Segmentation Support Tourism Based Motivation, Opportunity, and Ability, using Structural Equation Modelling

Veny Megawati[1,*], Bambang Widianarko Otok[2], and Jerry Dwi T. Purnomo[2]

[1] Ph,D Student of Doktor Manajemen Teknologi Sekolah Interdisiplin Manajemen Teknologi, ITS and, Faculty Business and Economics University of Surabaya, Indonesia
[2] Department of Statistic, Institut Teknologi Sepuluh Nopember, Indonesia
*Corresponding author. veny.megawati@yahoo.com

Abstract. Tourism is the fastest-growing business and the second largest in the services sector after information technology worldwide. This tourism development is also the focus of the Indonesian Government on making Indonesia a world-class tourism destination through tourist villages, which is a program of the Government of the Republic of Indonesia in the hope of accelerating revival and triggering tourism growth. This study proposes a segmentation model of community support and local entrepreneurs for tourism development using the Motivation, Opportunity, and Ability (MOA) approach to support tourism (support for tourism). The method used is structural equation modeling (SEM) using subgroup analysis. The research results show using the SEM approach that the support for the tourism model, which involves entrepreneur status (entrepreneur segment, non-entrepreneur segment) as moderation, is a suitable model. Motivation, Opportunity, and Ability have a significant effect on Support Tourism. Entrepreneur status has a significant influence in moderating MOA and has a strengthening effect on Support Tourism. In the entrepreneur segment model, Ability is the dominant variable that has a significant effect on Support Tourism, while in the non-entrepreneur segment model, motivation is the dominant variable that has a significant effect on Support Tourism.

Keywords: segmentation support tourism, MOA, SEM

1 Introduction

Indonesia's million natural beauties, cultures, and ancestral heritage are added values to increase the country's foreign exchange through tourism and can improve people's welfare, especially for environmentally friendly tourism. The remarkable expansion of global tourism is anticipated to have a substantial impact on local communities, encompassing economic, socio-cultural, and environmental implications [1, 2]. Tourism can also provide positive impacts, including employment, prosperity, infrastructure improvements, and increased income. Tourism is a powerful economic force that has the potential to significantly impact society in a positive manner [3].

Currently, Community-based tourism (CBT) is a sustainable approach to development that emphasizes community empowerment in various tourism activities. It places

H. S. Panigoro et al. (eds.), *Proceedings of the 2nd International Conference on Sciences, Mathematics, and Education 2023 (ICOSMED 2023)*, Advances in Social Science, Education and Humanities Research 927,
https://doi.org/10.2991/978-2-38476-410-5_10

the community at the forefront of the effort to develop tourist destinations. People's economy is an economic system whose implementation is based on the interests and prosperity of the people. It is an economic system expected to be upheld in Indonesia so that benefits are obtained for all, not just one party. The primary focus of sustainable tourism policies should be on the perspective of the community as the main beneficiary of tourism development. This approach aims to maximize the potential benefits and minimize the negative impacts of tourism development on community-based tourism [4, 5]. When the community believes that tourism development can make the quality of life better, the community will definitely provide more support to tourism [6–11].

Sustainable tourism development in Indonesia is built through Village Tourism, a program of the Republic of Indonesia's Government with the hope of accelerating the revival and triggering tourism growth. East Java is the province that was determined to have the most tourist villages for three consecutive years in the Anugerah Desa Wisata Indonesia (ADWI) event.

Local tourism entrepreneurs play a crucial role in many communities that aim to boost tourism. The impact of these entrepreneurs extends beyond economic growth and the creation of jobs and is pivotal for community development, welfare, and cultural preservation [12], although it may not be seen as a social entrepreneur, because the main purpose of local tourism entrepreneurs is not to increase 'social value' [13, 14].

The development of this village area certainly involves many parties, especially the local community, through various activities, and one of them is providing opportunities to become local entrepreneurs. This opportunity can have an impact by taking advantage of the dynamics of entrepreneurship in small tourism businesses, mainly when associated with the lifestyle motivations of each local entrepreneur.

This study proposes a comprehensive segmentation model framework of community support and local entrepreneurs for tourism development with Motivation, Opportunity, and Ability approaches using the Moderating Structural Equation Modelling Subgroup method [15].

2 Research Methodology

This study has three variable types: exogenous variables, mediating variables that are also endogenous, moderating, and endogenous variables. Exogenous variables are variables that can impact endogenous variables or bring changes. In the context of this study, endogenous variables refer to variables that are influenced by exogenous variables. The variables utilized in this study include the following:

Support Tourism is the extent to which people assess the effect of tourism in their community in Indonesian Tourism Village, which can be measured through 5 indicators, namely (Y1.1) In general, it is apparent that the positive impacts of tourism in our village outweigh the negative effects, (Y1.2) I believe tourism in my village needs to be actively encouraged, (Y1.3) I support and want to always see tourism in my village as important, (Y1.4) My village should remain a tourist destination, and (Y1.5) My village should support tourism promotion.

Motivation plays a crucial role in an individual's decision-making process, as it significantly influences the direction and intensity of behavior, particularly in the context

of Indonesian Tourism Villages, which can be measured through 5 indicators: (X2.1) I believe tourism can have a substantial economic impact, (X2.2) I believe tourism will be good for economic growth, (X2.3) tourism provides economic variation, (X2.4) tourism because it provides a new source of income for the community, and (X2.5) Tourism plays a crucial role in creating new markets for local products.

Opportunity is a situation that allows and facilitates community involvement in the process of participating in the Indonesian Tourism Village, which can be measured through 4 indicators: (X3.1) Village tourism managers hold regular meetings with the community, (X3.2) Village tourism managers want to hear opinions, (X3.3) Village tourism managers represent interests in tourism development, and (X3.4) Village tourism managers provide opportunities to be part of decision making.

Ability is a multifaceted phenomenon comprising a combination of factors, including awareness, experience, knowledge, skills, access to information, and financial resources. Awareness and knowledge are categorized into two distinct groups in the context of the Indonesian Tourism Village. Awareness can be measured through 4 indicators: (X4.1) realizing problems related to tourism development, (X4.2) following the development of information about tourism development, (X4.3) understanding tourism development, and (X4.4) receiving information about tourism development. Knowledge can be measured through 5 indicators: (X4.5) know a lot about tourism, (X4.6) have knowledge about tourists, (X4.7) know about the impact of tourism, (X4.8) know a lot about my community, and (X4.9) know how I can participate in tourism development in my community.

SEM is a multivariate analysis method that can describe the interrelationship of linear relationships between observed variables (indicators) and variables that cannot be measured directly (latent variables). Latent variables cannot be measured directly but can represent or be measured by one or more variables/indicators Mulaik, S.A [16].

Structural Equation Modeling (SEM) is a powerful statistical analysis technique that merges multiple regression and factor analysis elements to estimate various equations concurrently. SEM serves two primary purposes: it allows for the estimation of interconnected equations simultaneously via the output of the structural model, and it involves representing latent variables (also known as constructs or unobserved variables) based on indicator variables (also known as observed variables) through the output of the measurement model.

Indeed, the structural model entails the connection between independent latent (exogenous) and dependent latent variables (endogenous). Joreskog and Sorbom, as cited in Schumacker and Lomax [17], outlined the structural equation model as follows:

$$\eta = B\eta + \Gamma\xi + \zeta \tag{1}$$

Where η (eta) is a vector of latent endogenous dependent random variables with m x 1 size, ξ (xi) is a vector of latent exogenous independent random variables with n x 1 size, **B** is a coefficient matrix that shows the effect of endogenous latent variables on other variables with m x m size and Γ coefficient matrix that shows the relationship of ξ to η with m x n size, while ζ (zeta) is a random error vector with m x 1 size, with expected value equal to zero. The assumptions of the latent variable structural model equation: $E(\eta) = 0$, $E(\xi) = 0$, $E(\zeta) = 0$ and ζ is uncorrelated with and is a nonsingular

matrix. Next is the measurement model or Confirmatory Factor Analysis Model (CFA). The measurement model (CFA) can be written as follows [17]:

$$y = \Lambda_y \eta + \varepsilon \tag{2}$$

$$x = \Lambda_x \xi + \delta \tag{3}$$

Referring to equations (2) and (3), the covariance matrix in SEM $\Sigma(\Theta)$ is as follows [17]:

$$\Sigma(\theta) \begin{bmatrix} \Sigma_{yy} & \Sigma_{yx} \\ \Sigma_{xy} & \Sigma_{xx} \end{bmatrix} \tag{4}$$

The study's conceptual framework is outlined as follows.

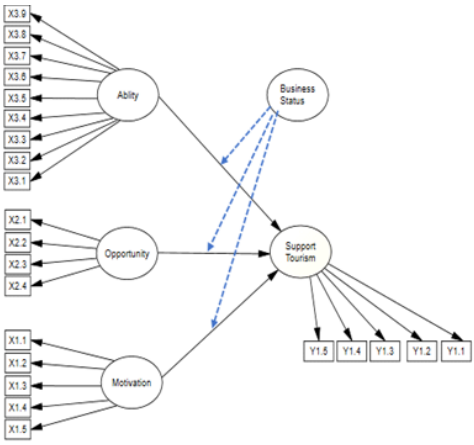

Fig. 1: Conceptual Framework of the Study

3 Results and Discussion

This study has three variable types: exogenous variables, mediating variables that are also endogenous, moderating, and endogenous variables. Exogenous variables are variables that can affect endogenous variables or variables that can cause changes. Endogenous variables, within the scope of this study, pertain to variables that are influenced by exogenous variables. The variables employed in this study encompass the following:

Table 2 above is the latent variable of Motivation (X2) with indicators and loading values X2.1 (0.875), X2.2 (0.910), X2.3 (0.835), X2.4 (0.783), and X2.5 (0.727) provides loading factors > 0.5 and the Composite Reliability (CR) value of 0.916 exceeds the cut-off value for validity and reliability. Additionally, all variance error p-values for

Table 1: Description of Research Variables

Latent Variables	Indicator	Mean	Standard Deristion
	X1.1	4.00	.997
	X1.2	4.01	.980
X1	X1.3	3.91	942
	X1.4	4.14	.901
	X1.5	4.00	867
	X2.1	3.95	1.052
	X2.2	3.94	.983
X3	X2.3	4.04	.988
	X2.4	3.87	.982
	X3.1	3.99	1.008
	X3.2	3.98	.984
	X3.3	3.93	.952
	X3.4	4.07	.944
X4	X3.5	4.00	1.009
	X3.6	4.02	928
	X3.7	4.00	.959
	X3.8	4.00	.988
	X3.9	3.91	.960
	Y1.1	4.01	.958
	Y1.2	4.23	.885
Y1	Y1.3	4.13	.879
	Y1.4	4.30	.857
	Y1.5	4.27	.821

Table 2: Validity and Reliability Test of Latent Variable Indicator of Motivation (X2)

Motivation (X1)	Loading (λ)	p variance error	CR (AVE) [$\sqrt{}$AVE]
X1.1	0.875	0.000	0.916
X1.2	0.910	0.000	(0.687)
X1.3	0.835	0.000	[829]
X1.4	0.783	0.000	
X1.5	0.727	0.000	

each indicator are below 0.05, further supporting their reliability. Meanwhile, the discriminant validity of Motivation (X2) has been fulfilled; this can be seen from the AVE root value of 0.829, which is > 0.5.

Table 3 above is the latent variable of Opportunity (X3) with indicators and loading values X3.1 (0.824), X3.2 (0.840), X3.3 (0.908), and X3.4 (0.817) provide loading factors ¿ 0.5 and the Composite Reliability (CR) value exceeds its cut-off value at 0.911, indicating that it is valid and reliable. Likewise, all variance error p-values in each indicator are ¡ 0.05, so it is said to be reliable. Meanwhile, the discriminant validity of

Table 3: Validity and Reliability Test of Latent Variable Indicator of Opportunity (X3)

Opportunity (X2)	**Loading** (λ)	**p variance error**	**C-R (AVE) [$\sqrt{}$AVE]**
X2.1	0.824	0.000	0.911
X2.2	0.840	0.000	(0.719)
X2.3	0.908	0.000	[848]
X2.4	0.817	0.000	

Opportunity (X3) has been fulfilled; this can be seen from the AVE root value of 0.848, which is ¿ 0.5.

Table 4: Validity and Reliability Test of Latent Variable Indicator of Ability (X4)

Ability	**Loading** (λ)	**p variance error**	**C-R (AVE) [$\sqrt{}$AVE]**
X3.1	0.736	0.000	0.940
X3.2	0.832	0.000	(0.635)
X3.3	0.834	0.000	[0.797]
X3.4	0.829	0.000	
X3.5	0.789	0.000	
X3.6	0.845	0.000	
X3.7	0.797	0.000	
X3.8	0.756	0.000	
X3.9	0.746	0.000	

Table 4 above is the latent variable of Ability (X4) with indicators and loading values X4.1 (0.736), X4.2 (0.832), X4.3 (0.834), X4.4 (0.829), X4.5 (0.789), X4.6 (0.845), X4.7 (0.797), X4.8 (0.756), and X4.9 (0.746) provide loading factors ¿ 0.5 and the Composite Reliability (CR) value exceeds its cut-off value at 0.911, indicating that it is valid and reliable. Likewise, all variance error p-values in each indicator are ¡ 0.05, so it is said to be reliable. Meanwhile, the discriminant validity of Opportunity (X3) has been fulfilled; this can be seen from the AVE root value of 0.848, which is ¿ 0.5.

Table 5 the latent variable representing Support Tourism (X5) exhibits indicators with the following loading values: Y1.1 (0.577), Y1.2 (0.835), Y1.3 (0.838), Y1.4 (0.849), and Y1.5 (0.841). Each loading factor exceeds 0.5, while the Composite Reliability (C-R) value is 0.911, surpassing its specified threshold. Hence, it shows that the variable is both valid and reliable. Likewise, all variance error p-values in each indicator are ¡ 0.05, so it is said to be reliable. Meanwhile, the discriminant validity of Opportunity (X3) has been fulfilled; this can be seen from the AVE root value of 0.848, which is ¿ 0.5.

In structural modeling, it is essential to validate the reliability and validity of each latent variable. Some prerequisites for structural modeling include adherence to normal

Table 5: Validity and Reliability Test of Latent Variable Indicator of Ability (Y1)

Support Tourism(X1)	Loading (λ)	p variance error	C-R (AVE) [$\sqrt{}$AVE]
Y1.1	0.577	0.000	0.894
Y1.2	0.835	0.000	(0.632)
Y1.3	0.838	0.000	[0.795]
Y1.4	0.849	0.000	
Y1.5	0.841	0.000	

multivariate assumptions, ensuring the absence of multicollinearity or singularity, and outliers.

Data normality is a crucial requirement in covariance-based structural equation modeling (SEM). Skewness, kurtosis, and statistical values are examined to assess normality in multivariate data, typically through the Critical Ratio (CR) value. If a 5 percent significance level is used, a CR value between -1.96 and 1.96 (-1.96 CR 1.96) indicates normally distributed data, both multivariate and univariate. Complete results regarding data normality testing on all research variables can be seen from the multivariate CR of 1.705 falls outside the range of -1.96 to 1.96, indicating that the multivariate data distribution can be considered normal.

In statistical analysis, singularity can be identified through examination of the determinant of the covariance matrix. A determinant with a very small or close-to-zero value indicates a singularity issue, rendering the data unsuitable for research. The analysis of the sample covariance matrix yielded a determinant value of 0.019. Despite being close to zero, this value is still greater than 10E-5, indicating that there is no singularity problem with the analyzed data.

Multicollinearity can be identified by observing correlations between exogenous latent variables. The p-value on Covariance is ¿ (α=0,05), so it is said that there is no multicollinearity. The results of the study provide a p-value on each exogenous latent variable: (X1 with X2 of 0.069), (X2 with X3 of 0.213), (X1 with X3 of 0.229), these values are ¿ (α=0.05), hence, there is no multicollinearity problem in the analyzed data.

Outliers are data points with exceptionally high or low values in univariate or multivariate datasets, particularly those that deviate significantly from other data points due to their unique characteristics. When outliers are present, it is essential to identify and understand their origins in order to determine suitable treatment. In this study, the outlier test results are presented in Mahalanobis distance or Mahalanobis d-squared. An observation is considered an outlier if the Mahalanobis value exceeds the critical value from the Chi-square table or if the p1 value is less than 0.001. This study features five outlier data points. However, there are no outliers, as they account for less than 5 percent of the observations. Upon completion of testing the validity and reliability of all latent variables, it has been determined that the data does not exhibit multivariate averages, nor does it display multicollinearity. Furthermore, outliers are below 5 percent. As a result, the latent variables can now be incorporated into the analysis. The path diagram is presented in the following form:

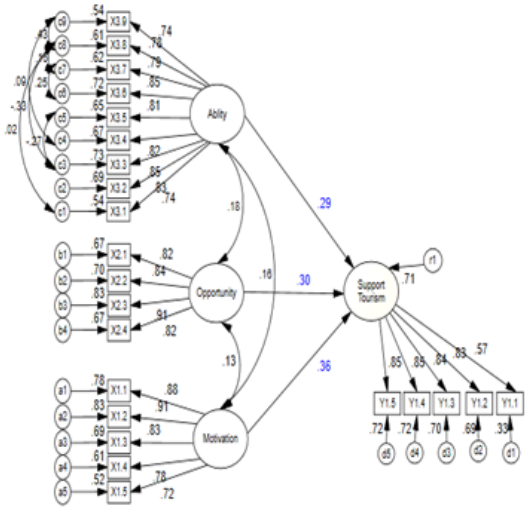

Fig. 2: Model of Motivation (X2), Opportunity (X3), and Ability (X4) to Support Tourism (Y1) Relationship

The outcomes of the measurement model testing carried out using the AMOS software are presented in the Table 6

Table 6: Model Testing Results of Motivation (X1), Opportunity (X2), and Ability (X2) to Support Tourism (Y1)

Goodness of Fit(GoF)	**Cut-Off Value**	**Result**	**C**
Chi Square	Expected to be small	1275.192	with df= 796 is 862.747 Poor Fit
Significance Probability	0.05	0.000	Poor Fit
RMSEA	0.08	0.079	Good Fit
GFI	0.90	0.901	Good Fit
AGFI	0.90	0.857	Marginal Fit
CMIN/DF	2.00	1.602	Good Fit
TLI	0.90	0.935	Good Fit
CFI	0.90	0.948	Good Fit

From the table above, each path coefficient can be interpreted through the following structural equation:

$$Y1 = 0.254\ X1 + 0.176\ X2 + 0.169\ X3$$

Where,
Y1 : Support Tourism
X2 : Motivation
X3 : Opportunity
X4 : Ability

The path coefficient testing results depicted in Figure 2 are detailed in the table 7. Table 7 exhibits demonstrate the interpretation of each path coefficient as follows:

Table 7: Results of Structural Model Testing ofSupport Tourism Model (Y1)

Variable	Coefficient	Critical Ratio (C.R	p-value
Motivation(X1) Support Tourism(Y1)	0.254	4.049	0.000
Opportunity (X2) Support Tourism (Y1)	0.176	2.359	0.018
Ability(X3) Support Tourism (Y1)	0.169	2.249	0.025

1. Motivation (X1) has a statistically significant and positive influence on Support Tourism (Y1). This is demonstrated by the positive path coefficient of 0.254, with a critical ratio (C.R.) value of 4.049, and a significance probability (p) of 0.000, which is lower than the determined significance level (α) of 0.05. Consequently, Motivation (X1) has a direct effect on Support Tourism (Y1) of 0.254, indicating that for every increase in Motivation (X1), there is a corresponding increase in Support Tourism (Y1) of 0.254.
2. Opportunity (X2) has a positive and significant influence on Support Tourism (Y1). This conclusion is supported by the positive path coefficient of 0.176, with a critical ratio (C.R.) value of 2.359 and a significance probability (p) of 0.018, which is lower than the predetermined significance level of 0.05. Consequently, Opportunity (X2) exerts a direct effect on Support Tourism (Y1) with a coefficient of 0.176, signifying that a unit increase in Opportunity (X2) leads to a 0.176 unit increase in Support Tourism (Y1).
3. Ability (X3) exerts a positive and statistically significant influence on Support Tourism (Y1). This is indicated by a positive path coefficient of 0.169 with a critical ratio (C.R.) value of 2.249, yielding a significance probability (p) of 0.025, which is below the predetermined significance level () of 0.05. Therefore, it can be inferred that Ability (X4) has a direct impact on Support Tourism (Y1) by 0.169, signifying that an increase in Ability (X4) will result in a 0.169 unit increase in Support Tourism (Y1).

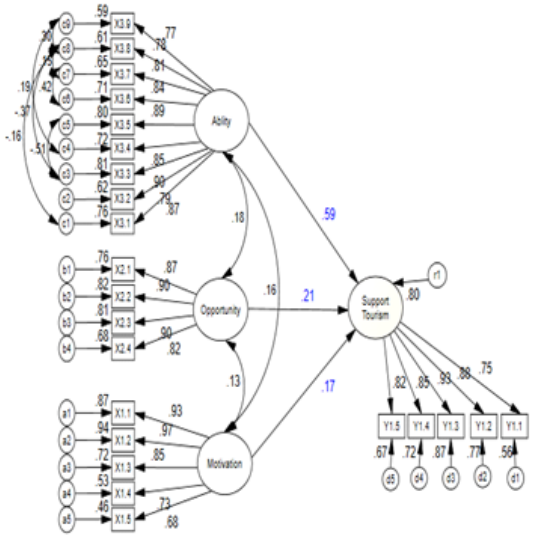

Fig. 3: Model of Motivation (X2), Opportunity (X3), and Ability (X4) to Support Tourism (Y1) Relationship (Entrepreneurs)

Table 8: Results of Testing the Structural Model of the Support Tourism Model (Y1) for Global, Entrepreneurs, and Non-Entrepreneurs

Variable	Coefficient (p-value)		
	Global	Entrepreneurs	Non-Entrepreneur
Motivation (X1)	0.357	0.172	0.401
Support Tourism (Y1)	(0.000)	(0.036)	(0.000)
Opportunity (X2)	0.304	0.124	0.339
Support Tourism (Y1)	(0.000)	(0.050)	(0.000)
Ability (X3)	0.287	0.586	0.196
Support Tourism (Y1)	(0.000)	(0.000)	(0.038)
R^2	0.713	0.796	0.676
GFI	0.903	0.918	0.937
RMSEA	0.079	0.073	0.070

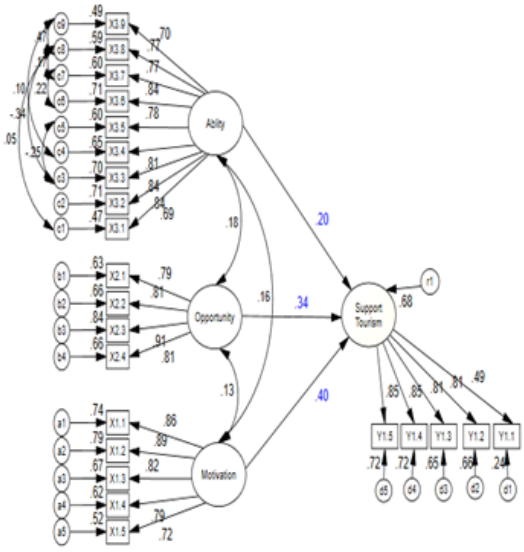

Fig. 4: Model of Motivation (X2), Opportunity (X3), and Ability (X4) to Support Tourism (Y1) Relationship (Non-Entrepreneurs)

Furthermore, support tourism segmentation was carried out using subgroup analysis. The first segment was entrepreneurs, with 100 respondents and the second segment was non-entrepreneurs, with 228 respondents. The support tourism segmentation model is presented in the following Figure 3 and Figure 4. Then, the outcomes of the assessment of the global model, both for entrepreneurs and non-entrepreneurs, are laid out in the Table 8.

Table 8 shows that all models are fit, in the global model, segment 1 (entrepreneurs), and segment 2 (non-entrepreneurs). In segment 1, the dominant factors contributing to support tourism are ability (0.586), motivation (0.172), and opportunity (0.124). On the other hand, in Segment 2 (non-entrepreneurs), support for tourism is influenced by motivation (0.401), opportunity (0.339), and ability (0.196). The global model, the factors that influence support tourism have almost equal coefficients, namely motivation (0.357), opportunity (0.304), and ability (0.287).

In this study, respondents were divided into entrepreneurs and non-entrepreneurs. The data indicates varying results across different groups. In the case of entrepreneurs, the dominant factors are Ability, Motivation, and Opportunity. However, for global and non-entrepreneurs, Motivation, Opportunity, and Ability to support tourism are the prevailing factors among respondents. This departs from the goal of entrepreneurs to develop tourism in their village and get profit, so entrepreneurs are very aware of the purpose of tourism development and potential problems that occur, and they are very actively involved in the design.

Entrepreneurs make various considerations such as the advantages in their village, opportunities that can be developed from tourists who attend, weaknesses that must be

overcome and the threat of many tourist destinations and businesses in the surrounding villages. After gaining much knowledge and having a positive impact, entrepreneurs will be steady in investing.

For non-entrepreneurs, starting from the motivation to help develop tourism, observe the surrounding environment, and ensure the impact of tourism can provide economic improvement and new market potential for the community, this group of non-entrepreneurs will ensure the opportunities that exist and will begin to get involved in tourism development in their village.

4 Conclusion

Based on the results of the analysis and discussion that has been done, it can be concluded as follows. Motivation, Opportunity, Ability, and Support Tourism measurement model is valid, reliable, and significant on each indicator. The structural model of Support Tourism is a fit model for the global model, entrepreneurs, and non-entrepreneurs. Segment 1, the dominant factors in supporting support tourism are ability (0.586), motivation (0.172), and opportunity (0.124), while in Segment 2 (non-entrepreneurs), support tourism is influenced by motivation (0.401), opportunity (0.339), and ability (0.196). In the global model, the factors that influence support tourism have almost equal coefficients, namely motivation (0.357), opportunity (0.304), and ability (0.287).

References

1. E. Erul, K. Woosnam, Journal of Travel Research **61**(2), 362–377 (2022). DOI 10.1177/0047287520987619
2. Journal of Hospitality and Tourism Management **38**(November 2018), 1–4 (2019). DOI 10.1016/j.jhtm.2018.11.003.
3. I. Muresan, C. Oroian, R. Harun, F. Arion, A. Porutiu, G. Chiciudean, A. Todea, R. Lile, Sustainability (Switzerland **8**(1), 1–14 (2016). DOI 10.3390/su8010100
4. S. Ganji, L. Johnson, S. Sadeghian, Current Issues in Tourism **24**(9), 1304–1318. DOI 10.1080/13683500.2020.1784106. HYPERLINK ”https://doi.org/10.1080/13683500.2020.1784106,(2021)”,(2021
5. Current Issues in Tourism **22**(14), 1670–1678 (2019). DOI 10.1080/13683500.2018.1465030.
6. Procedia - Social and Behavioral Sciences **36**(June 2011), 333–341 (2012). DOI 10.1016/j.sbspro.2012.03.037
7. T. Lee, Tourism Management **34**, 37–46 (2013)
8. T. Lee, F. Jan, Tourism Management **70**(September 2017), 368–380 (2019). DOI 10.1016/j.tourman.2018.09.003
9. S. Prabhakaran, V. Nair, S. Ramachandran, Procedia - Social and Behavioral Sciences **144**, 290–295 (2014)
10. Journal of Destination Marketing and Management **6**(3), 196–206 , (2017)
11. C. Tosun, Tourism Management **27**(3), 493–504 (2006)
12. B. Johannisson, A. Nilsson, Entrepreneurship and Regional Development **1**(1), 3–19 (1989). DOI 10.1080/08985628900000002.
13. A. Peredo, M. McLean, Journal of World Business **41**(1), 56–65 (2006). DOI 10.1016/j.jwb.2005.10.007.

14. Y. Zhang, J. Chan, Z. Ji, L. Sun, B. Lane, X. Qi, Current Issues in Tourism **23**(14), 1758–1772. 2020a).
15. A. Rumengan, J. Rumengan, C. Wibisono, B. Otok, International Journal of Mechanical Engineering and Technology **9**(10), 632–644 (2018)
16. S. Mulaik, *Linear Causal Modeling With Structural Equation* (Chapman and Hall, USA, 2009)
17. R. Schumacker, R. Lomax. A beginner's guide to structural equation modeling (2004). Psychology press.