

Research Paper

Factors Influencing Business Performance in Hotels and Restaurants

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Abstract: The objective of this paper is to analyse the factors that influence business performance. Business performance, measured by turnover per employee, can be influenced by internal factors in firms, external economic and demand factors, as well as geographic location and agglomeration. The hypotheses were tested using an econometric model on the basis of micro business data. The results show that business performance in hotels and restaurants is positively related to traditional explanatory variables, such as profits, level of investment of firms, productivity of hotels and restaurants in their regions, and concentration of firms. The paper focuses on two extra factors, i.e. human skills and geographic location. The study found that professional education, e.g. chef, has a positive impact on performance in restaurant businesses. Employees with higher levels of education including university students in hotel businesses also have an impact on performance. The location factor showed that hotels and restaurants situated in city centres perform better than those located elsewhere. The contribution of this paper is that by applying micro business data in hotel and restaurant branches, it allows the analysis of the detailed factors that might influence business performance. In addition, the results also allowed a comparison between hotel businesses and restaurant businesses. The implication of this research is to understand the relationship between business performance and a series of influential factors, which could eventually help tourism businesses to improve their management.

Keywords: Business performance, hotel and restaurant businesses, human skills, location, agglomeration

Suggested citation: Zhang, J. & Enemark, A.E. (2015). Factors influencing business performance in hotels and restaurants. *Asia-Pacific Journal of Innovation in Hospitality and Tourism*, 5(1), 1-20.

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Introduction

One of the main characteristics in hotel and restaurant management is that businesses can hardly control demand. This is because demand for hotels and restaurants is decided by external factors, such as the economic climate, customers' preferences, competitive pricing and industrial environment (Ruggero, 2010; Wang, Chen & Chen, 2012). Hotel and restaurant sectors are dominated by micro and small-sized businesses, which are simply price-takers.

However, internal factors too certainly have an influence on business performance (Ruggero, 2010). Internal factors are represented by, for example, extent of business investment, level of innovation, costs of workers and firm size. External factors can refer to the productivity level of hotel and restaurant branches in the region, location of businesses, competitors' price, tourist demand, etc. The paper aims to provide general statistical evidence about factors that influence business performance within hotel and restaurant businesses, and to test hypotheses using an econometric model on the basis of detailed business data. The unique data set combining both business register database and personal register database of hotel and restaurant branches presents a unique opportunity to perform such an analysis.

The paper includes a literature review summarising relevant studies regarding performance and productivity in hotels and restaurants. Firstly, a short introduction discusses the formulation of a model incorporating factors that influence performance in businesses. Description of data and methods for collecting them is also important, as it is uncommon in tourism research to adopt micro business data and personal register data for analyses. In the last section of the paper, regression results are presented and discussed.

Literature Review

The competitiveness of each country in tourism derives from tourism business performance (Blake, Sinclair & Soria, 2006). Porter's diamond model for *National Competitive Advantage* has been widely applied in research on competitiveness (Porter, 1990). This model can also be used as an analytical tool for a particular firm or sector that is suitable.

Porter's well-known national diamond model recognises four factors (i.e. factor conditions; demand conditions; related and supporting industries; firm structure, strategy and rivalry) that must be considered in analysing the viability of a nation competing in the international market. Factor condition can be understood as factor endowment – both natural and human resources relating to the production. Technology factors and efficiency are relevant for factor condition. Demand condition is primary driver for growth, innovation and quality improvement. When businesses face a growing competitive market, they are pushed to be innovative and expand

in order to be more efficient and competitive. Related and supporting industries represent businesses' intention to concentrate on a location which is convenient for them. Increasing research on "clusters" of industries and "agglomeration" of businesses reflects this trend. Finally, the firm structure and strategy addresses management skills and efficiency within the institutional framework. The literature review highlights the following main factors.

Human Skills and Education

Research on the relationship between human resources and hotel performance provides some evidence. For example, the findings of Kilic and Okumus (2005) show that staff recruitment, staff training, meeting guest expectations and service quality are the main productivity factors in the hotel sector. Chang, Gong and Shum (2011) analysed data from 196 independent hotels and restaurants operating in China and found that both hiring and training multi-skilled core customer-contact employees have significant and positive effects on incremental and radical innovation among hotel and restaurant companies. Wang, Shang and Hung (2006) looked at productivity and service quality changes in international hotels in Taiwan and found that productivity in hotels has declined due to shortages in manpower. The consequence of this is hiring part-time, poorly trained employees, leading to low level of efficiency and poor service quality.

Innovation and Productivity

A number of researchers have focused on the relationship between innovativeness and profitability or productivity in hospitality branches. Wang and his team's (2012) investigation of 588 hotels in Taiwan employed a structural equation model for the test and analysis. Their results showed that total quality management (TQM) positively affects hotel performance. Market orientation also positively affects hotel performance. Market orientation has the mediating effect between TQM and hotel performance. External environmental factors are a true moderator between TQM, market orientation and hotel performance. Sandvik, Duhan and Sandvik (2014) demonstrated that innovativeness is in itself a powerful tool for competing in markets. They showed that innovativeness positively influences market advantage and market advantage positively influences business profitability. Chen and Soo (2007) demonstrated that technological growth contributes the most to growth in productivity, while labour and capital have little effect. In fact, more capital appears to retard productivity growth, while hotels find it costly to upgrade their existing capital stock with more modern equipment.

Managerial Efficiency

Data envelopment analysis (DEA) is often used for analysing comparative performance in the hotel industry (Jones, Howcroft & Drake, 1997; Brown & Ragsdale, 2002; Hwang & Chang, 2003; Sigala, 2004; Barros, 2005; Neves & Lourenco, 2009; Yu & Lee, 2009). Hwang and Chang (2003) used DEA to measure hotel managerial efficiency change in hotels in Taiwan. Their results revealed that there is a significant difference in efficiency change due to differences in customers and management styles. In addition, they showed that the managerial efficiency of international tourist hotels in Taiwan is related to the level of internationalisation in these hotels. Neves and Lourenço (2009) highlighted that a focused strategy performs better than a diversification strategy; the scale efficiency is higher than pure technical efficiency and a decrease in the size of the companies would have a positive effect on the average efficiency level of the industry.

Geographic Location

Geographic location is one of the most important factors for hotel performance. Rigby and Brown (2013) investigated Canadian manufacturing firms and showed that virtually all plants reap productivity benefits from being located in places where occupational distribution of workers matches the demand for labour by occupation. However, these benefits tend to be larger for small and young businesses. Knowledge spillovers measured by own-industry plant counts within a radius of 5 km also generate productivity gains for smaller and younger establishment; those that are not part of multi-establishment firms and have been created by greenfield entrants rather than incumbent firms. Yang, Wong and Wang (2010) investigated the choice of hotel location with several location attributes, including agglomeration effects, public service, infrastructure, road and subway accessibility to tourist sites. Their results showed that accessibility by road and subway and agglomeration effects play an important role in the hotel's choice of location.

Agglomeration

As a service industry, hotels and restaurants are keen on locations that are proximate to their potential markets because they seek increased demand from potential guests. According to Barros (2005), hotels close to a potential market outperform their counterparts which have poor accessibility in terms of efficiency. As indicated by a model proposed by Yokeno (1968), in a monocentric city, hotels choose centrality of spatial location. In this regard, there is a large demand for accommodation in the city centre which may be the central business district or tourist district (Shoval, 2006). Weaver (1993) argued that this is because tourists prefer a location where various services are available. Tourists also prefer hotels located with access to other facilities, such as airports and railway stations.

Urtasun and Gutiérrez (2006) estimated interactions among the four decisions – the geographic location, price, size and services – by using a location model. Beginning with the geographic location decision of the entrepreneur, both estimations (for the geographic- and price-competition approaches) concluded that geographic distance to competitors is reduced by size and service conformity, but augmented by price conformity. Their results suggest that Madrid's founders predicted greater benefits than costs by geographically agglomerating with competitors of similar size and services, but they predicted greater costs than benefits for geographic competition with similarly priced hotels.

Externalities

Chung and Kalnins (2001) examined how other competitors' traits affect performance in Texas's lodging industry. In rural markets, they found that hotel chains and larger hotels contribute to positive externalities. While expecting those hotels which are similar to the establishments creating these externalities, they found the opposite. Independent hotels and smaller hotels gained the most in places where competitors agglomerate. Barros (2005) also found that location appears to be the explanatory factor for efficiency whereby hotels near cities are more efficient than those in more remote locations.

In addition, Barros (2005) suggested that demand plays a role in organisational efficiency, with hotels near more populated zones attracting more clients. This higher demand enables greater efficiency. Hence, assuming that there are two hotels with the same managerial expertise, the one with more demand tends to be more efficient.

The literature review has shown that different factors and measures are used in analysing the efficiency and performance of tourism businesses. Some of these are internal factors, such as level of human skills, efficiency and productivity of businesses, while others are external factors, such as geographic location, agglomeration and external demand. This literature underpins the theoretical framework for this research.

Methodology

Hotels and restaurants are often operated by small and medium-sized enterprises (SMEs). The main factor determining whether a business is an SME is the number of employees or turnover. According to the European Commission (2005), most Danish hotels and restaurants are SMEs. Firm size in the database is broken down into seven categories by number of employees as shown in Table 1. In 2010, of 1,480 hotels and similar establishments, including hotels, youth hostels, camping sites and holiday apartments, 81% were micro businesses with less than 10 employees in each business. Small-sized businesses (employees between 10 and 49) accounted for

16%; therefore, in total, micro and small businesses accounted for 97% altogether. There are only two large hotels which have more than 250 employees in Denmark, accounting for only 0.1% of total hotels and similar establishments.

There were 11,150 restaurants and similar businesses, including normal restaurants, cafés and cafeterias, night bars, discos, catering, etc., and 95.6% were micro businesses. Small-sized businesses accounted for 4.2%; therefore, micro and small businesses accounted for 99.8%. Business size is included in the last part of the model estimation for a check of size effects.

Table 1. Number of businesses (hotel and restaurant branches) by size in 2010

Sorting by Number of Employees	Hotel		Restaurant	
	Number of Businesses	Percent (%)	Number of Businesses	Percent (%)
Micro 1 (1-2 employees)	833	56.3	8.298	74.4
Micro 2 (3-9 employees)	371	25.1	2.359	21.2
Small 1 (10-19 employees)	132	8.9	356	3.2
Small 2 (20-49 employees)	106	7.2	106	1.0
Medium 1 (50-99 employees)	25	1.7	15	0.1
Medium 2 (100-249 employees)	11	0.7	12	0.1
Large (250+ employees)	2	0.1	4	0.0
SUM	1.480	100	11.150	100

Source: Statistics Denmark

On the basis of the factor analysis in the above section, the model can be expressed with the following equation:

$$Y = \beta_0 X_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \varepsilon$$

where Y is performance of businesses. Performance refers to the efficiency with which resources are used, by relating the quantity of inputs, notably employment of labour and capital, to outputs. Here, the performance is measured by the output created per labour input:

- $X_1 \dots X_n$ are the explanatory or independent variables;
- $\beta_0 \dots \beta_n$ are the coefficients of the independent variables;
- ε is the error term.

Hypothesis and Model Specification

The hypothesis and expectations from the model formulated by the factor analysis and available variables in the data set are:

1. Business performance is positively related to business investment;
2. Business performance is positively related to dividend (profits) achieved in businesses;
3. Business performance in hotels and restaurants is positively related to the productivity within the same branch in the region where they are located;
4. Business performance in hotels and restaurants is positively related to demand for hotels and restaurants where tourists are concentrated;
5. Business performance has a positive relation to the education level of employees in the businesses;
6. Business performance has a positive relation to the concentration of the related firms in the region;
7. Business performance will be different in different locations;
8. Small hotels and restaurants perform better than median and large businesses.

Data Description

Data were collected through different sources in Statistics Denmark. Business data relating to turnovers, profits and investment, number of employees in the business, sector codes and location of businesses come from the firm database. Data related to individuals such as educational level of employees and workplace location were extracted from the personal register database. Regional economic data, e.g. production, GDP and employment, were collected from the regional production accounts. Tourism arrivals and number of tourist nights were extracted from the tourism database.

The business register database from Statistics Denmark contains data about approximately 10,147 hotels and similar establishments and 73,574 restaurants, cafés and similar businesses for the years 2005 to 2010. In the analysis, distinction was made between two sectors: hotels and restaurants. The sectors were treated similarly with respect to categorisation of variables. Data were pooled together across years in order to secure more stable results for the years 2005 to 2010; however, year as a dummy variable was also checked for its validity. The variables are presented in Table 2.

Table 2. List of variables

	Hotel	Restaurant
Performance of business	PH	PR
Log of productivity in the region	LPH	LPR
Log of business dividends	Lbd	Lbd
Log of investment in business	Linv	Linv
Share of tourist nights at hotels	OVS	-
Concentration of employment in the sector	ZH	ZR
Share of employees with higher education	SHEDU	-
Share of employees with qualified education	-	SQEDU
Dummy for geographic location	Dlocation1...4	Dlocation1...4
Dummy variable for businesses' age	B-Age	B-Age
Sizes of businesses	Size	Size
Year	Year	Year

Performance of businesses (PH, PR) as the dependent variable in this analysis is defined as the turnover of number of employees. Business turnover, together with business dividends (bd), business investments (inv) and number of employees, can be found directly in the business register database. The first three variables were measured in 1,000 DKK.

As can be seen in Table 2, the log-transformations of these variables were included in the analysis. However, a limitation of the study is that as the absolute value of investment can take the value 0 and dividends can be positive, negative or zero, precautions were taken to use the log-transformations without losing observations. Taking the logarithm to zero or any negative number yields missing values, thus these values were excluded from the regression analysis. Losing these businesses would lead to an upward bias in the analysis; therefore, there are certain necessary steps to keep these observations in the data. For any business with zero investment or dividends, the log-value is set equal to zero. The same goes for any negative values of dividends.

Business productivity within a region (LPH, LPR) is defined as the productivity or output share of the hotel and restaurant sectors, respectively, of total productivity within a given region.

Relative share of overnight stays in a region (OVS) is the ratio between the share of number of nights spent in hotels (the sum of nights spent in hotels by both leisure and business tourists) related to the total nights in the region (i) and the share of number of nights spent in hotels at national level (DK). The total number of tourist

nights in hotels is the sum of the Danish total hotel nights and the foreign total hotel nights in each municipality. The relative share is presented as the formula below:

$$OVS = \left(\frac{\# \text{ nights in hotels}_i}{\# \text{ nights all}_i} \right) / \left(\frac{\# \text{ nights in hotels}_{DK}}{\# \text{ nights all}_{DK}} \right)$$

Agglomeration index (ZH, ZR), or the concentration of employment in the hotel and restaurant sector within a given region, is similarly defined as the ratio between the share of employed in the hotel or restaurant sector in a given region (i), divided by the share of national (DK) average employment in the hotel or restaurant sector. It can be presented in the following formula:

$$ZH, ZR = \left(\frac{\# \text{ employed in H/R}_i}{\# \text{ employed all}_i} \right) / \left(\frac{\# \text{ employed in H/R}_{DK}}{\# \text{ employed all}_{DK}} \right)$$

If the share of employed in the sector in region i is larger than the average share at the national level, the fractions ZH and ZR will be larger than one; less than one if the share is smaller than national average, and equal to one if they are exactly the same as the national level.

Each firm in Denmark has an individual identification number, a cvr-number, which functions as the identifying variable. The personal register data contain a variable with the cvr-number of the workplace of a given individual. Thus, through this cvr-number, it is possible to identify and connect information about individual employees to a given firm.

Location refers to postal code by business register. The personal register database contains postal codes of a workplace of a given individual. The postal code is a much more detailed unit than municipality, which is the unit that appears in the business database. Using postal code as a geographical identifier allows a very detailed and more precise division into the geographic location.

Postal codes are aggregated into five categories: city cores, cities, islands, coastal areas and rural areas. For the analysis, the location variable is defined as dummy variables with rural areas as the reference. These dummy variables are identified as *dlocation1* to *dlocation4* in the model.

Dummy for business age (B-age) is a dummy variable for business age, taking the value 1 if a business is more than five years old and 0, if otherwise..

Business size (Size) is determined by the number of employees, as shown in Table 1, and divided into seven categories.

A limitation of the variable containing postal codes of workplaces is that it does not exist before 2005, thus requiring the analysis to begin with the year 2005. Furthermore, all hotels and restaurants with missing postal codes were deleted.

Table 3. Distribution of restaurants and hotels on location (%)

Location	Restaurant			Hotel		
	2006	2008	2010	2006	2008	2010
City cores	19.61	19.44	19.12	8.37	9.62	8.37
Cities	47.51	48.11	48.53	26.68	26.36	27.26
Islands	2.18	1.98	2.02	8.87	9.46	9.52
Coastal areas	17.55	17.34	17.09	39.90	38.24	39.00
Rural areas	13.16	13.13	13.23	16.17	16.32	15.85
Total	100.00	100.00	100.00	100.00	100.00	100.00

As shown in Table 3, the distribution across location is very stable over time for both hotels and restaurants. However, when comparing the two branches, there are some remarkable differences between the two sectors. For instance, the largest part of the hotel businesses (39%) is located in coastal areas, whereas only about 17% of the restaurant businesses is located there. The main part of the restaurant businesses can be found in the cities, approximately 48%, and in the city cores, 19%.

When looking at the distribution on location, the restaurant businesses are spread more evenly among city cores, coastal areas and rural areas than hotel businesses. By far, the largest number of restaurant businesses, almost half at 48%, is located in bigger cities. At the other extreme, only 2% is located on islands. For hotel businesses, the picture is a little more diverse: there is an approximately even percentage of hotel businesses located at city cores as on islands, 8–10%. Hotel businesses are mainly located in cities and coastal areas, 27% and 39%, respectively; but even in rural areas, a share of 16% of the hotel businesses can be found.

Location factor suggests that restaurant businesses tend to be more dependent on local demand, whereas hotel businesses focus more on tourism demand.

The advantage of being able to connect business data to personal register data is that it is possible to include variables related to the individual employees of a firm. This is similar to the inclusion of the educational level of the employees of a given firm.

Educational level is measured by different standards for hotel businesses and restaurant businesses, respectively, as it is assumed that the employees have different requirements in the two sectors. The method of measurement, however, will be the same for both sectors.

It is assumed that staff with qualified education such as chefs, kitchen assistants, waiters, etc. will influence the performance of a restaurant. As stated by the earlier hypothesis, employing staff with qualified education is expected to have a positive effect. The relevant education is selected from the full list of all possible education codes from Statistics Denmark.

A dummy variable is created, which takes the value 1 if an employee has a qualified education and 0, if otherwise. Since this analysis is performed at the firm level, the variables at the individual level must be summed up into a single value at the firm level. Thus, the mean value of the dummy variable for qualified education is calculated by firm. This value equals the share of employees with a qualified education in a given firm (SQEDU).

It is assumed that the hotel business, somewhat to a larger extent, requires a higher level of education compared to the restaurant business. Hence, qualified education was defined as bachelor's degree or above. The same procedure for creating a dummy variable and taking the mean by firm as described above was applied to obtain the share of employees with higher education (SHEDU).

Table 4. Share of employees with qualified and higher education (%)

	Restaurant		Hotel	
	Qualified	Non-Qualified	Higher	Less
2005	8.44	91.56	9.57	90.43
2006	7.98	92.02	9.66	90.34
2007	7.73	92.27	9.57	90.43
2008	5.39	94.61	9.82	90.18
2009	5.64	94.36	10.3	89.7
2010	5.84	94.16	11.18	88.82

Table 4 shows the number of employees with a qualified (or higher) education, according to the definition of restaurant (or hotel) businesses. The overall picture shows that the percentage of employees with a qualified education is rather low – only around 5–8% in the restaurant businesses. There seems to be a general downward trend. The number of employees with qualified education fell from 8.4% in 2005 to 5.3% in 2008, where it seemed to stagnate at around 5–6%. The percentage of employees with higher education in hotel businesses is similarly rather low, at around 9–11%. This percentage is constant from 2005 to 2008 with a slight increase onwards.

As many young people in Denmark work in hotel and restaurant sectors part-time while still studying, two additional variables seemed to be relevant as supplementing the qualified or higher education variable. One is the share of students who are currently in university; the second is the share of employees who are under the age of 18. In Denmark, the minimum age for youths to work (part-time) is 15 years. Hotels and restaurants are traditional industries where youths and students can easily find part-time jobs.

Finally, the variable *YEAR* is included to control for any variation across time. Summary statistics for the relevant variables are shown in Tables 5 and 6.

Table 5. Summary statistics for hotel businesses

Variable	Mean	Std Dev
Performance of business	717.04	1,047.99
Log of restaurant productivity in the region	-0.69	0.19
Log of business dividends	3.19	1.99
Log of investment in business	2.31	1.86
Concentration of employment in the sector	1.08	0.47
Share of employees with qualified education	0.04	0.08
Geographic location	2.57	1.33
Year	2.53	1.71
Share of employees who are students	0.28	0.26
Share of employees who are under 18	0.12	0.19
Dummy variable for businesses' age	0.24	0.42
Sizes of businesses	1.39	0.67

The final data set contains 7,279 hotels and similar businesses. The performance of business is widely distributed with a minimum of 0 DKK and a maximum of 9 million DKK per employee. The relative share of tourist nights at hotels varied widely with mean at 1.34 to maximum at 5. The concentration of employment in the hotel sector was less varied with mean at 0.95 to maximum at 4.33.

Table 6. Summary statistics for restaurant businesses

Variable	Mean	Std Dev
Performance of business	867.37	587.98
Log of hotel productivity in the region	-0.54	0.35
Log of business dividends	3.76	2.28
Log of investment in business	3.13	2.56
Share of tourist nights at hotels	1.34	1.47
Concentration of employment in the sector	0.95	0.42
Share of employees with higher education	0.08	0.10
Geographic location	3.27	1.26
Year	2.50	1.71
Share of employees who are students	0.30	0.23

Table 6 (con't)

Share of employees who are under 18	0.15	0.18
Dummy variable for businesses' age	0.35	0.48
Sizes of businesses	1.95	0.17

The final data set contained 52,961 restaurants and similar businesses. The performance of business was widely distributed with a minimum of 0 DKK and a maximum of 83.4 million DKK per employee. Some businesses had employees with qualified education and some had employees with no qualified education. The concentration of employment in the restaurant sector compared with the national level varied about 75% less than the national level and 433% higher than the national level.

Findings

Regression analysis is a statistical process for estimating relationships among variables. This type of analysis estimates the conditional expectation of the dependent variable given the independent variables, that is, the average value of the dependent variable when the independent variables are fixed (Wikipedia). Regression methods are widely applied in tourism research, for example, in tourism demand modelling and forecasting (Peng, Song, Crouch & Witt, 2015; Song, Witt & Li, 2009); in research on hotels' choice of location (Urtasun & Gutiérrez, 2006; Yang et al., 2010); on students' satisfaction related to "tangible" and "intangible" variables (Nadiri, Kandampully & Hussain, 2009); and in economic analysis of tourism flows (Zhang & Jensen, 2007).

As mentioned, there are distinct differences between the hotel sector and the restaurant sector, which only emphasises the need to perform separate regressions on each sector. The following sections present the regression results for each sector. The regression procedure is carried out by adding up independent variables for each regression. The advantage of this procedure is that it allows a comparison of the coefficients of the same variables to determine whether they are stable.

Regression Results for Hotel Businesses

From Table 7, it can be seen that the models around (4a) are quite stable when comparing the coefficients and degree of significance. Most estimates remained around the same level when additional variables are included, indicating a stable effect.

Internal factors such as the log-transformed dividend (Lbd) and log-transformed investment (Linv) are both highly significant and positive. Hence, the higher the

dividend or investment is, the better the business performs. The log-transformed performance of similar businesses in the region (LPH) is significant and positive at the 0.1% significance level, which means that a business in a region with high productivity will perform better. This confirms the hypothesis indicating that for hotels that are located in relatively higher productive regions, the business turnover per employee is also higher. For example, the coefficients of LPH can be interpreted as an approximately 130–140 000 DKK increase in turnover per employee for every 1% increase in the regional productivity.

Table 7. Results from regression model for hotel businesses

<i>Variable</i>	Model 4.a	Model 4.b	Model 5	Model 6	Model 7	Model 8	Model 9	Model10
<i>Intercept</i>	660.39***	610.61***	650.39***	653.90***	646.62***	527.42***	443.02***	447.68***
<i>LPH</i>	119.39***	96.74***	117.74***	133.69***	131.76***	125.09***	139.56***	140.23***
<i>Lbd</i>	42.16***	41.62***	42.39***	42.44***	42.83***	40.49***	37.69***	37.51***
<i>Linv</i>	23.79***	24.87***	23.61***	23.03***	22.83***	28.95***	27.27***	27.58***
<i>OVS</i>	28.60***	-	26.22***	19.72***	19.79***	22.05***	21.50***	22.59***
<i>ZH</i>	-	78.62***	-	-	-	-	-	-
<i>SQEDU</i>			151.19**	134.15**	133.78**	124.21**	211.97**	227.99**
<i>City core</i>				78.14**	78.28**	101.96***	110.05***	122.55***
<i>Cities</i>				14.38	14.73	25.98	42.68**	46.65**
<i>Islands</i>				-42.18*	-41.73*	-70.31**	-51.70*	-53.85*
<i>Coastal</i>				25.06*	25.11*	10.02	17.14	17.11
<i>B-age</i>					14.96	16.44	13.14	13.93
<i>Size (micro)</i>						147.45**	162.96**	155.24**
<i>STUD</i>							277.87***	195.21***
<i>Age-18</i>								135.60**

*** 0.01, ** 0.05, * 0.1 significance level

The relative share of overnight stays at hotels in the region (OVS), which controls for the demand side in tourism, is significant and positive as well. A higher demand for tourism in the region will yield higher performance for the hotel businesses.

The agglomeration index (concentration of employees) in the hotel business (ZH) is significant when included without OVS, whereas it is insignificant when included in combination with OVS. The sign is positive, hence, a higher concentration is connected to better performance. The shift in significance could be the result of multicollinearity between the two variables: a region with a high share of overnight

stays would, all things being equal, require a higher concentration of employees. When including both variables in turn, it seems that OVS has a somewhat higher degree of explanation than the concentration of employed in the region, while when included simultaneously, both lose significance. Multicollinearity between OVS and ZH is checked and confirmed. Therefore, only OVS will be included in the hotel regressions.

Educational level of employees has a positive effect at the 5% significance level, which means a higher share of employees with higher education would lead to better performance.

Overall, the location variables are significant except in coastal areas. Location in city cores and cities in general has a positive effect on hotel performance relative to a location in rural areas, which is the reference category, while location on an island has a negative effect on performance relative to rural areas.

Business age has no effect on business performance as the variable is insignificant. It is interesting to note that size of business has mixed effects on business performance. The micro business performs better, significant at the 5% level. Businesses which employed more students in higher education performed better than those with a smaller share; the same was true for businesses with a larger share of employed minors, youths under the age of 18.

Regression Results for Restaurant Businesses

In the regression analysis for restaurant businesses, a relative stable degree of explanation was reached around models 3 and 4. The magnitudes of the coefficients remain more or less unchanged when additional variables were included in the model.

As in the case of hotel businesses, internal factors such as the log-transformed dividend (*Lbd*) and log-transformed investment (*Liniv*) were both found to be significant and positive. External factors, such as productivity of the sector in the region, play a significant role in business performance. However, the agglomeration factor gave mixed results. The concentration of employees in the restaurant business (*ZR*) was significant in models 4 and 5 with a positive sign; thus, a higher concentration leads to better performance. However, the variable loses significance once the location variables were included.

Table 8. Results from regression model for restaurant businesses

<i>Variable</i>	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
<i>Intercept</i>	489.49***	487.49***	544.02***	544.04***	230.30**	200.04*	231.57**
<i>LPR</i>	85.58***	85.77***	97.77***	97.77***	98.61***	109.03***	109.18***
<i>Lbd</i>	28.88***	28.80***	29.00***	29.01***	29.68***	29.35***	29.39***
<i>Liniv</i>	71.19***	70.40***	69.89***	69.89***	75.05***	73.97***	71.33***

Table 8 (cont)

<i>ZR</i>	28.00***	27.57***	16.49	16.49	19.25*	24.65**	18.59*
<i>SHEDU</i>		109.12**	102.37**	102.37**	170.71**	168.24***	157.47***
<i>City core</i>			7.30	7.30	17.40	16.42	-12.03
<i>Cities</i>			-42.18**	-42.18**	-40.67***	-39.07***	-52.50***
<i>Islands</i>			-124.47***	-124.47***	-130.53***	-139.08***	-133.58***
<i>Coastal</i>			-79.89***	-79.89***	-80.38***	-85.33***	-83.70***
<i>B-age</i>				-0.11	3.67	4.28	2.64
<i>Size (micro)</i>					300.81***	316.23***	305.95***
<i>STUD</i>						77.71***	221.52***
<i>Age-18</i>							-292.89***

*** 0.01, ** 0.05, * 0.1 significance level

The share of employees with qualified education is significant at the 5% level with a positive sign, and even at the 1% level once students and minors are controlled for. Hence, employees with qualified education improve performance, thus supporting the hypothesis. This can be interpreted as a 1% increase in the share of employees with qualified education yielding an increase in turnover of 100–150,000 DKK per employee depending on the models.

All location dummies except location in city cores are significant, but with negative signs. This reveals that location does matter for restaurant businesses. The negative effects from location dummy variables show that restaurant businesses in general perform worse when they are not located in a city centre, or when they are compared with those in rural areas (the reference category). An explanation could be that as restaurants are reliant on local demand and the demand might be less in rural areas than in the cities, restaurants have to be more efficient in order to survive. A large number of restaurants in coastal areas and islands operate their businesses only during peak tourist seasons (not including small cafés and fast food restaurants); this factor might influence their performance as they only collect revenue for six months. On the other hand, these locations might attract more tourists during the season and restaurant businesses are less reliant on local demand. Competition is less intense, as customers (or tourists) are already attracted to coastal areas and islands due to other tourist attractions. Thus, a restaurant here is not required to have as sharp a business profile.

Like hotel businesses, the age of business has no effect on business performance as the variable is insignificant. Regarding size of business, only small businesses yield significant effects with positive signs, meaning that micro-sized businesses perform

better than other sizes of businesses. This result confirms that a decrease in the size of companies would have a positive effect on the average efficiency. Businesses that employed more students of higher education performed better than those with a smaller share. However, unlike hotel businesses, employing a larger share of minors worsens performance. It might be that only restaurants in the peripheral areas employ minors.

Comparison between Hotel and Restaurant Businesses

A general picture of the tourism sector's hotel and restaurant businesses shows that internal factors have significant positive effects on business performance, such as business dividend and investment in the business. Both tables show that the coefficients of these explanatory variables in different models are quite stable and robust. The human skills, of more qualified employees, have positive effects on the performance of hotels and restaurants. In both sectors, education has a significant positive effect on business performance. It is also shown that businesses benefit from employing students who are still pursuing higher education. Hotels also benefit from hiring youths under the age of 18. However, it shows a negative sign for restaurant businesses.

Concentration of employed in the sector for a given region, also seen from demand for employees, is positively significant for the restaurant sector, while it was excluded in the analysis of hotels due to multicollinearity with the variable share of overnight stays in hotels in the region. This controls for the demand for tourism, hence another aspect of demand for employees, which is also positively significant.

Geographical location shows opposite signs for the two types of businesses. While the location in cities and city cores affects performance in hotels positively, performance in restaurants is lower when they are located in cities relative to rural areas. However, both hotels and restaurants located on islands performed worse than those located elsewhere.

There might also be an interaction effect between location and availability of qualified employees. Businesses located in cities will find it easier to find qualified employees, including youths still pursuing higher education. However, qualified employees can also much more easily switch between jobs in the cities, while businesses in rural and less populated areas find it harder to attract qualified employees, but might also be able to keep their employees over a longer period of time.

The overall picture seems to indicate that higher efficiency and more competitiveness in the regions are of greater importance in regard to performance in hotel businesses than in restaurant businesses, while in restaurant businesses, emphasis should be put on qualified employees and location factor.

Discussion and Recommendation

The aim of this paper is to analyse factors that influence business performance and to provide general statistical evidence for the factors analysis within hotel and restaurant businesses. Unique access to business register data combined with personal register data provided the researchers an opportunity to test some hypotheses that are of interest to tourism research. The regression analysis with an econometric model confirmed the formulated hypotheses and showed that performance in hotels and restaurants are positively related to level of business investment, business profits and productivity of hotels and restaurants in their regions and concentration of businesses.

Agglomeration of the businesses presented different results for restaurant businesses. It seems that the concentration of employment in the hotel sector has an impact on business performance. However, tourism demand in the regions gives better measurement than the supply side factor. It was found that the more tourists stay in hotels in municipalities compared with the national average, the better the hotels perform. This variable has a higher (stronger) explanatory effect than the concentration of businesses.

The location factor produced a very interesting result, and it showed a significant difference between the two sectors. For both sectors, island location has a negative effect on the business performance. However, in general, the location factor is negative for restaurants relative to a location in rural areas, while hotels gain from a location in cities or city cores. It is worthwhile investigating location factors within hotel and restaurant businesses. The analysis of the location factor should be combined with other tourism characteristic factors, such as location of tourism attraction, tourism demand in the region, transport facilities and tourism seasonality, as well as other economic factors, like hotel price and quality, in order to find the link between choice of business location and its performance (Yang et al., 2010).

This paper also focuses on the human skills factor. It found that professional education, e.g. a higher share of educated chefs employed in restaurants, has a positive impact on the performance in restaurant businesses. A higher level of educated employees in hotel businesses also has a positive impact on the performance. The businesses benefit when they employ students still pursuing higher education. This research stresses the importance of education in the hotel and restaurant sectors. The data show that the share of employees with higher education in the hotel sector and the share of employees with qualified education (e.g. cooks and waiters/waitresses) in the restaurant sector are relatively low. This calls for greater attention to human resources and long-term investment in human skills in the tourism sector. Otherwise, tourism branches will lose competitiveness in the world tourism market. The implication of this research is to draw attention to a series of factors of

tourism businesses which play a vital role in business performance and, ultimately, competitiveness in the tourism market.

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