



## Factors Affecting the Developing Speed and Sustainability of Night-Time Economic Services in Bac Giang Province

Assoc. Prof. Do Anh Tai<sup>1</sup>, Dr. Nguyen Thi Thu Thuong<sup>2</sup>, Hoang Mai Phuong, MBA<sup>3</sup>

<sup>1,2,3</sup>TNU - University of Economics and Business Administration, Thai Nguyen province - Vietnam

**ABSTRACT:** Until 2030, the province of Bac Giang will focus on promoting the comprehensive development of all economic sectors, with the industrial sector as the main driving force and the service sector as the motivating force. The expansion of concentrated industrial zones, coupled with the formation of new cities, has been a premise that fosters urbanization. These areas attract an abundant workforce of young immigrants and create conditions for the middle class to grow rapidly. That, along with the province's orientation to develop tourism as an important economic sector, Bac Giang has the advantages and potentials to strongly promote night-time service economy. This article analyzes factors that influence the economic growth of night-time service activities in Bac Giang, establishes a basis for well-planned investment, as well as rapid and sustainable development of the service industry.

**KEYWORD:** Bac Giang, EFA, Night-time economy, Vietnam.

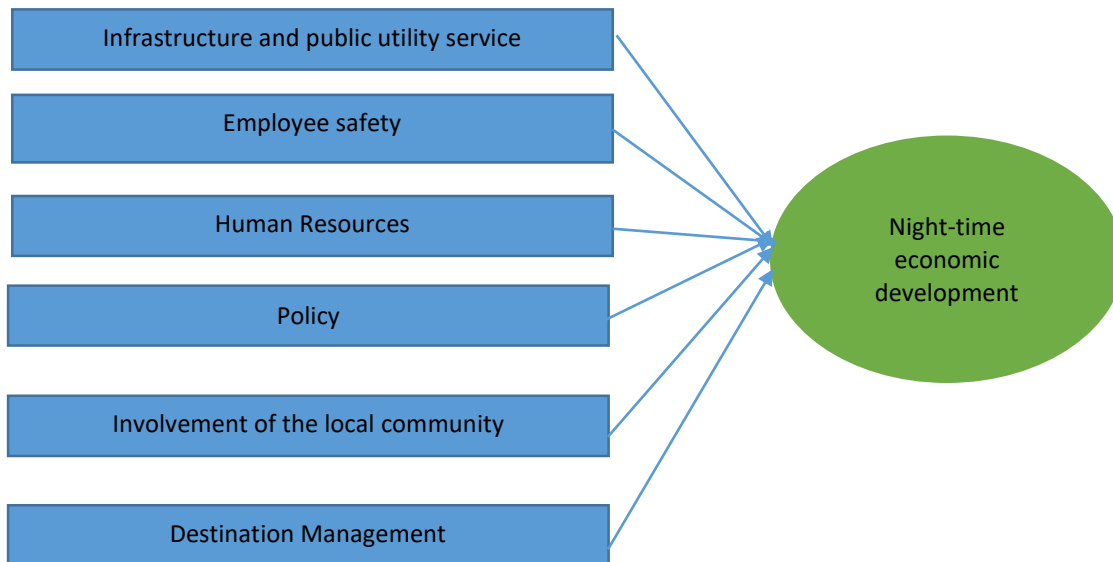
### I. INTRODUCTION

This research utilizes exploratory factor analysis (EFA) to analyze the factors affecting the development of night-time economic services in Bac Giang through a regression model with the dependent variable being "Development of the night-time economic services in Bac Giang" and independent variables being: Infrastructure and public utility services; employee safety; human resources; policies; the involvement of the local community; destination management. Conclusions can be drawn about each factor's level of influence, providing effective and sustainable approaches for developing the night-time service economy in Bac Giang.

### II. RESEARCH MODEL AND METHODOLOGY

In this study, the authors conducted a survey through a questionnaire to collect primary data. In addition, the author has researched a number of published scientific articles to serve the research process. For primary data collection, the author used a questionnaire paper and conducted a random survey of people in Bac Giang with the number of questionnaires distributed being 315, the number of valid answers collected being 230. According to Hair et al (2014), the minimum sample size to use EFA is 50, preferably 100 or more. The ratio of the number of samples to one analytic variable is at least 5:1, with the number of variables in the factor analysis model of this study being 35 variables, the number of samples needs to be at least 175, so with a sample of 230 is perfectly suitable for the analysis according to the EFA model.

Observations are included in the questionnaire on a 5-point Likert scale, in which, "1" is "strongly disagree"; "2" means "disagree", "3" means "no opinion", "4" means "agree" and "5" means "strongly agree". The proposed research model includes 6 factors and uses the Likert scale to consider the rating. For the selection of factors, the author uses the expert method, in which the experts have many studies in the fields of economics and services. The research model is shown in Figure 1 below.



**Figure 1.** Model of factors affecting the development of night-time economic services in Bac Giang.

The dependent variable of the selected model is “Development of night-time economic services” which is measured by 7 observed variables: (1) Ensuring economic efficiency and competitiveness for enterprises; (2). Maximize visitor contributions; (3). Create jobs and raise income levels; (4) Maintain and enhance quality of life; (5) Contributing to preserving cultural values, craft villages, manners and customs of local people; (6) Contribute to the efficient use of resources; (7) Contributing to the conservation of natural resources. The independent variables are: (1) Infrastructure and public utilities (including 12 observed variables); (2) Safety for workers (including 8 observed variables); (3) Human resources (including 5 observed variables); (4) Policy (including 3 observed variables); (5) Participation of local communities (including 3 observed variables); (6) Destination management (including 4 observed variables).

**III. RESEARCH RESULT AND DISCUSSIONS**

**1. Test the reliability of the measure using Cronbach's Alpha coefficient:**

Cronbach's Alpha test is a test to analyze and evaluate the reliability of the measure. The purpose of this test is to find out if the observed variables have the same measure for a concept to be measured. The value of more or less contribution is analyzed through the correlation coefficient of the total variable (Corrected Item - Total Correlation), thereby allowing to eliminate inappropriate variables in the research model.

Evaluation criteria: Observable variables with a variable-to-total correlation coefficient (Item - Total Correlation) less than 0.3 will be eliminated and the standard for choosing a measure when Cronbach's Alpha > 0.6 (Hoang Trong & Chu Nguyen Mong Ngoc, 2000).

The results of Cronbach's Alpha analysis for the factors are summarized in the following table:

**Table 1:** Test of reliability by Cronbach's Alpha for factors

| Factor                                     | Observed variables                  | Symbol    | Corrected item – Total Correlation | Cronbach' s Alpha if item deleted | Cronbach's Alpha |
|--|-------------------------------------|-----------|------------------------------------|-----------------------------------|------------------|
| <b>INFRASTRUCTURE AND UTILITY SERVICES</b> | Infrastructure for traffic at night | INFRAST 1 | 0.613                              | 0.525                             | 0.721            |
|  | Public street lighting system.      | INFRAST 2 | 0.624                              | 0.538                             |                  |
|  | Public toilet system                | INFRAST 3 | 0.652                              | 0.653                             |                  |
|  | Communication systems               | INFRAST 4 | 0.631                              | 0.817                             |                  |



|                                 |   |           |       |       |       |
|---------------------------------|---|-----------|-------|-------|-------|
|                                 | Camera surveillance system  | INFRAS 5  | 0.672 | 0.812 |       |
|                                 | Software systems for managing, reporting incidents, hotspots on smart mobile devices  | INFRAS 6  | 0.671 | 0.815 |       |
|                                 | Access to transport   | INFRAS 7  | 0.615 | 0.826 |       |
|                                 | Waste treatment systems   | INFRAS 8  | 0.598 | 0.829 |       |
|                                 | Access to medical services, health care   | INFRAS 9  | 0.603 | 0.828 |       |
|                                 | Entertainment facilities  | INFRAS 10 | 0.785 | 0.886 |       |
|                                 | Catering establishments   | INFRAS 11 | 0.792 | 0.888 |       |
|                                 | Shopping facilities   | INFRAS 12 | 0.765 | 0.890 |       |
| <b>SAFETY FOR THE COMMUNITY</b> | Impact of noise on local people's health  | SFTC 1    | 0.754 | 0.662 | 0.865 |
|                                 | Regulations relating to noise.  | SFTC 2    | 0.771 | 0.658 |       |
|                                 | Regulations on the use of wine, beer or other alcoholic beverages   | SFTC 3    | 0.626 | 0.684 |       |
|                                 | Security and social order for residents and visitors and other troubles for residents (theft, fights, gambling, prostitution, drugs...) | SFTC 4    | 0.817 | 0.852 |       |
|                                 | Air quality (dust and odor of exhaust gases)  | SFTC 5    | 0.851 | 0.843 |       |
|                                 | Informing businesses about the laws related to participating in night-time economic activities  | SFTC 6    | 0.830 | 0.869 |       |
|                                 | Informing and warning residents and visitors about the risk of crime  | SFTC 7    | 0.819 | 0.811 |       |
|                                 | Preserving and promoting local spiritual and cultural life  | SFTC 8    | 0.830 | 0.812 |       |
| <b>HUMAN RESOURCES</b>          | Appropriate qualification   | HR 1      | 0.557 | 0.646 | 0.624 |
|                                 | of a foreign language   | HR 2      | 0.623 | 0.722 |       |
|                                 | Good communication skills   | HR 3      | 0.562 | 0.845 |       |
|                                 | Good problem-solving skills   | HR 4      | 0.676 | 0.682 |       |
|                                 | Good moral qualities  | HR 5      | 0.857 | 0.795 |       |
| <b>POLICY</b>                   | Create strategic plan for night-time economic development   | P1        | 0.856 | 0.639 | 0.830 |
|                                 | Develop regulations related to night-time economic activities   | P2        | 0.786 | 0.587 |       |
|                                 | Providing subsidy packages for businesses to promote night-time economic activities in Bac Giang  | P3        | 0.830 | 0.554 |       |



|                                  |   |      |       |       |       |
|----------------------------------|---|------|-------|-------|-------|
| PARTICIPATION OF LOCAL COMMUNITY | Local people are friendly and hospitable  | PLC1 | 0.523 | 0.801 | 0.521 |
|                                  | Locals help tourists  | PLC2 | 0.486 | 0.784 |       |
|                                  | Local people are conscious of protecting the environment and developing local tourism | PLC3 | 0.564 | 0.795 |       |
| DESTINATION MANAGEMENT           | Protect and preserve the environment  | DM 1 | 0.690 | 0.815 | 0.748 |
|                                  | Ensuring security and social order  | DM 2 | 0.777 | 0.732 |       |
|                                  | Ensure the safety of food, life and property for visitors                             | DM 3 | 0.695 | 0.817 |       |
|                                  | Receive and properly handle complaints from visitors                                  | DM 4 | 0.801 | 0.801 |       |

Source: Research team compiled from survey results

The results of testing the reliability of the factors show that most of the proposed factors have good reliability, Cronbach's Alpha values are all greater than 0.6. Particularly, the factor of the participation of local communities in the development has Cronbach's Alpha coefficient = 0.521, according to Hair et al (2014), although the reliability of this factor is not high, it is acceptable. All variables have Item - Total Correlation > 0.3 so all variables are kept.

## 2. EFA exploratory factor analysis for independent variables

The results of exploratory factor analysis EFA show that the test results are relatively good. KMO coefficient = 0.852 > 0.5, so the use of this data set for factor analysis is appropriate (Kaiser, 1974). Bartlett's Test is used to see if the observed variables in the factor are correlated, this value is also achieved when the Sig value of the test = 0.000 < 0.5, so the observed variables are relevant and were eligible for factor analysis by EFA (table 2).

Table 2: Results of KMO and Bartlett's Test

|  |                    |           |
|--|--------------------|-----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | 0.852     |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 14135.922 |
|  | df                 | 923       |
|  | Sig.               | 0.000     |

Source: Analysis of survey data by the research team

The breakpoint of factor analysis is set on the basis of the Eigenvalue coefficient, the maximum number of factors is selected when this coefficient has the smallest value > 1 and the cumulative percentage is greater than 50%. With the above conditions, there are 6 factors extracted at Initial Eigenvalues of 2.069 > 1, the total variance extracted is 62.822% > 50%, showing that 6 factors extracted in EFA reflect 62.8220% of the difference. Variations of all measures are included in the model.

Table 3: Summary of exploratory factor analysis results for independent variables

| Rotated Component Matrix <sup>a</sup> |           |   |   |   |   |   |   |   |   |
|---------------------------------------|-----------|---|---|---|---|---|---|---|---|
|                                       | Component |   |   |   |   |   |   |   |   |
|                                       | 1         | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| INFRAS1                               | 0.690     |   |   |   |   |   |   |   |   |
| INFRAS2                               | 0.670     |   |   |   |   |   |   |   |   |
| INFRAS3                               | 0.667     |   |   |   |   |   |   |   |   |



|  |        |        |        |        |        |        |  |  |  |
|--|--------|--------|--------|--------|--------|--------|--|--|--|
| INFRAS4  | 0.690  |        |        |        |        |        |  |  |  |
| INFRAS5  | 0.738  |        |        |        |        |        |  |  |  |
| INFRAS6  | 0.728  |        |        |        |        |        |  |  |  |
| INFRAS7  | 0.690  |        |        |        |        |        |  |  |  |
| INFRAS8  | 0.670  |        |        |        |        |        |  |  |  |
| INFRAS9  | 0.765  |        |        |        |        |        |  |  |  |
| INFRAS10   | 0.759  |        |        |        |        |        |  |  |  |
| INFRAS11   | 0.739  |        |        |        |        |        |  |  |  |
| INFRAS12   | 0.859  |        |        |        |        |        |  |  |  |
| SFTC1  |        | 0.903  |        |        |        |        |  |  |  |
| SFTC2  |        | 0.885  |        |        |        |        |  |  |  |
| SFTC3  |        | 0.882  |        |        |        |        |  |  |  |
| SFTC4  |        | 0.871  |        |        |        |        |  |  |  |
| SFTC5  |        | 0.809  |        |        |        |        |  |  |  |
| SFTC6  |        | 0.739  |        |        |        |        |  |  |  |
| SFTC7  |        | 0.843  |        |        |        |        |  |  |  |
| SFTC8  |        | 0.885  |        |        |        |        |  |  |  |
| HR1  |        |        | 0.861  |        |        |        |  |  |  |
| HR 2   |        |        | 0.851  |        |        |        |  |  |  |
| HR3  |        |        | 0.851  |        |        |        |  |  |  |
| HR4  |        |        | 0.790  |        |        |        |  |  |  |
| HR5  |        |        | 0.778  |        |        |        |  |  |  |
| P1   |        |        |        | 0.894  |        |        |  |  |  |
| P2   |        |        |        | 0.863  |        |        |  |  |  |
| P3   |        |        |        | 0.847  |        |        |  |  |  |
| PLC1   |        |        |        |        | 0.777  |        |  |  |  |
| PLC2   |        |        |        |        | 0.761  |        |  |  |  |
| PLC3   |        |        |        |        | 0.735  |        |  |  |  |
| DM1  |        |        |        |        |        | 0.827  |  |  |  |
| DM2  |        |        |        |        |        | 0.819  |  |  |  |
| DM3  |        |        |        |        |        | 0.617  |  |  |  |
| DM4  |        |        |        |        |        | 0.805  |  |  |  |
| <b>Initial Eigenvalues</b>   | 7.081  | 4.936  | 3.157  | 2.699  | 2.394  | 2.069  |  |  |  |
| <b>Variance extracted</b>  | 16.093 | 11.280 | 7.174  | 6.133  | 5.440  | 4.702  |  |  |  |
| <b>Total variance explained</b>  | 16.093 | 27.373 | 34.547 | 40.680 | 46.120 | 62.822 |  |  |  |
| Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. |        |        |        |        |        |        |  |  |  |
| a. Rotation converged in 6 iterations.   |        |        |        |        |        |        |  |  |  |

Source: Analysis of survey data by the research team

Considering the rotation matrix table, with Varimax rotation and only the Factor Loading factor loading factors > 0.3 (table 3), all observed variables with load factors > 0.5 are considered significant. real meaning (Hair et al., 2014), so all these observed variables are kept for later analysis.



The final results of factor analysis exploring the measures of independent variables including 35 observed variables are loaded with 6 factors, the order and names of the factors are summarized in Table 4.

**Table 4:** Summary of factors affecting the rapid and sustainable development of the night-time economy after exploratory factor analysis EFA

| TT | Factor name                               | Symbol  | Observed number |
|----|---|---------|-----------------|
| 1  | Infrastructure and public utility service | INFRAST | 12              |
| 2  | Safety for the community                  | SFTC    | 8               |
| 3  | Human resource                            | HR      | 5               |
| 4  | Policy                                    | P       | 3               |
| 5  | Participation of local community          | PLC     | 3               |
| 6  | Destination management                    | DM      | 4               |
|    | <b>Total</b>                              |         | <b>35</b>       |

*Source: Compiled from the research team's analysis of survey data*

### 3. EFA exploratory factor analysis for dependent variable

The results of the first EFA discovery factor analysis for the dependent variable, a quick look at the Rotated Component Matrix table shows that the dependent variable does not converge on one factor. There are 2 factors extracted, in which there is a problem in the observed variables NTED1; NTED2; NTED 7 is uploaded in two groups of variables 1 and 2. At the same time, the variable NTED7 does not download the desired factor at all.

Review the variable-total correlation in the reliability test Cronbach's Alpha coefficient of the measure of economic development = 0.341 > 0.3, however, the coefficient of correlation of this variable - total is quite low compared to other variables in the factor of night-time economic services development. So the author decided to remove the variable NTED7 and run the EFA a second time.

The results of running EFA for the second time after removing the variable NTED7 show that the test results are relatively good. KMO coefficient = 0.89 > 0.5, so it is appropriate to use this data set for factor analysis (Kaiser, 1974). Bartlett's Test also passes when the Sig value of the test = 0.000 < 0.5, so the observed variables are related to each other and are eligible for factor analysis by EFA (table 5).

**Table 5:** Results of KMO and Bartlett's Test for the variable Night-time economic service development

|   |                    |          |
|---|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy |                    | 0.890    |
| Bartlett's Test of Sphericity                   | Approx. Chi-Square | 3280.130 |
|   | df                 | 50       |
|   | Sig.               | 0.000    |

*Source: Analysis of the author's survey data*

The coefficient Initial Eigenvalues = 5.214 > 1 proves that the extracted factor in Table 5 is representative of the variation with uniform information. The total variance extracted is 58.235% > 50%, which proves that the factor extracted in EFA reflects 58.235% of the variation of all measures included in the model.

**Table 6:** Summary of EFA exploratory factor analysis results for the dependent variable

| Symbol | Factor   |
|--------|----------|
|        | <b>1</b> |
| NTED2  | 0.792    |
| NTED6  | 0.763    |



|   |        |
|---|--------|
| NTED4   | 0.742  |
| NTED5   | 0.735  |
| NTED1   | 0.732  |
| NTED3   | 0.724  |
| <b>Initial Eigenvalues</b>                              | 5.214  |
| <b>Total variance explained</b>                         | 58.235 |
| <b>Extraction Method:</b> Principal Component Analysis. |        |
| a. 1 components extracted.                              |        |

Source: Analysis of survey data by the research team

Combining the results of testing the reliability of the measure (Cronbach's Alpha) and exploratory factor analysis (EFA), the study has identified factors, variables and measures that can be used to evaluate the factors. affecting the rapid and sustainable development of the night-time economy of Bac Giang province.

**4. Regression analysis of factors affecting night-time economic development in Bac Giang province**

To test the research hypotheses, the author performed multiple linear regression of 6 variables of 6 factors proposed in the adjusted research model after qualitative research. The selection method is Enter and the regression results are as follows:

**Table 7:** Coefficient of regression model

| <b>Model Summary<sup>b</sup></b>                        |        |          |                   |                            |               |
|---|--------|----------|-------------------|----------------------------|---------------|
| Model   | R      | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1   | 0.751a | 0.624    | 0.653             | 0.38221                    | 1.792         |
| a. Predictors: (Constant), IFRAST, SFTC, HR, P, PLC, DM |        |          |                   |                            |               |
| b. Dependent Variable: NTED                             |        |          |                   |                            |               |

The result of the regression model synthesis coefficient in Table 2.13 for adjusted R<sup>2</sup> (Adjusted R Square) = 0.653 means, with the sample size of the research model of 85, there is 65.3% variation of the dependent boundary ( Night economy development) is due to the influence of 6 variables included in the above research model. The rest, 34.7% is influenced by factors other than the research model. Statistical value Durbin-Watson = 1.792 < 3, shows that the model has no autocorrelation, therefore, the quality of regression can be considered as good.

**Table 8:** Coefficient of Variance

| <b>ANOVA<sup>a</sup></b>                                |            |                |     |             |        |        |
|---|------------|----------------|-----|-------------|--------|--------|
| Model   |            | Sum of Squares | df  | Mean Square | F      | Sig.   |
| 1   | Regression | 91,765         | 6   | 8.230       | 58.321 | 0.000b |
|   | Residual   | 72,971         | 426 | .142        |        |        |
|   | Total      | 164,930        | 432 |             |        |        |
| a. Dependent Variable: NTED                             |            |                |     |             |        |        |
| a. Predictors: (Constant), INFRAS, STFC, HR, P, PLC, DM |            |                |     |             |        |        |

Source: Analysis of survey data by the research team

Table 8 gives test results F = 58.321 and Sig value = 0.000, proving that the proposed research model is consistent with the surveyed data set.



**Table 9:** Result of multiple linear regression coefficient

| Coefficients <sup>a</sup> |            |                             |            |                           |       |                         |       |
|---------------------------|------------|-----------------------------|------------|---------------------------|-------|-------------------------|-------|
| Model                     |            | Unstandardized Coefficients |            | Standardized Coefficients | Sig.  | Collinearity Statistics |       |
|                           |            | B                           | Std. Error | Beta                      |       | Tolerance               | VIF   |
| 1                         | (Constant) | -0.213                      | 0.233      |                           | 0.246 |                         |       |
|                           | INFRAST    | 0.254                       | 0.029      | 0.231                     | 0.000 | 0.801                   | 1.148 |
|                           | SFTC       | 0.324                       | 0.033      | 0.328                     | 0.000 | 0.849                   | 1.128 |
|                           | HR         | 0.132                       | 0.022      | 0.186                     | 0.000 | 0.780                   | 1.183 |
|                           | P          | 0.213                       | 0.019      | 0.220                     | 0.000 | 0.764                   | 1.212 |
|                           | PLC        | 0.121                       | 0.020      | 0.103                     | 0.021 | 0.778                   | 1.223 |
|                           | DM         | 0.146                       | 0.026      | 0.150                     | 0.000 | 0.621                   | 1.021 |

*Source:* Analysis of survey data by the research team

The results of the study in Table 9 show that the acceptance coefficient (Tolerance) is quite high (from 0.621 to 0.849), and at the same time, the variance exaggeration coefficient VIF is low (from 1.021 to 1.223, less than 2). Therefore, it can be concluded that the relationship between these independent variables is not significant, it can be considered that there is no multicollinearity phenomenon in the model.

From the above results, it is possible to draw a multiple linear regression equation representing the relationship between the factors affecting the rapid and sustainable development of the night-time economic services in Bac Giang province as follows:

$$NTED = 0.231*INFRAST + 0.328*SFTC + 0.186*HR + 0.121*PLC + 0.150*DM$$

With a sample size of 230 and a study in Bac Giang province, the regression results show that, among the groups of factors included in the study, the group SAFETY FOR THE COMMUNITY has the strongest impact on night-time economic services development. The standardized Beta coefficient = 0.328 is significant in the condition that other factors are constant, if changing 1 unit for the variable SFTC, the average change in NTED will be 0.328 units. Similarly, the variable INFRASTRUCTURE AND PUBLIC UTILITY SERVICES (INFRAST) has the second strongest influence on night-time economic services development in Bac Giang (normalized Beta = 0.231) and human resources (standardized beta factor = 0.186). The group of factors that have a lower impact on the rapid and sustainable development of the night-time economic services in Bac Giang is: PARTICIPATION OF THE LOCAL COMMUNITY IN NIGHT ECONOMY DEVELOPMENT with a standardized Beta coefficient of 0.121.

**IV. CONCLUSION**

With the aforementioned analysis results, it can be seen that elements having a profound impact on the night-time economic service development in Bac Giang are the "Employee safety" and "Infrastructure and public utility services". Accordingly, the issues that the local administration and people of Bac Giang province need to pay attention to, for the developing speed and sustainability of the night-time service economy here include: Infrastructure such as traffic systems, lighting, sanitation system, information technology system, entertainment system, food chains and shopping facilities; safety for the community such as noise reduction, alcohol use regulations, security and order, air quality, warning of crime risks, conservation and promotion of spiritual life for people. This study is also an important basis for Bac Giang province to implement new policies to support and promote the rapid and sustainable night-time economic service development.





## REFERENCES

1. Duong Hoang Huong (2017), Sustainable Tourism Development in Phu Tho Province, Doctoral Thesis, Development Economics, Ho Chi Minh National Academy of Public Administration.
2. Hair, J. F., Black, W. C., Babin B. J., & Anderson R. E. (2014). Multivariate data analysis (7th International ed.). Harlow, UK: Pearson Education Limited
3. Le Chi Cong (2013), Discussing the perspective of sustainable tourism development. Proceedings of the scientific conference Sustainable development of marine tourism Nha Trang - Khanh Hoa, Nha Trang University, pp.3-5.
4. Le Duc Vien (2017), Developing tourism in Da Nang city towards sustainability, Doctoral thesis in development economics, Danang University of Economics.
5. Miles, M., & Huberman, A. M. (1994), Qualitative data analysis: An expanded sourcebook (2nd ed.), Thousand Oaks, CA: Sage. .
6. Nguyen Dinh Tho (2013), Textbook of scientific research methods in business. Financial Publisher.
7. Nguyen Ngoc Son, Bui Duc Tuan (2012), Development Economics Textbook, Financial Publishing House, Hanoi.

---

*Cite this Article: Assoc. Prof. Do Anh Tai, Dr. Nguyen Thi Thu Thuong, Hoang Mai Phuong (2022). Factors Affecting the Developing Speed and Sustainability of Night-Time Economic Services in Bac Giang Province. International Journal of Current Science Research and Review, 5(11), 4322-4330*