In general, bed capacity can illustrate the power of a brand network and the scale of economies running through the sector [27]. Hypothesis H7 and H8 can be proposed as below:

H7: The number of beds has a positive relationship with labor productivity in the Vietnamese hotel service

H8: The number of bed days has a positive relationship with labor productivity in the Vietnamese hotel service

Guest count

Guest count in a hotel closely relates to hotel revenue, which points out that the more people come to a hotel for accommodation, the more revenue the hotel can collect [20]. Moreover, Hoang and Long [28] also consider the position of the total number of guests as one of the main inputs when defining hotel efficiency. However, the average number of guests depends on the season, whereas one of the attributes of hotel productivity is the seasonality of the business [29]. Therefore, the relationship between guest count and labor productivity should be more deeply considered. The next hypothesis about guest count is stated as:

H9: Guest count has a positive relationship with labor productivity in the Vietnamese hotel service

Accommodation revenue

Similar to the impact of total revenue, accommodation revenue is measured to closely relate to the performance of a hotel [28, 29]. The equation is: accommodation revenue = total revenue - other operating revenue. In this study, accommodation revenue is surveyed and recorded by questionnaires as the main operating revenue.

H11: Accommodation revenue has a positive relationship with labor productivity in the Vietnamese hotel service

According to the literature, an analytical framework is stated as depicted in Figure 1.

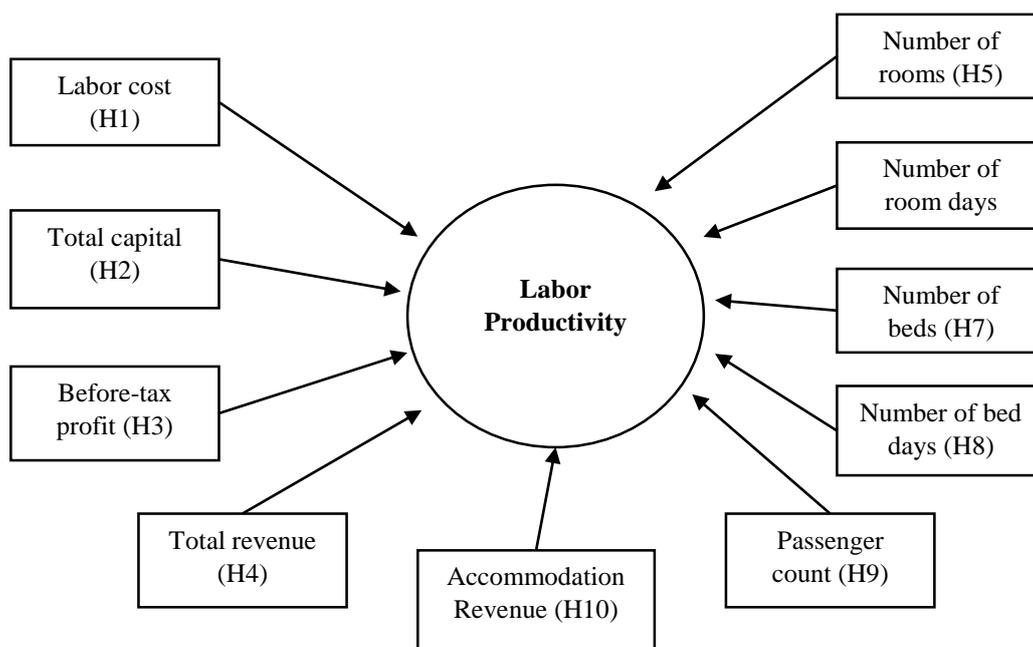


Figure 1: The proposed analytical framework
 Source: Compiled by author.

5.2. Data collection

The research data was obtained from the 2018 economic census survey conducted by the General Statistics Office of Vietnam. The 2018 Economic Census is conducted nationally to

collect basic information about production units, business units, non-business activities, the Party, unions, associations, branches and representative offices of enterprises and foreign non-governmental organizations in Vietnam [32].

6. Data analysis

6.1. Descriptive analysis

Table 1: Descriptive statistics

	Unit	Minimum	Maximum	Mean	Std. Deviation
Labor productivity	USD/labor	255	153,159	6,467	9,979
Labor cost	USD	1,064	13,460,000	225,441	808,001
Total capital	USD	106	225,765,255	1,633,350	8,469,875
Before-Tax Profit	USD	9	24,476,426	229,147	1,482,473
Total revenue	USD	1,532	73,854,553	1,183,739	4,555,368
Number of Rooms	Rooms	4	618	59	70
Number of Beds	Beds	5	3,000	125	262
Guest count	Person	21	530,000	12,119	27,199
Number of Room Days	Days	34	167,186	11,003	18,992
Number of Bed Days	Days	30	326,366	17,492	30,010
Accommodation Revenue	USD	36	845,393	15,836	58,512
N	1,451				

Source: General Statistic Office of Vietnam, 2018 [32].

6.2. Pearson correlation

Table 2: Pearson correlation among independent and dependent variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Labor productivity	1	.475	.401	.509	.515	.471	.189	.319	.451	.422	.442
(2) Labor cost		1	.625	.741	.836	.668	.254	.482	.650	.616	.749
(3) Total capital			1	.666	.643	.521	.192	.322	.479	.437	.600
(4) Before-Tax Profit				1	.848	.577	.203	.397	.596	.533	.658
(5) Total revenue					1	.708	.267	.601	.721	.674	.869
(6) Number of Rooms						1	.390	.670	.833	.802	.667
(7) Number of Beds							1	.258	.292	.309	.247
(8) Guest count								1	.737	.762	.668
(9) Number of Room Days									1	.938	.687
(10) Number of Bed Days										1	.660
(11) Accommodation Revenue											1

Note: All correlation is significant at the 0.01 level (2-tailed).

Source: Calculated by author.

The Pearson correlation analysis describes the level of significance of the correlation between labor productivity and each of the variables in independent factors. The correlation is significant at the 0.05 and 0.01 levels; the bigger the absolute value of the Pearson coefficient, the stronger the correlation between variables [30].

6.3. Regression analysis

The adjusted R square reveals how much of the dependent variable can be explained by independent variables. In this model, the value of the adjusted R square is 0.308. Therefore, it can be concluded that labor productivity in the Vietnamese hotel service can be explained by 30.8% of these specific independent variables.

Table 3: Regression model_ Coefficient

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Statistics VIF
	B	Std. Error	Beta			
(Constant)	3854.563	305.805		12.605	.000	
Labor Cost	.001	.001	.048	1.145	.002	2.726
Total capital	3.719	.000	.031	.998	.019	2.088
Before-tax profit	.002	.000	.247	5.244	.000	1.636
Total revenue	.000	.000	.076	1.058	.290	1.927
Number of rooms	25.585	6.280	.179	4.074	.000	1.053
Number of beds	.602	.910	.016	.661	.508	1.193
Passenger count	-.019	.014	-.051	-1.352	.176	1.001
Number of room days	.021	.037	.040	.569	.007	1.616
Number of bed days	.012	.022	.036	.540	.589	1.409
Accommodation revenue	.003	.009	.018	.347	.028	1.374

Source: Calculated by author.

Table 4: The ratio of independent variables

Factor	Standardized Coefficients Beta	% of influence level	The order of the influence
Before-tax profit	0.247	43.87 %	1
Number of rooms	0.179	31.8 %	2
Labor cost	0.048	8.53 %	3
Number of room days	0.040	7.09%	4
Total capital	0.031	5.51 %	5
Accommodation revenue	0.018	3.2 %	6

Source: Calculated by author.

The regression results of labor productivity with independent variables are presented in Table 4. Besides, in this study, the VIF value is well below the cut-off of 4 [30], therefore, there is no multi-collinearity among the independent variables. The ratios of each of the significant independent factors are shown in Table 4.

7. Main findings, implications and discussion

7.1. Main findings

It can be inferred from the research results that the dependent variable of “labor productivity” is strongly related to 6 distinctive determinants as mentioned above and each relationship indicates a comprehensive finding.

Finding 1: Labor productivity is significantly related to revenue functions

It is an important finding that labor productivity can be increased by maximizing output functions. The first output is accommodation revenue, having the least-affected determinants of labor productivity with only 3.2%, followed by total capital at 5.51%. Noticeably, before-tax profit should be the first number to be looked at in analyzing hotel labor productivity. There is a certain relationship in that if the hotel earns more (greater profit), it would have redundant finance to enhance labor productivity. Besides, the number of rooms is another affecting factor at 31.8%. It can determine the hotel size, which is mainly the capacity of a hotel. Therefore, the more rooms to be served, the more productive the hotel becomes [26]. This index is considered to be the second greatest effects of labor productivity at 31.2%. Therefore, the number of room days could be another significant determinant which represents the daily usage of a hotel room. Generally, hotels or accommodation facilities with superior outputs can enhance the labor productivity.

Finding 2: Labor productivity is significantly related to cost function

Labor productivity is calculated via economic value-added and the number of

employees; meanwhile labor cost equals the money paid for labor divided by the number of workers. Therefore, labor cost should be the most-affected determinants to labor productivity in terms of cost. The results of this study indicate a similar finding, that is: labor cost is strongly connected to labor productivity which is in line with Jorge and Suarez [20], Cordero and Tzeremes [25], Rubio and Diaz [26]. Labor cost can be broken down into compensation, salaries, rewards or insurance payments on the hotel’s account and is partly transferred to the labor account. Therefore, other determinants of labor productivity would be: high rewards, high productivity, or efficiency.

Finding 3: Revenue should be more focused on than cost

It can be inferred from the statistics results that there is a relationship between labor productivity and revenue factors and also cost factors. Nevertheless, with a high level of significance, revenue factors (before-tax profit, accommodation revenue, number of room days) could have stronger effects. Theoretically, with a view to achieving best performance, the hotel should increase the income side more than the cost side [9]. The findings of this study also indicate similar results to: that revenue and before tax profit are related with labor productivity. Therefore, in order to increasing productivity in general or labor productivity in particular, hotels should concentrate on implementing revenue-maximization strategies.

7.2. Discussion

The study indicates that labor productivity in a hotel can be greatly impacted by the hotel size and efficiency.

Firstly, hotel size relates to the quality, scope of service and the development of a hotel and conceptually, hotel size has a significant relationship with hotel productivity. In particular, this study considers the number of rooms and beds, and the number of room days, bed days and total capital in determining hotel size. The above findings are in line with other studies on hotel efficiency. Researches show that

hotel size may impact the job satisfaction of the internal labor force [31]. Job satisfaction has been defined, conceptualized, and operationalized in a variety of different ways, but is generally considered to be an individual's perceptual/emotional reaction to important facets of work. Therefore, under a larger hotel size with a larger compensation policy there would be a boost in labor working spirit or labor productivity. Generally, hotel size is a must-considered determinant when researching labor productivity in the hotel industry.

Secondly, hotel efficiency can be the strategic goal of the business and labor productivity is one of the determining factors. Hotel efficiency can be defined as a comparative measure of how well a hotel actually processes inputs to achieve its outputs, as compared to its maximum potential for doing so, as represented by its production possibility frontier. A hotel can be technically inefficient if it operates below the frontier [13]. As a result, an effective labor planning tool drives productivity, eliminates waste, and saves money. This study indicates that hotel managers can greatly affect the labor productivity - which is considered to be the first step of achieving hotel efficiency by increasing/decreasing labor costs. When the level of influence reaches 33%, labor cost ranks second in the order of determinants of labor productivity in the hotel sector.

7.3. Implications

For hotel managers

The study presents a suggestion for hotel managers in terms of maximizing labor productivity in the industry. That is the importance of initial investment and the labor policy. Firstly, initial investment can be essential because it decides the hotel size or the hotel projected capacity for serving customers. The hotel managers should have the intention of establishing the facilities before allowing customers to stay. It is indicated in numerous studies that hotel size has remarkable effects on customer satisfaction, employee satisfaction and finally, hotel size can contribute to the growth of

labor productivity. Therefore, deciding the suitable hotel size with a reasonable initial investment would benefit hotel managers. Secondly, labor policy is another task to be achieved. Labor policy may include compensation, rewards or disciplinary regulations... to affect the working spirit of the labor force. It is the labor cost that would be on the calculation for the performance of hotel managers, however, the cost related to labor can be covered by an increase in labor productivity.

For researchers

In terms of accurate labor productivity calculations, the author encountered difficulties. Although there are clear equations, the information on operation indexes is missing and incomplete. Therefore, the calculation may be inexact. However, this study provides a set of determinants that can be employed in determining labor productivity. In general, hotels are a human-based industry and the performance depends a great deal on the labor productivity. The higher the labor productivity reaches, the more efficient the hotel becomes. The study also highlights the importance of labor costs as a striking feature on labor productivity. Clearly, hotels should concentrate on creating compensation that encourages employees to work despite the rising of labor costs and the labor productivity may be increased. Further studies can employ these results for further calculation of labor productivity and produce more accurate numbers.

Limitations

In this section, the limitations and possible extensions of this study are discussed. Firstly, the questionnaire design contains many data fields. Several fields are so particular and specific that only large hotels can give answers. And the sample construction is also based on the need for equal participation of independent and branded hotels. It is one of the reasons leading to incomplete and missing data. Secondly, the survey cannot avoid sampling bias or selection bias. It is the situation that specific components in the selective population are systematically more likely to be selected in a sample than others.

8. Conclusion

The research aims to determine the correlations between the independent factors (09 variables) and the dependent factor (labor productivity) in the Vietnamese hotel service. In order to attain this aim, the research focuses on previously related studies on labor productivity internationally and domestically before designing an analytical framework suitable for the context in Vietnam. The database of this study is extracted from the 2018 National Census implemented by the General Statistics Office of Vietnam. Therefore, 1,478 responses are qualified and statistically analyzed by SPSS with descriptive statistic, correlation analysis, and regression analysis. This research contributes to the existing theoretical literature on hotel industry efficiency by confirming that there are four affecting determinants of labor productivity in the Vietnamese hotel service, namely: the number of room days, labor costs, total capital, and accommodation revenue. From the key findings, several implications to enhance labor productivity in the Vietnamese hotel service are proposed.

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