

Factors Affecting Tourism Development: A Case Study of Southern Red River Delta, Vietnam

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Abstract Tourism development plays an important role in promoting the socio-economic development in most countries. In particular, the development of tourism is the basis for promoting other economic sectors. After more than 30 years of innovation, the economy of Provinces in southern Red River Delta has got profound changes which are partly contributed by tourism industry. The paper uses a panel data regression model to analyze the factors affecting tourist attraction in 3 southern provinces of the Red River Delta (Nam Dinh, Thai Binh, Ninh Binh) in the period 2005-2016. The research results show that there are 5 factors that positively affect and increase tourist arrivals including: Telecommunication infrastructure (Internet variable), Tourism infrastructure (ROOM variable), Recovery services of tourism workers (LABOR variable), ancillary services (MEDfacility variable) and Time factor (t variable). Then the author proposes a number of recommendations to improve the quality of the above impact factors, thereby attracting more tourists to localities in the region.

Keywords: regression model, tourism attraction, Red River Delta

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1. Introduction

Tourism is a combination and interaction of four groups of factors in the process of serving tourists, including: visitors, service providers, residents and main the right to welcome tourists (Michael Coltman). Today, with the economic development and deep integration, tourism has always been evaluated as an economic sector with potential financial, revenue, profitability and other social issues. In tourism, many in-depth studies on tourism development have been carried out by researchers and managers so this brings contributions to the industry. Therefore, tourism activities and organizations always get attention and interest in researchers, experts, managers and even people who love to travel, research and learn [1].

Provinces in southern Red River Delta have an area of about 4,600 km² and a population of 4.6 million people. There are 5 biodiversity areas with values Outstanding global biodiversity, they impact on the lives of mankind and recognized as the world's first Biosphere Reserve in Red River Delta of Vietnam under the Convention on Wetlands Convention (RAMSAR) by United Nations Educational Scientific and Cultural Organization (UNESCO) since 2004. Those have diverse types of terrain: low-lying plains, coastal plains, hilly and semi-mountainous areas. The coast is 142 km long so southern Red River Delta has a lot of tourism values with a variety of natural landscapes

(beaches, historical sites, unique landscapes). Therefore, this is a destination that attracts the attention of domestic and foreign tourists. In recent years, these provinces have initially promoted the advantages of tourism development and achieved remarkable results. In 2018, southern Red River Delta's provinces welcomed 9.9 million visitors (900,000 international visitors), their tourism brought about 4,486 billion VND (approximately 204 billion USD) and created thousands of jobs. However, tourists that visited and convalesced is not commensurate with provinces' tourism potential.

2. Objectives

The research objectives of this study are:

1. To identify and analyze factors to attract tourists for getting competitive advantage as an international destination of Provinces in southern Red River Delta (Vietnam).
2. To suggest recommendations for the development of key attract tourists in Provinces of southern Red River Delta (Vietnam).

3. Methodology

To achieve the objectives of the study mainly the secondary information has been used for conducting this research. Secondary information has been collected from

annual reports, website of ministry of Vietnam, publications of world trade organizations, different journal, research papers and survey of the author. After collecting information researchers analyze factors to attract tourists of Provinces in southern Red River Delta (Vietnam).

4. Theoretical Basis and Proposed Research Model

4.1. Theoretical Basis

Theoretical basis: The service of tourism workers: The tourism workforce is well trained, works professionally and meets the requirements of tourists that will contribute to the satisfaction of tourists and revenue activities. There are many indicators used to represent the human resources for tourist attraction. This research paper uses the number of employees in the tourism industry to represent the human resources of the research location. This is also the index included in the study model of Yang, Ye and Yan (2011).

Transport infrastructure: The development of transportation is one of the prerequisites for the growth of tourism. A very beautiful tourist spot, if it does not have adequate transport facilities, it will not attract many tourists. Reference [2,3] shows the total number of road miles, total number of railway miles and the total number of miles operated in civil aviation of Sichuan (China) to quantify the effects of the above factors comes with the total income from international tourism in this province. On the other hand, Reference [4,5,6] uses the number of takeoffs of international and domestic flights by airlines that are allowed to operate within a country or the number of active airlines and indicators represent for a country's transportation infrastructure.

Support services: International travel is one of the activities that contain many risks for people because when they travel to another place, they temporarily leave their regular residence. Then, differences in living conditions, weather, climate... can cause impacts on human health. Therefore, like security, hygiene and health at the destination is also one of the factors of primary concern. The health and hygiene conditions of a destination are guaranteed to attract many international tourists. Indicators which commonly used to represent those include the number of hospital beds or the density of doctors per population in locality [4].

Telecommunication infrastructure: Telecommunications contributes to connecting communication between many countries. This is also an important factor to help international tourist attraction become effective. Nowadays, transactions made via the Internet are more and more popular, booking tours, booking air tickets through the Internet, that helps people prepare for travel easier and easier. Researchers used the criteria to assess a country's telecommunications infrastructure including the number of Internet users, the number of mobile phone users [4,7].

Tourism Infrastructure: on factors related to infrastructure affecting tourism development of Mauritius - an island nation located in the Indian Ocean said, a typical representation of a local's tourism infrastructure is the presence of accommodation facilities that cater to tourists

[8]. The better the tourism infrastructure, the higher the capacity for tourists of that locality. Therefore, the development of this factor facilitates increases the efficiency of activities to attract tourists to tourist destination.

Mohammad Amzad Hossain Sarker [9], to attract foreign tourists in a developing country needs to concentrate on establishing more hotels, motels and security, upgrading the infrastructure of beach sites, protecting the green environment and forces, promoting its historical places and marketing these places through promotional mix and developing communication (transportation) facilities to reach these sites and establish standard hotel and restaurants nearest to sites. It is necessary to train up the human resource of different sites office to guide the foreign tourists properly. It is important to offering the key products to niche markets in different way in compare to competing countries.

Ed. Magdalena Sitek, Michał Łęski [10] to attract tourists, except marketing activity on target markets, it is crucial to prepare the destination(s): various education/training of all tourist stakeholders in Poland interested in tourists from Asian markets are essential, as well as the development of common tourism plan with plenty of carefully prepared actions and tourism products which should be promoted and offered to travel industry members on targeted markets. Model of co-opetition with countries surrounding Poland for activities for Asian markets should be considered as well.

Roslan bin Haji Talib, Mohd Zailan Sulieman [11,12,13] said their writing evaluates and analyzes why good number of travelers attracting to come to this particular homestay from different countries around the world. Village infrastructure, community socio-economics, leadership organizations, entrepreneurship and homestay attractions as well as homestay privileges is to pave the way making the homestay prospects and challenges in homestay programs in the Northern Territory of Peninsular Malaysia in the future is seem to compete with the developed countries and others developing countries. Stable political, social and economic conditions and future plans meticulous gives confidence to attract tourists.

4.2. Proposed Research Model

Based on the review of related documents as well as previous research, we propose a research model as shown in Figure 1.

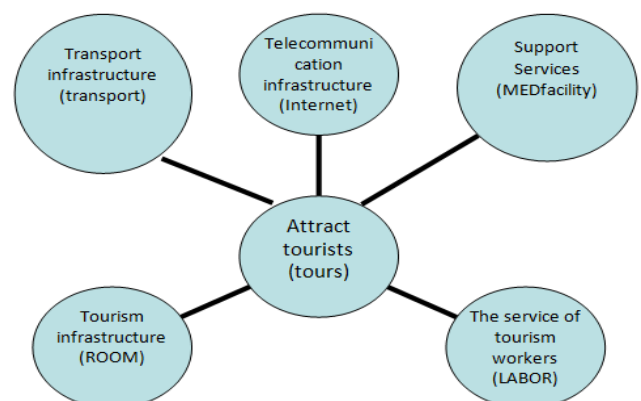


Figure 1. Proposed Research Model (Source: Analyzed by the author)

4.2.1. Research Methods

The model of analyzing the factors affecting tourist attraction to Southern Red River Delta’s provinces is based on data sources, such as: Telecommunication Infrastructure, Tourism Infrastructure, Tourism services, Support services, Transport infrastructure. This study uses annual data for the period between 2005 and 2016. Thus, the data set to run the model is array data with a time dimension of 12 years and a spatial dimension of 03 provinces / cities with 5 factors [14,15,16,17].

The author builds the regression model as follows:

$$\text{Tourist}_{it} = \beta_1 + \beta_2\text{Internet}_{it} + \beta_3\text{ROOM}_{it} + \beta_4\text{transport}_{it} + \beta_5\text{LABOR}_{it} + \beta_6\text{MEDSTAFF}_{it} + \beta_7\text{MEDfacility}_{it} + \beta_8\text{dprovi}_{it} + \beta_9\text{.year}_{it} + c_{it} + u_{it}$$

Source: Analyzed by the author
i are provinces / cities; *t* is time; *c_i* is specific by province / city; *u_{it}* is the random error; β_1 is the intercept (also known as constant); $\beta_2 \beta_3 \dots \beta_9$, are the regression coefficients (or regression parameters). The variables in the model are described in Table 1.

Table 1. Description of The Variables in the Regression Model

| Variable | Content |
|----------------------------------|--|
| Variables depend (tours) | Attract tourists |
| The independent variables | |
| Internet | Telecommunication infrastructure |
| ROOM | Tourism infrastructure |
| LABOR | The service of tourism workers |
| MEDfacility | Support Services |
| transport | Transport infrastructure |
| i.t | Dummy variables get values from 0 to 12 (from 2005 to 2016 respectively) |
| dprovi | The dummy variables are the provinces that receive a value between 1 and 3 |

Source: Analyzed by the author.

4.2.2. Research Results

Estimate and select an appropriate regression model.

There are 3 types of models: aggregate squared model (POLS), random effects model (REM) and fixed effects model (FEM). On the basis of the data collection array and regression model that has been developed to analyze the effects of factors on the rich-poor gap, what kind of model will be most suitable? To choose the most suitable model, the sequence of steps to estimate the regression model is conducted as follows:

Firstly, the author estimates a random effect (REM) model.

Based on the results of the test estimate if *c_i* exists or not, that means test whether to choose the POLS model or not. If there is *c_i*, it will not choose POLS. To know this, carry out the Breusch and Pagan Lagrangian test with the following statistical hypotheses:

H0: *c_i* does not vary across provinces (or POLS model is appropriate)

H1: *c_i* differences between provinces (or inappropriate POLS model)

The test results are shown in Table 2.

Table 2. Results of hypothesis testing

| Breusch and Pagan Lagrangian multiplier test for random effects | | |
|---|----------|-----------------|
| tours (provi,t) = Xb + u[provi] + e[provi, t] | | |
| Estimated result: | | |
| | Var | sd = sqrt (Var) |
| tours | 2911092 | 1706.192 |
| e | 264307.9 | 514.1088 |
| u | 0 | 0 |
| Test: Var (u) = 0 | | |
| Chibar2(01) = 0.00 | | |
| Prob >chibar 2 = 1.0000 | | |

Source: Analyzed by the author.

Table 3. POLS regression model

| Note: dprovil omitted because of collinearity | | | | | | |
|---|------------|-----------|------------|---------------|------------|-----------|
| Note: t12 omitted collinearity | | | | | | |
| Source | SS | df | MS | Number of obs | = | 36 |
| Model | 100048795 | 18 | 5558266.38 | F(18, 17) | = | 51.37 |
| Residual | 1839441.33 | 17 | 108202.431 | Prob>F | = | 0.0000 |
| | | | | R-squared | = | 0.9819 |
| | | | | Adj R-squared | = | 0.9628 |
| | | | | Root - MSE | = | 328.94 |
| | | | | | | |
| | Coef | Std. Err | T | P>/ t/ | [95% Conf. | Interval] |
| tours | | | | | | |
| Internet | 0.387355 | 0.105121 | 3.68 | 0.02 | .0165569 | .0609141 |
| ROOM | 1.016158 | .3685332 | 2.76 | 0.013 | .2386205 | 1.793695 |
| transport | 32.83234 | 84.30372 | 0.39 | 0.702 | -145.033 | 210.6976 |
| LABOR | 1.46305 | .6955544 | 2.10 | 0.007 | 49.25906 | 2.930542 |
| MEDfacility | 156.7285 | 50.93782 | 3.08 | 0.007 | 49.25906 | 264.1976 |
| Dprovil1 | 0 | (omitted) | | | | |
| Dprovil2 | 14554.81 | 4079.175 | -3.57 | 0.002 | -23161.11 | -5948.501 |
| Dprovil3 | -20758.44 | 6742.401 | -3.08 | 0.007 | -34983.66 | -6533.217 |
| t1 | 8488.159 | 1365.445 | 6.22 | 0.000 | 5607.321 | 11369 |
| t2 | 8309.644 | 1336.695 | 6.22 | 0.000 | 5489.466 | 11129.82 |
| t3 | 7539.939 | 1242.195 | 6.07 | 0.000 | 4919.138 | 10160.74 |
| t4 | 6880.443 | 1138.016 | 6.05 | 0.000 | 4479.44 | 9281.447 |
| t5 | 6357.636 | 1018.796 | 6.24 | 0.000 | 4208.163 | 8507.109 |
| t6 | 5463.087 | 857.563 | 6.37 | 0.000 | 3653.787 | 7272.387 |
| t7 | 4238.576 | 828.067 | 5.12 | 0.000 | 2491.508 | 5985.646 |
| t8 | 3767.777 | 723.9892 | 5.20 | 0.000 | 2240.293 | 5295.261 |
| t9 | 3403.182 | 707.6715 | 4.81 | 0.000 | 1910.125 | 4896.238 |
| t10 | 2713.523 | 488.669 | 5.55 | 0.000 | 1682.522 | 3744.525 |
| t11 | 1862.655 | 388.0593 | 4.80 | 0.000 | 1043.922 | 2681.389 |
| t12 | 0 | (omitted) | | | | |
| _cons | -37401.51 | 9101.531 | -4.11 | 0.001 | -56604.06 | -18198.96 |

Based on the test results, it shows a very large probability ($P = \text{Prob} = 1.0000$). Accepting H_0 , this indicates that there is no specificity between provinces or does not vary among provinces that choose the POLS model (Table 3).

After regressing the POLS model, the author tested whether the model lacked important variables through Table 4.

Table 4. Ramsey test

| |
|--|
| Ramsey RESET test using powers of the fitted values of tours |
| H_0 : model has no omitted variables |
| $F(3,14) = 10.71$ |
| $\text{Prob} > F = 0.0006$ |

Source: Analyzed by the author

The $\text{Prob} < 5\%$ value of the RAMSEY test as shown in Table 4, the author concludes that the H_0 hypothesis is rejected, because there are some variables that are not statistically significant at the 10% significance level, so the model there are signs of unnecessary redundancy or the variable does not reflect the meaning (transport variable).

The author tested chain correlation through Table 5.

Table 5. Wooldridge testing

| |
|---|
| Wooldridge test for autocorrelation in panel data |
| H_0 : no first – order autocorrelation |
| $F(1, 2) = 11.945$ |
| $\text{Prob} > F = 0.0745$ |

Source: Analyzed by the author.

The $\text{Prob} > 5\%$ value of the Wooldridge test shown in Table 5, we conclude that the hypothesis H_0 is accepted, meaning that there is no autocorrelation.

Next, the author checks the variance of error has changed through Table 6.

Table 6. Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

| |
|---|
| Breusch-Pagan / Cook-Weisberg test for heteroskedasticity |
| H_0 : Constant variance |
| Variables: fitted values of tours |
| $\text{Chi}^2(1) = 2.27$ |
| $\text{Prob} > \text{chi}^2 = 0.1319$ |

Source: Analyzed by the author.

The $\text{Prob} > F > 5\%$ value of the Breusch-Pagan test as shown in Table 6, we conclude that we accept the hypothesis H_0 , which means that the variance is homogeneous, the variance is constant.

Next, the author tests whether the independent variables have perfect multicollinear relation, then Mean VIF = 9.55 shows that, there is no multicollinearity phenomenon between the independent variables.

The estimation results show that most of the independent variables are statistically significant at 5%, only the local tourism service variable 2 is insignificant. The estimation model shows that the factors that positively affect and increase tourist arrivals include: Telecommunication Infrastructure (Internet variable), Tourism Infrastructure (ROOM variable), Service of tourism workers (variable LABOR), ancillary services (variable MEDfacility) and time factor (variable t).

The impact of factors on tourist attraction of Southern Red River Delta's provinces is explained as follows:

Firstly, telecommunications infrastructure (internet variable): Estimated results in the model show that the number of internet subscribers has a strong influence on tourist attraction, which is expressed through the return coefficient. regulation (coef. = 0.0387).

Secondly, Tourism Infrastructure (ROOM variable): Estimated results in the model show that the number of service rooms has a very strong influence on tourist attraction, this is expressed through the coefficient regression (coef. = 1.01).

Thirdly, service of tourism workers (variable LABOR): Estimated results in the model show that the service of tourism workers has the strongest influence on tourist attraction, this is expressed through the regression coefficient (coef. = 1.46).

Fourthly, the ancillary services (variable MEDfacility):

Estimated results in the model show that the number of ancillary services has the strongest influence on tourist attraction, this is expressed through the coefficient regression (coef. = 156.78). This coefficient shows that when the province's ancillary services include the impact of health, banking ..., investment in health, banking ... is getting more and more attention, which will attract more and more tourists. calendar.

Finally, the dummy variable over time: Due to the different economic development of the years, so the number of tourists attracted over the years also changes. The model shows that all estimates of the time dummy variable from 2005-2016 are statistically significant at 1% and a positive relationship with tourist attraction.

5. Conclusion and Some Recommendations

The research result shows that there are 5 factors that have a positive effect and increase tourist arrivals in descending order to Southern Red River Delta's provinces, which are: Number of medical facilities, number of employee participation in tourism, Number of servicing rooms, Number of internet subscribers and Time factor.

According to the author, localities in the Region should pay attention to a number of issues as follows to attract tourists in the coming time:

Firstly, to focus on investment in increasing the quantity as well as improving the quality of support services, such as health care and banks. Accordingly, it is necessary to: (1) Renovate and strengthen the operation of these support services; (2) Strengthen human resource training associated with the quality of these support services; (3) Invest in the construction, repair and upgrade of old and degraded medical facilities and equipment.

Secondly, improve the quality of tourism human resources. According to the Department of Culture and Tourism of three Southern Provinces of the Red River Delta, tourism human resources in the provinces in the Region have increased continuously over the years. However, according to a report by the Department of Culture and Tourism of the three provinces in the Region in the period 2011-2016, the highest trained workers (from

college or higher) is Ninh Binh with 47.3, Nam Dinh is the lowest rate, accounting for only 13.5% of the total number of employees. Thus, the human resources in this industry have not met the requirements for capacity, skills and experience.

Therefore, in the coming time, to improve the quality of tourism human resources in the three provinces in the region, it is necessary to strengthen training and retraining; regularly open classes for management training, tourism knowledge, foreign languages and communication skills, behavior for forces participating in tourism service activities; to expand forms of specialized tourism professional training and retraining for accommodation establishments in the provinces.

Thirdly, improve the quality of service for guests specifically: raising awareness about the quality of tourist accommodation services, continuing to organize inspection and inspection teams for tourist accommodation establishments, focusing on reviewing technical facilities, the workforce, the work of ensuring environmental hygiene and food safety. At the same time, direct, guide and support tourist accommodation establishments to promote and maintain effective training and retraining to improve occupational skills and attitudes for staff and capacity. hotel management, overcoming the shortage and weakness of human resources in tourist accommodation establishments. Organize information and promote good quality facilities to honor and encourage market choices and vice versa through media sending clear messages about poor quality facilities to ensure benefits traveler. At the same time, to set up a supply line, receive and process feedback from tourists [18,19].

Finally, improving telecommunications infrastructure, increasing number of subscribers will attract more tourists. Accordingly, in order to improve service quality, to meet the needs of customers, it is necessary to synchronize state management solutions, proactively remove difficulties, and create a good investment environment for businesses to develop. to develop telecommunications network infrastructure in the direction of modernity, large capacity, high speed and quality, wide coverage, capable of upgrading to meet the deployment of new services in the future [18,19,20,21].

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